

### Hilde Bjørkhaug

## Agricultural Restructuring and Family Farming in Norway

### Strategies for sustainable practices

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Agricultural Restructuring and Family Farming in Norway - Strategies for sustainable practices

Hilde Bjørkhaug

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Summary

The report is the author's dr.polit thesis (sociology) at the University of Science and Technology. The thesis consists of seven published papers and a synthesizing introduction.

Why does family farming still exist? Why do many choose to farm when economic output fails, policy continuously changes and prospects for an improvement in the farming situation seem unlikely? Making a living is one side of it, maintaining traditions and values another. Structural perspectives have dominated traditional analysis of family farming. This thesis adds an actor sensitive perspective to the classical questions of the sociology of agriculture when it asks; how people in farming, who hold a diversity of backgrounds and engage in a variety of modes of production, challenge or adapt differently to new societal expectations of a social, environmental and economically sustainable agriculture. Gender perspectives are employed on these questions.

Keywords

Agriculture, restructuring, family farming, sustainability, gender, organic

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Agricultural Restructuring and Family Farming in Norway -Strategies for sustainable practices

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The work on the thesis has developed over a number of years and its structure has come into its present form as answers to one question have raised a series of new ones. The direction is mainly my own choice and weaknesses in the form and conclusions are my own responsibility. For the strengths and hopefully interesting results in this thesis, I will share the credit with many.

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<sup>&</sup>lt;sup>1</sup> Næringsstrategier i regionale matvaresystemer.

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Trondheim, September 2007 Hilde Bjørkhaug

### **Popular summary**

To what degree are changes in international and national agricultural policy seen in the practical organisation of Norwegian family farming? How do farmers explain the motivations and attitudes that underpin certain agricultural practices, and do such assertions correspond to sustainable practices in Norwegian agriculture? The analyses of farmers' motives and strategies are in this thesis delimited within the interrelationship of the following three themes: the political economy of agriculture, the organisation of family farming and the emphasis on different conceptions of sustainability in agricultural policy and practice.

Rationalisation and mechanisation has, for a long time, been one of the key characteristics of modern agriculture. More recently, claims of efficiency and economic sustainability have been challenged due to increasing concerns of environmental degradation and the negative social consequences relating to the industrialisation of agriculture. In Norway, one of the responses has been to formulate a policy aimed for both sustaining Norwegian agriculture within an international market, whilst also to enhancing the Norwegian farmers' ability to keep up farming in the Norwegian market. One tool through which to achieve this has been to emphasise the multiple functions of agriculture that endure beyond the production of food and fibre. The key consequences of national and international agricultural policies for farmers are discussed in this thesis (papers 1-7).

A number of analyses relating to structural changes and men and women's time use and work patterns have been carried out on Norwegian farming. In addition to the identification of an ongoing pattern of fewer and bigger farms in Norway, the literature shows that male farmers work more hours on the farm and women work more hours off-farm. This thesis elaborates further on this and at least one gender dimension is found – an ongoing process of masculinisation on farms where a male is the principal farmer (papers 2, 3 and 4). Parallel, a second gender process is found when women are main operators of farms; her partner is more likely to be involved in the daily operations. Women farmers also tend to run smaller farms, earn less from farming and live in households where off-farm income is the main source of income. It is also shown that active women farmers maintain a *traditional* family farm model, while men seem to apply a *modern* adaptation of family farming, the one-man businesses. During the time-span of the investigation for this study (1987 to 2004), the share of women

farmers has risen slightly. However, even though women and men hold the same formal rights to inherit a farm on Allodial rights, evidence suggests that the majority of the newcomers to farming are still men. While external factors, such as changing agricultural policy and price on agricultural produce, are greatly influential on structural and economic conditions on farms, tradition and culture also explain *how* work is executed and *who* that is responsible for the different daily operations on the farms.

The analyses in this thesis further reveal the various motivations for the enactment of farming (papers 5, 6 and 7). While the 'allodial boy' often chose to follow in his father's footsteps and become a farmer because of traditional commitments, expectations and plight, newcomers do not hold such obligations. These newcomers are shown to be less interested in upholding traditions and more likely to opt for new practices such as organic farming or engage as new innovators with an entrepreneurial spirit. *Change* is a characteristic that suits newcomers, as well as women in farming. However, *adaptation* seems to be a more common strategy on a traditional farm, where knowledge and experience is transferred between the family's men.

Environmental and ecological questions have been more evident in agricultural policy during the last decades and policy instruments have been developed to encourage changing farming practices (e.g. organic farming). This thesis elaborates on these issues and shows how different farmers adapt to or fit in with this shift (papers 5, 6 and 7). The characteristics of farmers differ. Organic farmers are for instance younger, have stayed more years at school and are more often recruited from outside agriculture than are conventional farmers. Organic farmers are more interested in questions concerning environmental issues and nature, this is even more the case for female organic farmers. When comparing farmers' and consumers' attitudes, organic farmers and consumers share the same ideas of why they choose the organic option. Both groups are concerned about environmental issues relating to the production of food, more so than concerns for health issues. On the specific issue of using gene-technology in agricultural production, organic and conventional farmers are likewise sceptic, and farmers more so than consumers. This shows how farmers differ in opinion of the status of environmental degradation and animal welfare in traditional production, but share a common view that gene-technology is not welcome in Norwegian agriculture (paper 7).

The thesis concludes with the finding that future agriculture depends upon a diversity of farmers, including both newcomers and more traditional configurations of inheritance and

ownership, as well as owners and operators of large and efficient productions, as well as small-scale farms that sustain production and cultural landscapes even though the farm itself does not produce a sufficient income for the farm household. Today, most Norwegian family farm households collect the bulk of their income from off-farm work. There is, however, a limit of how long farmers are interested in using off-farm income for investing in and maintaining the farm. This thesis shows that optimism and the will to invest in the farm is low in the group of farmers that collect the least income from farming (paper 4). This group counts for almost half of the present Norwegian farm population, presenting a depressing indication of what may happen if incomes from farming continue to decrease. The thesis does however also show that Norwegian family farming is founded on strong traditions and wishes to maintain the farming occupation and a rural lifestyle (paper 5). Cultural issues such as farming values, traditions, self-esteem and identity will hopefully see family farming endure into the future in Norway.

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### List of papers included in the thesis<sup>1</sup>

# 1. Multifunctional agriculture in policy and practice? A comparative analysis of Norway and Australia

Journal of Rural Studies 24(1):98-111.

#### 2. Gender and work in Norwegian family farm businesses

Sociologia Ruralis 48/2:152-165.

# **3.** Masculinisation or professionalisation of Norwegian farm work - a gender neutral division of work on Norwegian family farms?

Journal of Comparative Family Studies XXXVIII, (3): 423-434.

#### 4. Future prospects of the average Norwegian farm

Pp. 200-5 in Langeveld, Hans and Niels Röling (eds): *Changing European farming systems for a better future. New visions for rural areas.* Wageningen: Wageningen Academic Publishers.

# 5. Sustainable agriculture in the Norwegian farmers' context: Exploring farming habitus and practice on the Norwegian agricultural field

The International Journal of Environmental, Cultural, Economic and Social Sustainability 4/2 123-131.

### **6.** Is there a female principle in organic farming? An interpretation of data for Norway Pp. 195-209 in Holt, G. C. and M. Reed (eds.), *Sociological Perspectives of Organic Agriculture: from Pioneer to Policy*. Wallingford: CABI.

# 7. Foundations of production and consumption of organic food in Norway: Common attitudes among farmers and consumers?

Agriculture and Human Values. No 20, 2003:151-163.

<sup>&</sup>lt;sup>1</sup> Papers 1 and 2 were published after dissertation.

### Introduction

Farmer's opportunities and strategies are influenced by a series of different factors. Policy settings and economic conditions are only two, but important parts of the farming reality. Others are those embedded norms and traditions that family farming as an institution preserves and continues to pursue. This thesis argues that it is of advantage to challenge the dichotomies of structural and actor oriented social scientific approaches to the study of agricultural restructuring, family farming and farmer adaptation. The argument builds upon the critiques of structural theories which ignore individual action on the one hand, and actor oriented approaches which overlook the structural factors surrounding action on the other.

Why does family farming still exist? Why do many choose to farm when economic output fails, policy continuously changes and prospects for an improvement in the farming situation seem unlikely? There may be several explanations for that. Making a living is one side of it, maintaining traditions and values another. Structural perspectives have dominated traditional analysis of family farming. However, this thesis adds an actor sensitive perspective to the classical questions of the sociology of agriculture when it asks; how people in farming, who hold a diversity of backgrounds and engage in a variety of modes of production, challenge or adapt differently to new societal expectations of a social, environmental and economically sustainable agriculture? Gender perspectives are employed on these questions.

The thesis outlines the political and institutional framework within which the family farm operates. The policy setting is complex, based partly upon national interests, and partly upon global influences (paper 1). Analyses are carried out on how central changes affect the working conditions and income of Norwegian farmers over the last decades (papers 2 and 3). Questions are raised on how farmers respond and cope with changing conditions, such as reduced profitability in farming when access to work outside the farm becomes of crucial importance (papers 2, 3 and 4) and new claims of environmental and cultural heritage considerations are imposed (papers 5, 6 and 7). Changes in women's and men's prospects, motives and attitudes are returning topics throughout the thesis.

The main focus for this thesis is placed on *farmers* on Norwegian family farms as the unit of analysis. *Family farming* is by far the most common way of organising agricultural

production in Norway, as in most other Western countries, (see e.g. Almås, 1984; Buttel, Larson and Gillespie, 1990; Blekesaune, 1996a; Gray and Lawrence, 2001). What constitutes a family farm, however, has been subject to numerous debates, often related to whether the farm itself can support the family with sufficient income and labour or if family ownership is still a sufficient conceptual factor (see e.g. Gasson and Errington, 1993; Hill, 1993; Djurfeldt, 1995; Blekesaune, 1996a). In this thesis weight is given to the connection between family ownership and the management of the daily farm operations in the definition of a family farm.

The *farmer* is in this thesis the person that operates the farm. Within family farming, the owner and the farmer is normally the same person who carries out the farm work together with his or her partner. In this thesis farmers are further partly treated as one group as if farmers in general can represent a comparable size, a culture or a role-interpretation. Farmers are however involved in numerous types of productions (such as agriculture, horticulture, orcharding and dairying, or a combination of these). Given the uniqueness of farming as both an occupation, a residential setting and a lifestyle, farmers have numerous and intertwining roles, such as business managers and on- and off-farm worker. Although this thesis deals with farmers as a social group, where necessary, these sub-groupings of farmers are identified. For example, in examining agricultural statistics, farmers are identified by gender, age, income and type of production (such as milk, meat or grain) and by styles of farming, such as organic and conventional.

*Farm work* is work relating to the farm production. In the literature, farm work is most often defined this way, only as work carried out in connection to the actual production: hours spent on milking, ploughing, planting etc is counted. Some survey data might count activities such as record keeping and acquiring information and knowledge as part of farm work, however, much work in connection to the farm, like work in the house, preparing food for farm-household members and employed personnel, taking care of family members, cleaning etc. have traditionally not been recognised as farm work itself (Garnaut, Rasheed and Rodriguez, 1999). This thesis analyses the relationship between on- and off-farm work among men and women on the farms.

The term farmer is not neutral, farm work is gendered, and so is the notion of farmer itself. Farming is gendered when it is understood as predominantly masculine work, for instance, when the farmer is perceived to be male, and women are categorised as wives, mothers and assistants on the farms (see e.g. Brandth, 1994; 2002; Alston, 1995; 1998). This thesis broadens this understanding and treats women and men with equal interest and presents a diversity of motivations, attitudes and practices that goes beyond the traditional dualistic presentation of men and women. Analyses are carried out on farm data speculating that the practices of organic farming conform to existing feminine principles of action, principles which both men and women might embody (paper 6).

#### The interrelationship between farmers, policy and sustainability

The analyses of farmers' motives and strategies are delimited within the interrelationship of the following three themes: the political economy of agriculture, the organisation of family farming and the emphasis on different conceptions of sustainability in agricultural policy and practice. The theoretical entry to this thesis rests on an assumption that the opportunities and constraints people face are influenced by their surroundings and the way in which they interpret the social context. It is argued here that action is not limited to structural processes, but do also depend on individual's capability to practice. I employ and combine both structural and actor-sensitive perspectives in this thesis.

The political economy of agriculture is a structural perspective describing national but also global agri-food development and the impact of such external factors at the farm level. This framework is used to analyse how farmers adapt to the changes in political and economic conditions outside the farm. The organisation of family farming develops in a relationship between farmers' motives and strategies and the interpretations that farmers make of their own situations, and opportunities within these situations. These are analysed as structural patterns, aggregated changes in family farm organisation over time and actor-oriented responses, such as farmers' motives and attitudes towards their own farming practice as responses to the structural conditions.

Actor-sensitive approaches are also employed to analyse and interpret how and why farmers respond and act differently within seemingly equal conditions. Analyses of farmers' different conceptions of sustainable practices and adaptations can involve at least a tripartite consideration: 1) evaluation of the farm economy, 2) the significance of social conditions on the farm and in the rural community and 3) opinions of the quality of environmental surroundings of the farm. The relevance of taking different issues of sustainability into

consideration is partly built on the farmers' individual subjective understanding, but also on how much emphasis is laid on each element in policy and society.



**Figure 1.** Model showing the interrelationship between family farmers' motives and strategies and the political economy, the family farm organisation and conceptions of sustainability.

This introductory section in the thesis continues with a short summary of the papers forming the thesis. This is followed by an outline of the theoretical foundation of the thesis. The theory section reviews central events in the development of the sociology of agriculture, before it delves into specific perspectives of family farming. Strategies employed by farmers to cope with change are discussed here as is the issue of gender in farming. It ends with a section on emerging environmental awareness in the sociology of agriculture. Theory is followed by a section on data and methods. Both quantitative and qualitative data have been used in the papers. The section outlines data, reflects on the quality of each source and on the usefulness of combining them. The final part of this compilation synthesise the main conclusions of this doctoral thesis. Part 2 of the thesis consist of the papers. Original copies are presented for printed journal articles (papers 1 thru 5 and 7) and book chapters (papers 4 and 6).

### **Paper Summaries**

# Paper 1. Multifunctional agriculture in policy and practice? A comparative analysis of Norway and Australia

Agricultural production ideals and the policy settings regulating the market situation for agricultural products have changed dramatically during the last decades. National intentions and opportunities to govern agriculture are questioned. The first paper in the thesis outlines Norwegian agricultural policy and practice set in a comparative perspective to one of its ideologically contrasting competitors on a world market, Australia.

The paper addresses how ideals of productivist agriculture in the western world have faded as the unintended consequences of intensive agriculture and pastoralism have led to rural decline and environmental problems. In both Norway and Australia, there has been an increasing acceptance of the equal importance of social and environmental sustainability as well as economic sustainability on a public discourse level. Alongside this shift is a belief that primary production needs to move away from an intensive, productivist-based agriculture to one that may be defined as 'post'-productivist. In the paper, it is argued that the dualism of productivism and post-productivism as concepts on agricultural policy regimes are too simplistic and it is further discussed whether multifunctional agriculture is a better concept for a comparison of rural primary production at two extreme points of the scale, the marketoriented, liberalistic Australian agriculture and the market protected small-scale Norwegian agriculture. Multifunctionality in Australia is found to rate relatively weakly as an ideology or policy and even less as a discourse or practice. Hence it is situated toward a 'weak' end of a continuum of a level of multifunctional agriculture. In Norway, multifunctional agriculture has thrived within a protectionist setting with the support of the public, the state and agricultural actors. In this sense multifunctionality is very clearly a policy, practice and discourse that aims to preserve and conserve rural spaces, the cultural landscape, farming way of life and food safety. Norway is, as such, situated toward a 'strong' end of a continuum of a 'level of multifunctional agriculture'. The paper provides a contextual description of the peculiarities of a Norwegian agricultural format, which presents certain opportunities for men and women in Norwegian farming to maintain agricultural production and a rural lifestyle. It

is within these settings family farm strategies and motivations are developed, which is explored in the papers that follow.

#### Paper 2. Gender and Work in Norwegian Family Farm Businesses

The classical question of agricultural sociology is addressed in this paper. Why and how can family farming survive the constraints of global capitalism that pervades all other economic activities?

The traditional way of organising agricultural production in Norway has been through family farming. Several attempts have been made by different theorists to define the family farm for the purpose of analysing structural developments over time and across national and regional borders. A family farm is in this paper defined by a principle of ownership of the farm through kinship over a number of generations. The paper examines the structural changes on Norwegian family farms, basing the arguments upon the impact of increased competition and falling prices and subsidies. The traditional strategy employed has been to increase total household *income* on the farm through *working* off-farm. This paper maps; a) changes in income allocation and work strategies among men and women on family farms over time, and c) shows income allocation and work strategies among men and women as farmers and as farmers' spouses.

Empirical data from Norwegian farms and farmers are analysed within the time-span of 1987-2004. Continuing changes in work and income allocation on Norwegian farms are shown: Norwegian farms depend more and more upon income from off-farm work. Partly, this means that farmers, as *the* main operators of the daily production on the farm, work more off-farm as farm output is decreasing in value. A likewise important finding is that the farmer's partner, most often a wife, is increasingly engaged in the off-farm labour market. In the period studied, more women entered agriculture as farmers. Gender differences are, however, omnipresent in the organisation of farms operated by men and women. The main structural trend shows that farming men are professionalising as 'one-man farmers', having the input of a partner or hired workforce when farm size (hectares cultivated land) increases. Women farmers were found, to a greater degree, to be depending upon their partner's assistance in the farm work, independent of the size of the farm.

Under capitalisation, production is supposed to be dividing from the household economy of the farm. With increasing economic pressures upon the structure of the farm, it has been predicted that traditional manifestations of the family farm are coming to an end. This thesis can however not support "extermination-theories" of family farming, but shows how the structures of organising work and income at the farm changes and adapts to these shifting external frameworks.

# Paper 3. Masculinisation or professionalisation of Norwegian farm work - a gender neutral division of work on Norwegian family farms?

Are structural changes in family farming a gender neutral development in such a way that women gain the same opportunity to professionalise as independent farmers such as men?

The overall trend in Norwegian agriculture has been described as a transformation of farming from one being based on the whole family's contribution to a one-person occupation. These changes in farm work on Norwegian family farms have been described as a *masculinisation process* whereby farming has become a business controlled by and executed by men. This process has also further concentrated popular constructions of 'the farmer' as a masculine concept and a male occupation.

The paper analyses data from surveys of farming couples in the years 1995 and 2002. The main objective is to test whether changes in men and women's farm work can be described as a transition towards a general one-person farm structure in Norway. The main hypothesis put forward is that men and women tend to specialise in either on-farm or off-farm work, and that their allocation of work time depends upon their educational training in agriculture, their interests in farm work, and the capacity of the farm to provide work and income for the family. If this is the case, the hypothesis of masculinisation as a professionalisation of farming among men into one-man farming should be rejected. An alternative hypothesis of a gender-neutral professionalisation of farming could be posed, where both men and women, as one person operators tend to specialise in farm work and their partners perhaps become their assistants when needed. This latter pattern was not found. Norwegian agriculture is still based upon the masculinisation process. On male-headed farms, men do most of the farm work and interestingly, the amount of work they do has increased from 77 to 84 percent since 1995. The pattern is different on farms operated by women. As found in the previous paper, women are

more likely to farm along with an active farming partner. A gender-neutral professionalisation of Norwegian farmers was, as such, not identified.

#### Paper 4. Future Prospects of the Average Norwegian Farm

The average family farm household in Norway is highly dependent upon income from off-farm work. Is this a sustainable prospect for maintaining the family farm? The average farmer holds firm to her or his motivation to maintain production levels, invest and expand if necessary. Still, farmers may lose the motivation to remain in farming if returns from production continue to diminish.

As agriculture is restructuring, Norwegian farms are increasing in size, both in the crop growing area and livestock capacity. The economic output of farming is however not corresponding to increased production and fewer farms can offer a livable income for the farming couple. Papers 2 and 3 shows that many women have left farming for off-farm income but also that male farmers are seeking additional income off the farm. In addition to that, Norwegian agricultural income is highly dependent on a variety of subsidies which are increasingly under threat. The present agricultural policy, which is influenced by ongoing WTO negotiations and continuous discussions on EEA and EU related topics, among other things, is leading to reductions in direct production subsidies. Future farmers are advised to either rationalise by more efficient productions or find new ways of developing businesses or niche productions based on agricultural resources. The advice given to the owners of *average* or ordinary farms is to 'get big' in order to increase production, or to specialise. If not, their future in farming is unlikely to be successful.

The paper explores farmers' adaptation to agricultural policy, and with that, farmers future prospects, measured through an assessment of their 'will to invest' in their farm properties. Explicit research questions raised are: What is the economic reality of the average Norwegian farm? Who runs the average farm? How do the farmers view the future? What are the characteristics of an optimistic owner of a farm as compared to a pessimistic one?

In 2004, Norwegian farmers were surveyed on their future plans in agriculture. These data were analysed and some patterns appeared: The average Norwegian farm household collects between 25 and 50 percent of its income from the farm. The main operator is most often a

man close to the age of 50 years, who is farming on inherited Allodial rights. Many of the farmers surveyed believed that someone within the family would take over the farm in the future. The future prospects of farming were operationalised as the 'will to invest' in farm property and land as a measure of optimism about the future in farming. The analysis showed that those holding an optimistic view in relation to the future economic prospects of farming held a stronger 'will to invest' than others. The responses from *average* farmers, considered through household income from farming, did not differ from *high-income farmers* when questioned about maintaining investments in the family farm over time. It was found that *low-income* farms were the most vulnerable. Farmers on those farms did not possess the same 'will to invest' in the farm over the long term. Lack of investments and productive activities on these farms will possibly result in the discontinuation of farming activities.

# Paper 5. Sustainable agriculture in the Norwegian farmers' context: Exploring farming habitus and practice on the Norwegian agricultural field

Sustaining farming is more than a question earning money. Similarly, agricultural sustainability is more than economic profit. Farmers cite different reasons regarding the choice of agriculture as their occupation. Some farm out of family traditions, while others seek the rural lifestyle. This paper gives an insight into a broad spectrum of motives behind farming in Norway.

As elaborated in paper 1, the Norwegian Ministry of Agriculture have stated that beyond its primary role of producing food and fibre, agriculture also contributes to the viability of rural areas, food security, cultural heritage and environmental benefits such as the agricultural landscape, agro-biological diversity, land conservation and high standards of plant, animal and public health. These are all components of 'triple bottom line' sustainability which contains the elements of economy, people and nature. These policy goals are in surveys recognised as 'good' and strongly supported by Norwegian farmers and the population in general. But what do the farmers recognise as a "sustainable" agriculture? The paper raises several questions: What is engaging Norwegian farmers? How do different groups of farmers' conceptualisations of sustainability correspond to a 'politically-correct' definition of involving the triple bottom line definition of sustainability where the economy, society and environment are considered equally?

These questions are explored through analysis of semi-structured interviews with Norwegian farmers. Theoretically, the analysis rests on assumptions based on Bourdieu's (1990) concepts of field and habitus whereby farmers are viewed as reflexive and creative, but at the same time, unconsciously constrained by their social inheritance. In such a perspective, differences in farmers' interpretations of sustainable farming are revealed, showing how those interpretations correspond to traditional farming values and practices.

Analysis revealed a dominant style of farming habitus, which was referred to as 'typical' in the paper. Several additional, although less regular, forms of habitus were also found depending upon farmers' backgrounds, or the gender of the farmers in the study. This allowed for the conceptualisation of practices as traditional or alternative ways of practising agricultural production.

Sustainability as a concept was found to be irrelevant or insignificant in Norwegian farmers' everyday operations. However, through the way in which farmers' talked about their concerns, it is possible to deduce that the different elements of the 'triple bottom line' definition of sustainability are relevant. Farmers are concerned about both economic and social sustainability. Environmental sustainability, on the other hand, does not seem to be a pressing issue among most Norwegian farmers, with the exception of organic farmers and some women farmers, who expressed concerns about environmental degradation in conventional farming. Farmers' understanding of sustainability is not connected to all elements of sustainability in a theoretical sense - but to maintain agricultural activities on Norwegian farms as a practical goal. The economic survival of the farms might consequently result in social and environmental sustainability.

The paper concludes that a diversity of farming habitus is necessary for the future agriculture. When farmers with a 'typical' farming habitus loyally maintain the traditional practices of family farming, newcomers might also prove their importance as agents of change, adapting and reshaping the format of farming when changes are needed.

# Paper 6. Is there a Female Principle in Organic Farming? An Interpretation of Data for Norway

Some branches of feminist theories claim that women are closer to nature and are therefore able to manage nature in a more sustainable manner than men. In particular, the idea that women practice a more environmentally friendly or ecological style of management is a key assumption of this difference. Is this so? Do women practice farming differently from men and if so, are they better farmers?

The paper explores whether female farmers in Norway represent different management values and attitudes to male farmers, or whether male and female organic farmers together represent a more feminine way of farming. Using quantitative data collected from a survey of organic and conventional farmers in Norway in 1999, the paper analyses attitudes and motives of male and female farmers in conventional and organic productions, and examines the relationship between attitudes and farm management structure.

Analyses have shown that there is a higher proportion of female farmers in organic than in conventional farming in Norway. This could be explained by a theory of 'organic' as being a feminine value, but could equally be a strategy to demarcate a feminine arena within the agricultural sector. The analysis elaborates further upon the theory of a feminine principle in organic farming by reaching beyond gender stereotypes. The paper discuss' the diversity of femininities and masculinities in both organic and conventional farming by comparing such characteristics across the sexes and production formats.

Overall, the motives and attitudes analysed present little evidence to support the notion that 'all' women hold different values and attitudes to men when it comes to farming practices. More often than gender, it is the values associated with organic production that distinguishes farmers from each other. Rather than indicating a feminine-masculine dichotomy, the analysis indicates a dynamic scale combining gender and form of production; placing female organic farmers at one end of the continuum and conventional male farmers at the other. Male organic and female conventional farmers are situated between these categories, dependent upon issue. As such, questions of whether women are better farmers are traversed, showing that the production of farming (organic or conventional) is a better indicator of farming practice than gender.

The final paper elaborates further on farmer's environmental attitudes in organic and conventional farming, comparing farmer data to consumer data.

### Paper 7. Foundations of production and consumption of organic food in Norway: Common attitudes among farmers and consumers?

The Norwegian Agricultural Authority stated that the level of organic production should reflect the market interest for these products. This paper compares the attitudes of those who demand organic foods with the farmers who supply these goods. Are politicians right in suggesting that modern consumers are the ones influencing farming practices?

The production and consumption of organic food is small-scale in Norway, when compared to neighbouring countries in Europe. The paper takes a point of departure from research on attitudes towards organic farming in Norway by showing that most consumers find conventionally produced food to be 'good enough'. It is argued that demands for organic produce increase when the level of industrialisation of agriculture is linked to the frequency of food scandals. Norwegian agriculture is characterised by small-scale production and has experienced few problems with food-borne diseases and chemical contamination. The paper suggests that this might be an important explanation of why the demand for organic products is low in Norway.

Analysis of survey data from farmers and consumers from 1999 shows that there are similarities between groups of consumers and organic and conventional producers of food, when it comes to attitudes concerning environment, use of gene technology, and animal welfare. Concerns about these issues are related to the desire to consume organic products. Conventional farmers are found to be comfortable with the present format of the "small-scale" Norwegian agricultural practice. Unlike organic farmers and consumers, conventional farmers do not see any major environmental problems or problems with animal welfare within the current mainstream farming system. However, *equal to* the organic farmers and consumers, *and* to a stronger degree than conventional consumers, conventional farmers renounce gene technology as a solution to the environmental problems associated with agriculture.

Analysis in the paper shows that the motivation for organic production is grounded in a different interpretation of the environmental state of Norwegian agriculture than that

experienced by the average conventional producer. Organic farming is a well-adapted strategy for a particular market segment and can be seen as a strategy for maintaining the existence of the family farm.

#### Theoretical reflections on the sociology of agriculture

Agriculture and farming has changed dramatically during the past 30 years, from farmers as a social group enjoying political, economical and societal support to the current situation where farmers struggle to find legitimacy for a continued production (Buttel et al., 1990). Norwegian family farming has mainly been organised as a relation between the farm (unit of production) and the household (the family) (Blekesaune, 1996a). Research on family farming has focused upon structural changes, following economic and political trends in modern society (Buttel et al., 1990). Recurring questions have been: How can family farming as an institution survive when industry in general is capitalised? (Friedmann, 1978a; 1978b; Mann and Dickinson, 1978): When will family farming be subsumed to the interests of big agribusiness enterprises? (Newby, 1978; Friedland, 1984). Consideration of such matters has been grounded in structural theories of political economy and political sociology (Buttel et al., 1990). Farmers' own will and motivation have been of marginal interest in these studies (Johnsen, 2003). This does not mean that micro-sociological studies have been absent, but they have been mainly concentrated to inter-human relations such as changing gender patterns in agriculture (for example, see Almås, 1983 and Brandth, 2002). One underlying questions of this thesis deals with classical concerns, such as: Why does family farming still exist? Agriculture has clearly been rationalised since the 1950s, but households based on production still dominate in Norwegian agriculture. This cannot be simply explained through Weberian thought, which divides households and productive economy, nor through Marxist perspectives, whereby classes are polarised and economic functions are characterised by capitalist production. These questions will be considered from structural perspectives, but will also be studied from different angles throughout the thesis, including actor sensitive approaches.

The sociology of agriculture is, by definition, a discipline that extends its theorising beyond the boundaries of the nation state. This is largely due to the impact of the global marketplace through agricultural goods are exchanged. There is, however, a centre of gravity in English speaking nations regarding the "new sociology of agriculture" as conceptualised by Buttel et al. (1990). The 'old' US perspective was characterised by a focus upon the development of agriculture from its golden age of growth due to increasing populations and demand for more food and efficient production methods in the pre-World War periods and further through the new welfare and income goals from 1950's to 1975. The last 'gasp' of the farm sector welfare

state in the 1970's (protectionism, social-Keynesian, post-World War II commodity programs) was followed by rural researchers in the US (Buttel, 2001:168), but similar processes, including the late-70's optimism in agriculture has also been showed in Norway (e.g. in Almås, 1984; Blekesaune and Almås, 2002). Scholars monitored population size and density of rural communities, technological development and were also interested in theories of the diffusion of innovations, behaviourism and social physiological models (Buttel, 2001). Quantitative research was the main tool, however, according to Buttel et al. (1990) this heavy reliance on trends and statistics served to legitimise a lack of theory.

#### The New sociology of agriculture

The development of new critical thinking in society generally and also within the social sciences from the late 1960s gradually influenced US rural and agricultural sociology (Buttel et al., 1990) which is regarded by Buttel (2001) as a paradigm shift into the new sociology of agriculture. New, mainly exogenous studies, started to appropriate (new) theoretical tools in their studies. The already established researchers in the field began to apply tools from social development and peasant studies (Goodman and Redclift, 1981; 1988; de Janvry, 1981) to the "fortuitous rediscovery" (Buttel's, 2001:166) of a large classical literature in the political economy and anthropology of agriculture. New, non-rural sociologists entered the arena contributing to this important turn. In 1978, these scholars published four pioneering papers (Friedmann, 1978a; 1978b; Mann and Dickinson, 1978; Newby, 1978). Buttel reports that these works opened a "whole new vistas in the sociological analysis of agriculture through the application of Marxist theory" (Buttel et al., 1990:77). The new political economical thinkers appeared as a neo-Marxist movement, repeating the classical questions: Why does family farming exist: When will it disappear due to the capitalistic forces dominating the rest of society? The 1978 papers built upon political economy approaches, basing their analyses on a rediscovery of the classical theoretical contributions from Marx and Weber but also upon less known theoretical work by Lenin, Kautsky and Chayanov (Buttel et al., 1990; Blekesaune, 1996b). The following section summarises the essence of these classics:

In his work *Kapital* (1867) Karl Marx predicted that capitalism would develop within agriculture following the same pattern as industry: technological development and organisation of work would favour large enterprises (Blekesaune, 1996b). The system would be based on feudalism, with capitalist tenant farmers and proletarian workers of the land. In

the new sociology of agriculture, different interpretations of Marx's theory were launched. Friedmann (1978a; 1978b) and Mann and Dickson (1978) used Marx's argument to ask why the particularities of agriculture as a production sector meant that agriculture experienced slower and more uneven capitalist development than other branches of industry. Newby (1978) and later de Janvry (1980) and Friedland, Barton and Thomas (1981) argued that capitalist development in Western agriculture will continue (Buttel et al., 1990:79-80). That Marx's predictions were not fulfilled could be, according to Newby (1983), Marx's inappropriate case study, England, where the present agricultural feudal structure collapsed for the benefit of family farming. Blekesaune (1996b) adds to this that farmers also no longer needed to produce a surplus or ground rent and as such could compete with capitalist enterprises.

Max Weber, in his book The Protestant Ethic and the Spirit of Capitalism (1904), developed a wider concept of capitalism connected to the rationalisation of society. In Weber's work, capitalisation occurs when production is divided from the household economy to bring about greater efficiency of production. This presents and interesting scenario for theorising the family farm, where the household and production are intrinsically linked, presenting a special case in terms of modern conceptualisations of capitalist production under increasingly neoliberal forms of governance. In Die Verhältnisse der Landarbeiter im ostelbischen Deutschland (1892), Weber compared the agricultural conditions on two sides of the river Elbe (see Blekesaune, 1996b). From this work, he concluded that the commercialisation of agriculture would eventually lead to the increasing use of wage earning workers, and over time, conditions would worsen for land workers due to bad contracts etc. However, he added that the value of being an independent farmer would overcome some of the economic concerns, and this could keep people in farming. Critics of Weber's explanations refer to a proletarian false consciousness as a reason for such expressions (e.g. Mann, 1990). Analysis in my thesis does, however, support a Weberian suspicion that there is much more than economic rationality that keeps people in farming, particularly as economically, farming is not always profitable. As argued in paper 5, many farmers value the independence of farming and often cite this as a motivation for staying in farming, despite low economic return for raw goods produced on the farm.

Drawing upon the Marxist tradition, some prominent figures developed theories on the political economy of agriculture. In the late 19<sup>th</sup> century Russia, Lenin shared Marx's concern

about the elimination of family farming in e.g. *The Development of Capitalism in Russia* (Lenin, 1899). Based on analysis of American agricultural census data between 1900 and 1910 Lenin (1915), found an occurring dualism in agriculture. That is, that the capitalist prospered on behalf of the proletarians. In Russia, Lenin identified three strata among the peasantry: The Kulaks, who were the richer group, the middle peasants and on the bottom of the hierarchy, the poor peasants. Lenin argued that this structure was polarising into a dualistic structure: The Kulaks into a rural bourgeoisie hiring wage labourers and the poor peasants becoming the rural proletariat. The theory of a polarised agriculture inspired many of the works of the "new sociology of agriculture" (see e.g. Buttel, 1983; Friedland, 1984), a point that I return to later in this thesis.

Another important classic who contributed to the new sociology of agriculture was Karl Kautsky. He was also heavily influenced by Marx. In his major work on agriculture, Die Agrarfrage (1899), Kautsky could not find support for the hypothesis that family farming would phase out. Kautsky therefore questioned the existence of a tendency towards a largescale wage labour production in the Western Europe. Instead, he found that family farming was increasing its influence in German agriculture, and he changed his question to why. Kautsky argued that the development of a more industrialised form of agriculture, coupled with the availability of cheap grain for import, made European peasants change their production into cattle, dairy and crops, which are well suited to small-scale farming. Capitalists did invest in the processing industry, leaving the middle peasants with clear fields in agricultural production (ERA, 2007). The success of this was partly built on the argument that land was a non-reproducible means of production; partly that most agricultural inputs and products were still non-commodities at that time and finally; that farmers could exploit their own labour for the survival of the status of being an independent farmer (Blekesaune 1996b). Kautsky was a dedicated Marxist, but through this work, contributed with an alternative account of capitalist transformation.

The final classic presented here is Chayanov. He argued in his *Theory of Peasant Economy* (1986) (a series of texts published between 1909 and 1929), that farm production and size depended upon the farming families needs for consumption. When farming was carried out for the family only, Chayanov claimed that factors like wages and economic surpluses were irrelevant. Reproduction of the family and farm was a sufficient goal. The needs of the family would be reflected by the size of production. The value of reproduction was so high that

family farmers would pay a higher price for farmland than capitalist investors. Through his work, Chayanov represented a principle challenge to Lenin's work. Chayanov's work showed that Lenin's statistical analyses did not reveal an irreversible class polarisation and argued that the Russian peasantry could play an important role in a future socialist society. Peasants should therefore rather be helped to prosper and modernise as individual farmers through the establishment of cooperatives, and should not be seen as enemies of the Russian proletariat (ERA, 2007).

Much is to be learnt from these classics. Through the rediscovery of these theories, intense debates on future of family farming was again on the agenda from the late 1970s until the 1990's, in America (as summarised by Buttel et al., 1990), in the UK (Newby, 1983) as well as other advanced capitalist countries like in Norway (Almås, 1984) and Sweden (Djurfeldt, 1981).

The explanation following the revitalisation of classical theories has, by Johnsen (2004:420), been roughly united in two schools of thought, conceptualised as a *subsumption*- and a *survival*-school of family farming. Subscribers to the 'subsumption school' argue that "the inevitable and irreversible penetration of capitalist relations, wherein agricultural production would become increasingly integrated in wider circuits of industrial and finance capital, would lead to the extinction of family farming" (Johnsen, 2004:420). This conceptualisation represents the neo-Leninist strand of the new sociology of agriculture (see e.g. Newby, 1980; Friedland et al., 1981; de Janvry, 1981). The aim of these studies was to illustrate the formation of the economic relationship between of agricultural capitalists and rural workers. According to Buttel (2001), however, the neo-Leninist branch was never the dominant position within the new agricultural sociology.

The development of a dualistic farming structure has also been described as the emergence of a bimodal structure characterised by increasing dominance (in size and number) of extremely large farm units on the one hand and extremely small farm units on the other (Buttel, 1983). Another component of this development is the marginalisation and rapid disappearance of medium sized farms, the "disappearing middle". However, as Buttel (1983:104) notes, "...this is an empirical trend rather than a completed process" of a decrease of the "middle" of full-time, medium sized, independent family farms. Buttel also adds that huge differences exist between productions. From Buttel's (1983) references to the US farming systems, Munton

and Marsden (1991) tested out the dualist thesis on British Agriculture. They suggest in their conclusions that the thesis is too structuralistic, paying inadequate attention to the range of responses found among farming households. A series of detailed interviews in different areas revealed diversity in social, economic and local strategies rather than a dualism. Blekesaune (1996a:14) joins the sceptics by claiming that the hypothesis of a "disappearing middle" has doubtful empirical support. The relevance of bimodal predictions is also called into question when Blekesaune (op cit.) argues that the pluriactive farm structure allows families to avoid proletarisation through a series of strategies, either through allocating their work and capital on the farm, or outside. Predictions of a disappearing middle are frequently returning as a diagnosis of Norwegian agriculture, but my thesis does not give support to an emerging bimodal agricultural structure in Norway, rather I suggest that the weakest segment in Norwegian agriculture is found amongst the economic bottom line (see paper 4).

Scholars from the 'survival school' had an alternative view with an emphasis on "how the non-commodification of farm labour and intergenerational transfer of land, together with the reciprocal exchange of resources between family farms, enabled [farmers] to out-compete corporate farms and persist over time" (Johnsen, 2004:421). Friedmann (1978a; 1978b; 1980) and Mann and Dickinson (1978) and Mann (1990) developed theories of how family farming could resist capitalistic production, forming the dominant position of agricultural sociology at the time. This position has been conceptualised as a hybrid of neo-Marxist peasant studies and Chayanovianism (see Buttel, 2001:168). Two differing arguments formed this branch of research: One that argued that peasantries and family farms performed important functions for capital such as producing cheap food; being a refuge for surplus labour; and ensuring the legitimacy of corporate capitalism. The other stressed the comparative advantages of family farming on behalf of capitalism, such as not needing profit for production (Buttel op. cit). Blekesaune (1996b) adds that the availability of agricultural technology to most farmers reveals another presumption of the farming family's ability to compete with capitalistic farming.

In an analysis of Norwegian family farming under capitalism, Almås (1984) apply a modernised Marxist model developed by Djurfeldt (1981) to discuss when and why family farming resists capitalism. By adjusting Djurfeldt's model, farm gross income is divided in a series of components that are outlined for understanding both the decline and survival of the family farm system in Norway. The elements of the analysis are composed of; 1) A

consumption fund that can be supplemented by wage income; 2) The possibility of the reproduction of one's own capital, meaning maintenance of farm buildings, animals, fields and equipment; 3) Enlarged reproduction of own capital to keep up with growing farm size and number of animals and new technology; 4) Instalment of loans used to buy the means of production (such as machinery) and raw materials if 3 and 4 fail; and finally 5) Interest on loans (Almås, 1984:122). According to Almås (op cit.) farms that cannot reproduce on an enlarged scale and keep up with the development will drop out. Survival for these will only be short term, as long as they can accept a small income or supplement the household with offfarm wages or consume their own capital. Almås predicts that these, sooner or later, will either exit farming or engage in minimal levels of production.

It is argued that some key events have slowed the pace of an economic downturn for Norwegian farmers, thus postponing, or averting, the predicted demise of the family farm. In the 1960's, Norwegian agricultural policy aimed for a stable family farm through planned national policies (Almås, 1984; 1994). Taking the market into consideration, Norwegian agriculture was to be protected. Political welfare issues took over the agenda in the 1970's and the rationalisation of the farming sector was no longer a goal. To secure the social status of the farmers, in a market were prices were falling and farmers were forced to leave, the political goal was to equal the farm incomes to that of industry workers. This goal never materialised, but gave farmers substantial welfare gains (Almås, 1994). It also opened a short period of optimism and growth in Norwegian agricultural production (Almås, 1984; 2004; Blekesaune and Almås, 2002). This might although have been more beneficial for the larger farms as they were able to grow and increase their influence (Almås, 1984). In 1984, Almås concluded that over time, part-time farming replaces full-time farming. Several studies later showed how part-time farming has developed as a sustainable format of structural adjustment over time (e.g. Blekesaune, 1996a). This finding is also supported in this thesis. I do not agree, however, with Almås' formulation that part-time farming replaces family farming due to definitional differences, as will be shown later in this thesis. It is argued that family farming is currently dependent on off-farm income, as is the continuation of family farming in Norway (see papers 2, 3 and 4 in particular).
## Political economy and political sociology of global agri-food systems

From the end of 1980's the main contributors within both subsumption and survival schools, together with other rural and agricultural sociologists, changed their focus again and the era of a 'new sociology of agriculture' declined. This has been replaced by new 'grand' theories of agriculture such as globalisation, international food-regimes, agri-food networks and agricultural regimes (Johnsen, 2004). These new schools of thought could be conceptualised as the critical political economy perspectives, or a political sociology of global agri-food systems (Buttel, 2001).

The demarcation line between the end of new sociology of agriculture and the newer global perspectives was, according to Buttel (2001) drawn by Friedmann and McMichael's (1989) paper on food regimes (Buttel, 2001). The focus is still structural and the main point of departure is founded in the Marxist categories of predicting negative externalities of capitalisation, now caused by the neo-liberal policies that have gained so much support in the US, Australia and New Zealand. Neo-liberalism can be described as "(...) a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterised by strong private property rights, free markets and free trade" (Harvey, 2005:2). In such a framework, the states role is to preserve and protect the appropriate institutional framework for this to happen. Neo-liberalism is said to have had its starting point in 1978-80 (Harvey, 2005).

The globalisation perspectives of agricultural sociology are concerned with nation state's loss of power under neo-liberalism, to transnational corporations and global governance agencies like the World Trade Organisation (WTO), the International Monetary Fund (IMF) and the World Bank (for example, see Higgins and Lawrence, 2005). In opposition to politicians and economists who present globalisation as an inevitable force which must be embraced, McMichael and Lawrence (2001:153) argue that globalisation is a deliberate political and economic project involving an ideologically coherent vision of global economic management, backed up by institutions like WTO, IMF and the World Bank. Globalisation can then also lead to competition between national agricultures, something that also Peine and McMichael (2005:20) find to be anything but rational in its substantive social and cultural consequences.

Lawrence (1987) argues that the growth and freedom of agribusiness leads to a concentration and centralisation of capital. He points to problems of monopolisation and problems for family farmers to cope and integrate vertically or horizontally within the agribusiness chain due to high costs. The incorporation of capitalistic companies has taken several forms. In Australia, it has been shown that the freedom of disposition has been limited directly by such things as contract farming or indirectly as agri-business increasingly controls access to markets and prices on necessary inputs like seeds, fertilisers and pesticides, and associated technological equipment (Gray and Lawrence, 2001:58). Examples of global influences on the local farmers include farmer-alliances with supermarket chains that are set up to guarantee supply (Burch and Lawrence, 2005). Such relationships within the food supply-chain impose quite sophisticated regulations on farmers. The emergence of EurepGAP, a private regulatory body, provides one example of how changes at the global level force producers to either abide the rules of the food retail sector, or loose market share (Higgins and Lawrence, 2005:17).

The impact of globalisation on Norwegian agriculture is a major subject in it self, and has not been the core focus in this research, or in the papers which constitute this thesis. However, some of the key issues of relating to the globalisation of agriculture are raised in paper 1, were the Norwegian agricultural regime is compared to the market-oriented, liberalistic Australian agriculture. The relevance of *productivism* and *post-productivism* as agricultural policy concepts are discussed in paper 1, in relation to a conception of multifunctionalism that might incorporate a sustainability policy, practice and discourse. It is shown that multifunctionality is not only important in terms of securing the non-tradable concerns of agriculture, such as the maintenance of cultural landscapes, but also in considerations of the legitimacy of Norwegian agricultural policies within Norway and in international trade negotiations. A recent peculiarity in this area was a critique of Norwegian agricultural policy launched by the general director Pascal Lamy of the WTO (Nationen, 2007). This provoked the administrative director of the Confederation of Norwegian Enterprise, Finn Bergesen jr. to defend Norwegian agriculture, a defence that is not commonly seen in domestic debates on state regulations versus liberal markets. Against the WTO, Bergesen jr. exerted Norway's rights to follow its own interests in WTO negotiations, meaning exercise respect towards industry representing both offensive and defensive interests.

To sum up this section: Buttel's (2001:171-172) analysis of the late century political economy, identifies four major foci that dominated agricultural theory and research. The first

relates to Friedmann and McMichael's analysis of world-historic and world-systemic analyses of agri-food systems, as was described above. The second area focuses upon agri-food commodity chains and systems analysis (e.g. Bonanno, et al., 1994). The third area of interest is characterised by political-sociological research into agri-food neo-regulationist studies (e.g. Marsden, 2000). The fourth and final major research area involves actor-network analyses of agri-food systems (Murdoch and Marsden, 1995; Bush and Juska, 1997 etc.). Whilst acknowledged as key areas of research in the sociology of agriculture, all these major foci can not be applied all at the same time. So has not been my intention either. This thesis is not devoted to one particular theoretical approach; rather it collects inspiration from many. The thesis starts out in the 'oldish' tradition of the pioneers of the 'new sociology of agriculture'. The thesis can further be linked to the so-called political-sociological research into agri-food studies above, keeping the main focus on the producer at the farm. Having outlined the major trends in agricultural sociology, I return to one of the key concerns of my thesis, namely changes in Norwegian family farming. This will be followed by an outline of one important sub-branch of rural sociology, the gender studies, and finally onto the influence of environmental awareness on agricultural policies, business and practice and on agricultural sociology.

# Understanding family farming as a mode of production

During the 1990s, in the context of concerns about the agricultural future, a discussion about family farming and farming business developed in the academic literature (e.g. Gasson and Errington, 1993; Hill, 1993; Djurfeldt, 1995; Blekesaune 1996a; Djurfeldt and Waldenström, 1996). Initially, the focus was on establishing a definition of family farming and identifying the parameters of the concept, such as, what is family farming and what is not. Central to these studies, was a concern about how the relations between the household and farm business, constituted a 'family farm'. Following on from these discussions, the age-old question could be re-launched: How do patterns of family farming develop and will the family farm survive?

Family farming represents many aspects of agriculture. As a concept, it typically refers to a farm owned and operated by a family (Blekesaune, 1996a:7). One definition has been the "farm family business" of Gasson and Errington (1993). Their definition consists of following six elements:

1) Business ownership is combined with managerial control in the hands of business principals;

2) These principals are related by kinship or marriage;

3) Family members (including these business principals) provide capital to the business;

4) Family members, including business principals, execute farm work;

5) Business ownership and managerial control are transferred between the generations with the passage of time and;

6) The family lives on the farm (Gasson and Errington, 1993:18).

Gasson and Errington (1993) emphasise that the claim of ownership and control of the farm was more important than working hours spent on the farm. This assertion recognises that technological improvements in agriculture have increased efficiency and reduced the need for human labour input. The work claim is in Gasson and Errington's (op. cit) view therefore of less importance than ownership and management for the definition of the family farm. If the combination of ownership and control of the farm is situated within the family, family farming is a sustainable institution within a structure dominated by part-time farms or farms run by only one person. A serious objection against a definition giving no weight to family work is the possibility of using hired workforce for all farm work. Djurfeldt (1995) do heavily disagree on this and argues that Gasson and Errington (1993) lacks an understanding of the comparative advantage of the family farm, that family work as a non-fixed cost. With this, Djurfeldt (1995:5) states that Gasson and Errington (1993) muddles with the crucial Chayanovian interface between family and farming.

Other objections have been raised against Gasson and Errington's (1993) definition. Hill (1993:360-1) argues that with no labour claim in the definition, "nearly all farms in the European Community would be classed as 'family'". Hill (1993:361) suggest a family labour based way of dividing the family farm from other farms; *family farms* where unpaid labour contributes all, or almost all, of the work on the farm; *intermediate farms* where farm work is supplemented by hired labour but family still contributes with more than half and; *non-family farms* where hired labour contributes the majority. Djurfeldt (1995) also argues that as an 'ideal-type' of family farming, Gasson and Errington's (1993) definition is too broad. He is however not satisfied with a pure labour based definition of family farming.

Djurfeldt (1995) and Djurfeldt and Waldenström (1996) aim for a definition of family farming that can be useful for studying development over time and make comparative studies of family farming and agrarian structures. Djurfeldt (1995) develops a definition which, to a large extent, draws upon family labour for the farm operations, but also on a reproduction criterion. This is the ideal type family farm family or "notional family farm" which is;

- Characterised by an overlap between three functional units: a) the unit of production (the farm), b) the unit of consumption (the household, and c) the unit of kinship (the family);
- For its reproduction the notional family farm requires family labour, that is, labour performed by members of the family/household (not referring only to managerial work) (Djurfeldt, 1995:2).

It can be argued that Djurfeldt's (1995) 'notional family farm' definition, and subsequent calculations are problematic. Part-time or pluriactive farm strategies can be excluded from his definition of family farms due to the lack of labour input on-farm compared to off-farm income generated by the farming family. Given this, Djurfeldt's (1995) definition of farming might be of value when the aim is to map differences between regions and over time, like he suggests. However, I do not find his aim to challenge different understandings of family farming too useful, as the concept of family farming itself might be contextually bounded across to cultures and history.

Such a tightening of the concept of family farming can imply, as Blekesaune (1996a:9) formulates "(...) a lack of analytical separation between the farm and the family". Blekesaune (op. cit.) further argues that, "it is necessary to operate with an analytical distinction between the family as a social decision making unit and the farm as a production unit in order to see the interdependency between these structures". By this analytical distinction between the farm as a production unit and the household as an interrelated decision-making unit, Blekesaune states that it is possible to uncover how the household allocates resources among farm and non-farm activities in order to satisfy their consumption needs, and the needs for labour input on the farm. Analyses of changing family farm structures in papers 2 and 3 builds implicitly on these assumptions, giving weight to Gasson and Errington's (1993) broad definition, however assuming that most farm work is executed by family members. Trend-data 2004 (see methods section for documentation of data) shows that only one percent of main operators on

Norwegian farms do *not* contribute with work on the farm. Eighty percent have a partner that contributes with work and 75 percent enjoy other family members' contribution. It is also common to hire some labour, 80 percent do, but half of these work maximum 200 hours a year on the farm. The correlation between hired work and farmers work is linear, meaning farmers hire labour when they work much themselves (see paper 2). There are hardly any farmers that base the production on hired workforce in Trend-data 2004.

A study of family farming in New-Zealand broadens the family farm perspective (Johnsen, 2003). Johnsen (op. cit.) argues for an actor and context sensitive approach to reading the family farm unit. By this she highlights how the farm enterprise and the household are inexorably entwined within a physical domain, the farm property (Johnsen, 2003:132). This is an argument that incorporates studies of 'sense of place' and 'feelings of attachment', elements that are usually strongly emphasised in ethnographical or geographical studies. Johnsen adds that at the heart of the farm, are the actors who are responsible for both the farm enterprise and household reproduction. Understandings of farm-level responses to economic policies and changing frameworks might be strengthened via considerations of farmers' motivations, values and personality characteristics. This is accomplished in some works by Shucksmith (1993; 2002). I find Johnsen's (op cit) and Shucksmith's (op cit) perspectives very fruitful and have myself applied actor oriented analyses of farmers' values, motives and attitudes in papers 5, 6 and 7.

In my analyses of family farming in Norway, different methodological and theoretical approaches are assessed. In paper 2, the definitions offered by Gasson and Errington (1993), Djurfeldt (1995) and Djurfeldt and Waldenström (1999) are discussed in relation to empirical farm-data relating to work and income patterns in family farming in Norway. In paper 3, family farm structures are shown to be more closely related to the work-load aspect and family involvement; here structural changes are elaborated upon to incorporate gender effects. Papers 4 and 5 also employ actor sensitive analyses. The actor-structure dichotomy is challenged in paper 5 by applying Bourdieu's (1990) theory of practice to interview data. This assessment shows how action or practice can be constrained by farm and family relations, but also how actors are willing and able and to change farming practices. Papers 6 and 7 are also "actor sensitive" in the sense of linking predictions of farming motivation to forms of production and characteristics of the farmers themselves. Seen together, these papers a) map structural changes in family farming (both policy frameworks and the empirical reality of

traditional and modern adaptations) and b) explain farmers' motivations and with those, the possible opportunities to act and adapt if and when further changes are required.

#### The continuing domination of the family farm

Predictions of family farm extinction in advanced capitalist countries have so far been of limited value, largely as we have not yet seen a discontinuation of the family farm structure. In this thesis, Australia functions as a comparative case as elaborated in paper 1 where the sustainability of policy settings and agricultural practices in Norway and Australia are compared. Given that Norwegian agriculture is enacted within a 'trade protected', social democratic framework, and Australian agriculture is subject to global markets and national neoliberal policies, one could expect family farm structures to differ. However, there are remarkably similarities. Farms in Australia have traditionally been family businesses, both in ownership as well as operation and farms are passed on to successive generations, as is still the case (Garnaut and Lim-Applegate, 1998; Australian Bureau of Statistics, 2003). In fact, more than 90 percent of Australian farms are run by families (Alston, 1995). Almost all farms consist of husband and wife, many who work in partnership on the family property (Garnaut and Lim-Applegate, 1998). Family farms are economic and kinship units, often involving more than two generations and sometimes including partnerships with other family members, such as brothers. In the Australian farm setting, the owner of the farm business makes the primary decisions relating to the business. He (around 97 percent are men) is usually also responsible for the farm's day to day operation (Garnaut and Lim-Applegate, 1998). Even if rules of succession differ between Australia and Norway, with Norway executing the Allodial Act (giving the first born child the right to take over the whole farm), the pattern of family ownership of farms does not differ substantially. The Norwegian family farm household normally consists of one 'owner manager' and his or her wife, husband or partner. In 2004, 87 percent of the Norwegian main farmers were men and 83 percent of the farms were inhabited by a couple (Rye and Storstad, 2004). However, even if it is argued that family farming as an *institution* has survived, the number of farming households has declined. In both Australia and Norway, a major part of the agricultural population has been forced to look for other ways of making a living since the 1950's (Alston, 1995; Statistics Norway, 2007a). Table 1 shows the reduction of farm units in Norway between 1969 and 2005. Two third of the farms have closed down production in the period.

'Year	1969	1979	1989	1999	2005
Farm units	154977	125302	99382	70740	53224

**Table 1.** Number of farm units with a minimum of 0.5 hectares agricultural area in use

 between 1969 and 2005.

Source: The Federation of Norwegian Agricultural Co-operatives (2007)

As local conditions for agricultural production may have changed for the worse, family farmers have been confronted with the decision of whether to try to *stay* in farming or whether to *leave*. There might be different reasons for leaving farming; economical, social or environmental reasons, or a combination of these (Gray and Lawrence, 2001). The cost-prize squeeze of agriculture has arguably forced a lot of farmers to exit the industry. Economists have predicted that the current neo-liberal global market conditions will squeeze out 'bad' producers, particular where the nation state does not intervene with protectionist policies. This rural restructuring is often seen as a cleansing process, whereby farmers are making autonomous decisions in reaction to market forces (Gray and Lawrence, 2001:53). However, an actor-oriented perspective would question the usefulness of such a simplistic causal relationship between profitability and the propensity to remain in farming, as other factors also impact upon landholders decisions to remain in farming. For example; values, traditions, self-esteem and identity also inform social actors' decision-making (Share, Campbell and Lawrence, 1991).

Due to economic support through policy arrangements, Norwegian farmers have not been as vulnerable to market changes as, for example, Australian farmers (see paper 1). Economic viability has been more closely linked to ability to change commensurate with changing policies, particularly those influencing on direct payments from the state to the farm and on prizes on farm commodities (see papers 2, 3, 4 and 5). In Norway, changing conditions have also meant that commodities and services have moved out of the households, thus creating new employment and market opportunities. Higher educational levels, coupled with the centralisation of people into cities, have enticed a number of people away from agriculture since the 1960s (Almås, 1983; 2004). As many less efficient farmers exit the industry or the farm lacks successors, vacant land offers the remaining farmers new opportunities to buy or lease more land to increase their own production. Through economies of scale, this created better opportunities for those remaining in business. However, those properties that were not

enrolled into new patterns of production by neighbouring farms are said to have been subject to environmental decline. The lack of agricultural activity has been linked to a loss in biodiversity (Olsson and Rønningen, 1999). The environmental consequences of Norwegian rural restructuring are further explored in papers 1, 5, 6 and 7.

Many chose to live on the farm even though production has ended. It is however those who have remained in farming, keeping up the production, that have been the focus of research in this thesis. In the literature, a number of different concepts have been applied to explain why farmers remain in farming despite reduced profitability in farming over time. One popular conceptualisation has been the "survival strategy", a concept I find to be rather strong. Surviving has both negative and positive connotations. According to Redclift (1986:220): "To survive in rural society under advanced capitalism (...) usually means accommodating structural changes rather than resisting them. If people resist too long, they risk not surviving". In this thesis I have tried to avoid using survival as a concept of farming strategy. For the Norwegian case, survival does not give a realistic picture of the challenges confronting Norwegian farmers. I find adaptation or changing strategies to be better concept-ualisations of those strategies developed and applied by farmers in Norway (see paper 5).

A diverse range of options can be applied to try to keep up farm production; adjust the production to the market, work harder, 'tighten belts', become pluriactive and engage in offfarm work (Lawrence, 1987). Pluriactivity describes the situation where farmers combine farm work with other work, or diversify the farm work, to increase household income (see e.g. Eikeland, 1999).

Increasing the level of off-farm income has become integral to the welfare of farm households in Norway and most other European countries (Jervell and Løyland, 1998; Eikeland, 1999), as well as in Australia (Garnaut and Lim-Applegate, 1998). Some farmers have established tourism or other leisure industries in relation to their property (see Brandth and Haugen, 2005; Loureiro and Jervell, 2005). Refining farm produce, for example, making cheese instead of selling raw milk is another way to add value to traditional farm products. Opportunities to adapt or adjust are not, however, always equally distributed and are also linked to the availability of different sources of capital (both social and economic) within the farm household (Meert et al., 2005).

Traditional farming, in combination with forestry, fishing and/or hunting, has been common

strategy of adaptation among many farmers in Norway (Hetland, 1986; Flø, 1998; Flø and Bjørkhaug, 2001). These activities have been the mainstay of the traditional family farm structure (Jervell, 1999:113). This has been particularly important for Norway, with its climatic variations and short growing seasons. Traditional farming activities are most intense in spring and summer. Autumn and winter activities includes fishing, hunting and work in forestry (based on property rights connected the farm) (Bjørkhaug, 1998) or as hired labour by forestry companies. In this sense, farming in Norway has always had an adaptive element. Today, these multiple resources still offer opportunities to diversify the farm income and enable the family farm structure to adapt to new economic imperatives. As such, policies are developed to support such adaptations. These include e.g. payments for preserving cultural landscapes, managing the farm forest or support for starting new enterprises in relation to the farm resources, but also acknowledging the multifunctional outputs of farm activities for the greater public good. These include biodiversity, valued landscapes and rural settlement, among others. Papers 1 and 5 elaborate further on this topic.

Various renditions of farming can be understood as adaptations only when farms are too small to supply fulltime employment or adequate income (Jervell, 1999). However, today an essential amount of income comes from wage labour outside of farming on most farms (see paper 4). This is, however, a result of a long, ongoing process. Wage income from off-farm work has exceeded farm income on the average Norwegian farm since the 1980's (Jervell and Løyland, 1998). During the same period, the average working hours on Norwegian farms increased (see paper 2). This decreasing value of farm work occurred due to changes in agricultural subsidises and commodity prices, but also as a result of more women working longer hours off the farm. Women's increased participation in the off-farm labour market is described as one of the most important structural changes in Norwegian farm households (Blekesaune, 1996a). New relations have also created new opportunities for exploiting rural resources and niches, such as local handicraft, baking or refining of other farm produce (Eikeland, 1999).

In summary, family farming has changed from an activity that occupied the family towards one that provides job opportunities for only a few. In many instances, the family farm only generates enough income for one person, with other family members seeking to work offfarm to secure enough income to keep the family farm running. Consequently, the necessity for women to seek alternative incomes may imply changing division of labour and gender role interpretations within the farm family. In the following section, the consequences of agricultural restructuring for men and women in family farming are further discussed.

# Women in agriculture

Are gender relations interesting in a discussion of changed patterns of family farming in Norway? Men make up the major group of main farmers, in fact, 87 percent as mentioned above (Rye and Storstad, 2004). The share of men as main operators is decreasing, but slowly. This thesis explores the possible implications of changing gender patterns in the Norwegian agriculture (papers 2, 3 and 6 in particular). It is therefore of value to examine the developments in the recruitment of male and female farmers in Norway. Taking the decline in number of farms into consideration, the share of new farmers coming into agriculture is relatively stable (Statistics Norway 2007b).

The revised Norwegian Allodial Act of 1974 opened up opportunities for women to become farm owners. From 1974, the Act gave the first born child born after 1965, the right to inherit the farm. Before that, male offspring held the right to family farm succession, independent of the number of older sisters. Since the proclamation of the Act in 1974, the number of women farmers has been slowly rising. Table 2 shows changes in share of men and women entering farming during different time periods (Trend-data 2004<sup>1</sup>).

									Total
	1950-1970	1971-1975	1976-1980	1981-1985	1986-1990	1991-1995	1996-2000	2001-2004	
Male farmer	92	95	92	90	90	86	78	70	87
Female farmer	8	5	8	10	10	14	22	30	13
	100	100	100	100	100	100	100	100	100
(n)	153	172	223	244	263	235	244	125	1659

Table 2. Year taking over the farm by gender. Percent.

Source: Trend-data 2004.

Table 2 shows the share of women and men amongst the 2004 farmers in Norway and the year they took over the farm. The share of women that have taken over the farm has steadily increased through the whole period, with the future prospect of more women in farming looking positive. Rogstad's (2002) analyses of agricultural data from Statistics Norway also

<sup>&</sup>lt;sup>1</sup> Trend-data are thoroughly described in the methods section.

showed that the amount of women taking over a farm on Allodial rights increased from 9 percent in 1969 to 22 percent in 1999. However, these statistics need to be interpreted with care. For instance, many women inherit the farm as widowers late in life and do not keep the farm for very long. As such, they do not become farmers (Rogstad 2002:15).

Further analysis of Trend-data 2004 shows that there are differences in the age distribution of male and female farmers that took over the farm between 1996 and 2004. Fourteen percent of the "new" women farmers (taking over the farm after 2000) were over 60 years of age in 2004 compared to four percent of the male farmers in this group. Correspondingly, there were 10 percent women farmers over 60 and 2 percent men in the group that had taken over the farm between 1996 and 2000. For those farmers that have owned the farm longer, the age distribution is almost equal among men and women farmers. Statistically speaking, the seemingly 'nice' bell curve relating to the increased proportions of women entering farming in Table 2, is actually flatter than these statistics indicate on face value.

I do, however, recognise that an increasing number of women are entering Norwegian agriculture, and believe that this number is still rising based on the analysis of current trends. Throughout the papers several reasons are launched for why this process is slow. Despite the still low numbers of women farmers, evidence suggests that they will make a valid contribution to the diversification of the working strategies in Norwegian family farming, and that is one of the returning issues in this thesis (see papers 2, 3, 5 and 6).

### Perspectives on gender relations in agriculture

There has been considerable research on women in agriculture since the 1980s (Brandth, 2002). Research on gender issues within agriculture started out by trying to visualise the position of women within farming, research that Brandth (2002) has conceptualised as *'the family farm discourse'*. The 'family farm discourse' covers studies that attempt to explain why women have been given a position inferior to that of men in agriculture. These studies often viewed women as the victims of powerful, historically based discourses or, as 'products of discrimination' where farm women sacrifice their own needs to ensure the survival of the farm (Alston, 1995; Brandth, 2002:195). They have shown how farming is regarded as a male occupation. Women on the farms have been regarded as farmers' wives, mothers or daughters, and when participating in the production on the farm, as 'helpers' or assistants

(Alston, 1998). According to Haslam-McKenzie (1998), farmers' wives can not take men as role models as 'farmers' husbands' do not exist. Garnaut and Lim-Applegate (1998) and Jennings and Stehlik (2000) also notes that the different concepts of work have contained different connotations and values. Paid work has been given two sites: 'on' the farm or 'off' the farm. Women's unpaid on-farm work describes the traditional tasks in the house, but also a substantial level of contribution in the farm work itself, such as tractor driving, planting and caring for young animals (Jennings and Stehlik, 2000). Correspondingly, women operate in paid and unpaid off-farm work. Often work is low paid, within an accordingly "low" status occupation. Where women are entering men's traditional social positions, femininity has been reconstructed, but in a way that remains hierarchical and maintains the masculine dominance and women's subordination (Brandth, 1994:147).

The *changes* in farm women's involvement in on- and off-farm work has been reported in a body of gender research which can be appropriately categorised as *'masculinisation discourses'* (Brandth, 2002). With this research, focus shifted to the changes in men's and women's roles within agriculture, revealing how both technology and work has become a masculine domain. Women's exit from the farms, as farm labour, started a process of masculinisation of agriculture and agricultural work in Norway (Almås, 1983:7). Almås (1983) described how Norwegian farm women left agriculture through different phases after 1950. Almås (1983) refers to a process whereby women are both 'pushed' and 'pulled' out of agriculture. 'Pushed' due to mechanisation and rationalisation, and 'pulled' due to new work opportunities in the local community which offered women different identities.

A third discourse in research on gender issues in agriculture is, according to Brandth (2002), the discourse of 'detraditionalisation and diversity'. This rather new theoretical direction highlights the processes of individualisation and adaptation to post-modern plurality, instability and shifting identities. Theoretically, this 'discourse' builds upon Beck's (1992) concepts of individualisation and Giddens' (1991) concept of detraditionalisation (Brandth, 2002; Bryant, 1999). In the 'detraditionalisation' perspective, individuals are described as actively constructing their own occupational identities, some of which, such as managers and entrepreneurs being quite removed from traditional farm identities. Traditional conceptions of 'farmer' and 'farmer's wife' correspond to those identities described in the family farm discourse. The 'new traditional' farmer, describes an identity that is more open to change (Bryant, 1999). For the 'new traditional' woman, the partnership of marriage is extended also

to a partnership of work relations (Bryant, 1999:245). A 'detraditionalised' farm identity also describes those farm actors who see themselves mostly as managers (Brandth, 2002:194). Although this group of farmers are still well in the minority. While many of these women chose a traditional farming strategy together with her partner, Haugen (1998:59) has shown that a group of modern young female farmers have moved away from traditional gender roles. These women have managed to construct an identity partly built on tradition and partly on a modern role as professional farmers.

In paper 3 analyses were conducted to test whether, at the beginning of the new millennium, women and men were exposed to the same opportunities to farm professionally or whether the masculinisation process still applies. A gender neutral hypothesis was not supported, revealing that a strongly gendered pattern of farming opportunities still exists. This support Haugen's (1998) assertion, that farm society is still very much moulded by a gender system which subordinates women's interests. This also influences succession; as shown in papers 2 and 5, farms are still most often passed on to sons. The reproduction of the patrilinear system, as described by the family farm discourse, is equally protected by fathers and mothers, as also women tend to maintain a traditional system of transferring the farm to the sons (Alston, 1995; Brandth, 2002; Bjørkhaug and Heggem, 2005). Painting a picture of a one-dimensional, patrilinear system in Norwegian agriculture would be a false one. The utility of the "individualisation" thesis is however also limited. In an analysis of women's power in farming, Bjørkhaug, Heggem and Melberg (2006) found that women do have opportunities to define themselves as farmers and influence on the decisions made on the farm. This possibility is, however, limited by women's involvement in practical farm work. In many cases, where a woman has either taken over the farm or married into a farm and subsequently becomes the main farmer, she can take part in decision making and bring about a change in the farm focus to suit her own interests (Bjørkhaug, et al., op cit.).

Agriculture has offered men and women different opportunities throughout history. Rationalisation and mechanisation of agricultural production has changed the work operations, so has national and international agricultural policy. This raises a number of questions: Why do policies and technology heavily influence on the farm production but not on gender positions on the farms? With changing frameworks, the operations are re-gendered and the old patriarchal pattern is maintained. What needs to be changed in the family farms structure in order to afford equal opportunities for women and men? This thesis points at

many of the problems and emphasize that goals of gender equality in agriculture should have a more prominent position on the agricultural policy agenda.

## Environmental awareness, ideologies and organic farming

By the end of the 1980s the hegemony of the productivist mode of agricultural production waned (see paper 1 for definitions of different agricultural regimes). In particular, the environmental problems caused by modern agriculture were more frequently questioned. Concerns about the problems of industrialised forms of agriculture were described in the early 1960s by R. Carson, who in her book, *Silent Spring* (1962) challenges the practices of agricultural scientists and the government, and calls for a change in the way humans view the natural world. From the 1970's, the agricultural sector was drawn into the pollution debates due to the problem of externalities such as contamination of fresh water and traces of agriculture, forecasted that environmentalisation would become one of the major societal issues in the future (Buttel, 1992).

From the rural research community, critical voices started to appear in publications that identify the problems relating to industrialisation, commercialisation and the commoditisation of agriculture (see e.g. Lowe, 1992; Lowe et. al. 1993; 1997; Ward, 1993; Marsden, 2003). Indications of post-productivist values were detected and theorised, involving analysis of agricultural and rural policies, agricultural practice and new uses of rural space (see e.g. Wilson, 2001; Potter and Burney, 2002; Vatn, 2002; Tilzey, 2003; Potter and Tilzey, 2005; Daugstad, Rønningen and Skar, 2006). The academic disputes over the appropriate theorising of these regimes are handled in paper 1. The following section is therefore devoted to the development of 'organic', in rural sociology and in agriculture.

While Buttel et al. (1990) noticed that organic agriculture in America had captured the interest of rural sociologist's by the end of the 1980s (e.g. Dalecki and Bealer, 1984; Buttel and Gillespie, 1988), the boom of literature on the sociology of organic agriculture did not start in earnest until the mid 1990s (Reed and Holt, 2006). Some major schools have later dominated this field. From the US, a political economy perspective has influenced the writings of Guthman (2004a; 2004b) and Goodman (2004). Guthman describes the subsumption of organic agriculture into agribusiness. Explanations are grounded in Marxist perspectives, and

she has as such followed in the tradition of agricultural sociologists before her. Like Friedland et al. (1981), Guthman collects empirical data from California, an area with production systems (commodities produced, size of it etc.) and structures (ownership etc.) quite distant from the Norwegian reality. Structural perspectives are also dominating much of the literature on organic and environmental food and farming literature coming out of New Zealand and Australia. Campbell, McLeod and Rosin (2006), for example, have shown how European food retailers force New-Zealand organic producers to leave the national organic arrangements in advance for environmental standards like the EurepGAP.

Theories of organic farming as a mode of production that represents a social movement (organic movements and now also post-organic) have been popular in European research on organic farming (see e.g. Tovey, 1997; Moore, 2006). These studies have also influenced research on the existence of an organic movement in Norway (Flø, 2001). From a social movement perspective, the development of organic farming is seen as a joint effort by many interest groups: farmers, consumers and traders (Michelsen, 2001). A pure social movement perspective might be challenged, or broadened, by an institutional perspective which also incorporates theoretical perspectives of agricultural policies. This involves studies of how the EU and Norway make subsidies available for farmers to convert to organic farming. These are seen as means through which to solve some of the problems caused by modern agriculture (Reed and Holt, 2006), but can also be used to legitimise the continuation of 'green' agricultural subsidies to global organisations such as the WTO.

As well as being theorised from the perspectives of the political economy and new social movements, organic agriculture has also been theorised through food-network studies of the raise of alternative and local networks (Murdoch and Miele, 2004). As well as the production side of organic food, there is also a body of work that focuses upon the consumption of organics. These relates to the movement in consumer interest in food from focusing on sufficiency to sensory quality and later health quality (Holt and Reed, 2006). In the consumption field of study, modern and post-modern theories of individualisation (Beck 1992; Giddens, 1991) are frequently tested. This thesis is mainly concerned with the production aspects of organic food, but do also employ a perspective on consumption in paper 7. Development of organic farming and to a certain degree development of organic consumption is outlined below in a Norway-specific context.

### Development of organic farming in Norway

In 1986 an acceptance- and labelling-system for organic farming was introduced in Norway. From then onwards, the Norwegian laws of organic farming were in accordance with laws of the International Federation of Organic Agriculture Movements (IFOAM) and Internationale Demeter-Richtlinien. In 1994, the Norwegian legislation was adjusted to the European Union decrees on organic farming. The label "økologisk" (organic) is protected by law and a product claiming this status must be produced in accordance with the minimum claims of organic farming. This is monitored by Debio<sup>2</sup>, an inspection and certification body with administrative responsibilities for public authorities (delegated by The Norwegian Food Safety Authority).

In 1986, 19 Norwegian farms were inspected and processed for organic certification. By 2005, this figure had grown to 2496 farms and 354 companies (Debio, 2007b). By the end of the 1990's organic farming in Norway was regarded as a success, due to the steep rate of growth in numbers of organic farms (Bjørkhaug and Flø, 1999a). The number of farms converting to organic farming has grown with the support of the political goals of the Norwegian Ministry of Agriculture. The area of agricultural land that was certified for organic production was calculated to be 3.5 percent in 2005. The Norwegian government aimed for the conversion of 10 percent of arable land into organic production by the year 2010. Optimism in the success of the program has led to a new benchmark of 15 percent by 2015 (Norwegian Ministry of Agriculture and Food, 2007). According Debio's figures, one more farmer entered than exited organic certification in 2005 (Debio, 2007c). At the same time analyses of producer's will to convert is very low. Only 1.5 percent of the farmers report a will to convert (Storstad, 2006). Whereas conversion to organic modes of production peaked in the late 1990s, these rates have now levelled.

It has been argued that the relationship between production and consumption has not found its equilibrium, and present market analyses predict a new growth of consumer demand for organic products. Even though the future market for organic goods looks positive, Norwegian

<sup>&</sup>lt;sup>2</sup> Debio performs auditing and certification assignments both within and beyond the scope of the definitions of organic production. Most of Debio's services deal with the inspection of organic production in accordance with the Norwegian "<u>Regulations on the Production and Labeling of Organic Agricultural Products</u>". The inspection services are based on an agreement with <u>the Norwegian Food Safety Authority</u>, which has delegated the task to Debio. The agreement authorizes Debio to make individual decisions on the certification and invalidation of operators (Debio, 2007a).

consumers have been found to evaluate that the costs outweigh the benefits of buying organic food (Storstad, 2007). This interest in organic consumption was found to be much lower in Norway than in Denmark (Bjørkhaug and Storstad, 2001). This can be conceptualised in terms of a 'quality gap' where Norwegian consumers find locally produced foods to be of a higher quality than imported food (Storstad, 2007). Further, as discussed in papers 1, 5 and 7, public support for domestic agriculture is generally high among the Norwegian population, a feeling that also is shared by the farmers. As shown in paper 7, Norwegian producers and consumers of organic goods are found to share the same motives and attitudes for choosing organic, such as a common interest in environmental issues connected to production of food. Organic farming does, as such, represent a form of production that is specialised to meet a specific group of consumers. The current challenge is to promote these products to consumers since farmers' motivation to produce organics is based on their products being sold and consumed without loosing its organic quality (Bjørkhaug and Flø, 1999a). With a possible price surplus on organic food, the economic value for the farmer should not be underestimated either.

### **Ideology in organic farming**

Organic farming is used as a collective term for agriculture based on ecological philosophy and principles. Common for the different schools of organic farming are considerations of efficiency and economic benefits giving way to other considerations. According to Innbjør (1983), conventional farming contrasts with organic farming, when it, on the premises of industrial society, aspires to high productivity and economic benefits. With statements like this, the organic movement represents a critique against the existing values of the conventional agricultural system (Flø, 2001; Michelsen, 2001).

The fundamental view of organic farming is that nature has a value in itself. Organic farming is food production based on local and renewable resources within the limits of natural systems. As such, the principles of organic farming reject the use of poisonous fertilisers and genetically modified plants. Furthermore, the use of concentrated grain feed, to feed livestock is kept to a minimum as fodder should be produced locally with a minimum of refinement. Organic farming also has its own rules for animal ethics, involving standards for care and welfare, and strict rules for use of antibiotics. The main goal of organic production is to take care of the richness in the soil through comprehensive management, organic manure and

rotating crops, or growing different plants, from season to season. Organic farming utilises leguminous plants and compost and recycles nutrients. A further aim is to be self-sufficient in fodder and manure on the farm. Organic farming builds on an idea involving the environmental, economical and social aspects of production, both in a local and global perspective (Debio, 2007d).

Sociological research has been carried out on Norwegian organic agriculture since the late 1980's. Pioneers here were Vartdal and Blekesaune (1992) and Vartdal (1993). In Vartdal (1993) three different types of organic farmers in Norway are identified. The first was the anthroposophist farmers who practiced bio-dynamic farming based on the philosopher Rudolf Steiner's (1924) agricultural teachings. Until the 1980s, this biodynamic way was the dominant method of organic farming in Norway. The second group, the ecosophist farmers resembles the thinking of the Norwegian philosopher Arne Næss. Næss (1974) held that nature has its own value equally to the value of human beings. Næss (op cit.) argues that we live in a sick society if humans blindly follow progress without any debate around the direction of the future development and possible degradation of nature. In Vartdal's (1993) work, the ecosophist farmers are the group most critical about the unsustainable nature of conventional agriculture. The third group, the *reformists* are those organic farmers who reorganised their farming both on environmental and economic considerations but in the absence of an explicit ideological standpoint (Vartdal, 1993:88). For the reformist farmers, a continuation of organic farming is dependent on both a sufficient price for the products, and on public subsidies. Vartdal (1993) believes that the number of reformists is growing.

Predictions about the loss of ideologically-driven organic farming have been a cause of concern for the anthroposophists and ecosophist branches of organic farming, and also for many "organic" researchers. As Kristensen and Nielsen (1997) have pointed out: Non-ideological growth might involve a loss of ecological ideology in organic farmers' organisations. According to Marsden (2003), the organic movement has always faced the "ideology" dilemma. For instance, the movement wants to expand the market for organic foods, the amount of organic certified land and the number of consumers of organic products. One way to achieve this is to tap into conventional supply chains such as supermarkets. However, the movement also wants to maintain the values and ideologies that organic farming is based on, such as the local circulation of input and output. Problems are likely to arise if agribusiness fully adapts to and dominates the organic agriculture (Flaten et al., 2006;

Guthman, 2004a; 2004b). This prediction has been conceptualised as the "conventionalisation thesis". The thesis claims that e.g. large-scale organic farms may operate much more like conventional farms without the benefit of any great social improvements that may have been possible under localised organic systems. On this question, many arguments have been launched. Lockie and Halpin (2005) do, however, request that researchers avoid an uncritical aggregation of multiple dualisms with an implicit good or bad organic connotation such as small-large, artisan-industrial, local-international and so forth, as the deployment of such polar-opposites masks the layered and complex situation of organic farming. Like Lockie and Halpin (2005) studies shows, analyses carried out in this thesis confirm that organic and conventional farmers depart on the topic of what constitutes a sustainable future in agriculture. These values and trends are uncovered in qualitative and quantitative analyses throughout the three of the papers that form part of this thesis (5, 6 and 7). I therefore lend my support to Lockie and Halpin's (op cit.) request. Despite the utility of the conventionalisation debate, this is not explicitly operationalised in my thesis as so far, data has not been available to execute suitable analyses of the changing value-orientation in organic farming.

#### **Ecological management principles**

Organic agriculture has challenged the norms and values of traditional farming, enabling new groups of farmers, including women, to realise their rural and agricultural potentials. As I traced the ideological content of organic farming, it was impossible not to see the similarities between organic ideology and the ideology produced by the frontier of the eco-feminist management perspectives (for example Shiva, 1989 and Mies and Shiva, 1993). Ecofeminism is "a sensibility, an intimation, that feminist concerns run parallel to, are bound up with, or perhaps, are even at one with, a concern for the natural world as subject to the same abuse and ambivalent behaviour as women" (Cheney, 1987:115). The major difference between the organic ideology and eco-feminism is that the latter argues that the processes of production and reproduction are embedded not only in women's biological role as mothers, but also in their social role. Women are within this theory seen as 'naturally' carriers of a feminine management principle. The similarities of values and ideologies of organic farming and eco-feminism are explored in paper 6, where analyses of women and men farmers' attitudes and values are conducted. Findings from both sexes were controlled for the farmers method of farm production; either organic or conventional. Interesting gender patterns were found, most notably that feminine management principles correlating to an organic ideology

were found among women, but not exclusively. Men in organic farming were found, as often as women in conventional farming, to possess such values. In paper 6, these findings are theorised in terms of femininities and masculinities. Analysis in the paper shows that female organic farmers expressing traditionally feminine values can be placed at one end of an attitudinal scale and male conventional farmers expressing more typically masculine values at the other end. In the centre of the scale farmers negotiate and interpret their roles and identities, with conventional female farmers expressing femininity in flux (see Brandth, 1994), and male organic farmers exhibiting feminine values through a dialogic masculinity (see Peter, et al., 2000).

# **Reflections on data and methods**

The methodological approach applied in this thesis is mixed. The doctoral project raise questions of how farmers respond to changing policies, and technological and economic conditions from a traditional structuralist perspective. This is balanced by an actor-oriented approach to establish *why* groups of farmers might respond differently to the seemingly same external forces. This involves analyses of structural changes on the farm level, the composition of different agricultural practices, and organisations of farm households, but also farmers' motives, attitudes and strategies.

My main objective has been to use the methods necessary to answer questions raised about the future of family farming in Norway. From an early stage in the research process, it was obvious that both a structural and actor-oriented approach was needed. The main unit of investigation has been Norwegian farmers. The methodology was designed to elicit the best possible response to the questions asked, drawing upon both qualitative and quantitative methods to achieve this. As such, the methodology and subsequent methods were research driven, rather that representing a slavish commitment to taking a dichotomous qualitative/quantitative approach. The questions have been about quantity and extent; changes in work and income pattern among farming men and women and their spouses, gender roles and changing gender patterns over time (papers 2 and 3), aggregated future prospects for Norwegian farmers (paper 4) and farmers attitudes and motives for what they do (papers 5 and 6). The latter is investigated both through quantitative and qualitative data. I have also explored why farmers 'do what they do' and asked why there are differences between groups of farmers in how these particular practices can be explained. This is connected to application of theoretical concepts of practice that was delivered by Bourdieu (1990) who developed a tool that aimed for studying the *relation* between structure and actor (see paper 5), but also to gender and feminist theories of male and female practices (paper 6). In the following section, all of the data used to operationalise the farmers' situation of this thesis are presented and evaluated.

# Sources of data

Survey-data dominates as a source of quantitative data used throughout this thesis. Data is derived from several primary sources; from Statistics Norway and from the CRR. One relates

to five agricultural censuses which were conducted between 1987 and 1999. Another draws upon farmer Trend-data gathered during two distinct survey research phases; 2002 and 2004. Analyses of these data are presented in paper 2. Analyses of Trend-data from 2004 are also referred to in paper 1 and form the basis of the analysis in paper 4. In addition to this, Statistics Norway's surveys *Living Conditions among Farm Households* from 1995 and 2002 are analysed in paper 3. In papers 6 and 7, data from conventional and organic farmers are compared. These were collected by CRR in 1999. In paper 7 these data are also compared to a survey of consumers. The consumer data were also collected by the CRR in 1999.

Data from qualitative research was also used throughout this research. Interview data with farmers were collected by me and colleagues on CRR through 2003-2005. This material is analysed and reported upon in paper 5. To some extent, paper 1, a comparison of Norwegian and Australian agricultural policy and practice, also draws upon this data, as well as the Trend-data mentioned above. Paper 1 does, however, differ from the other papers as it is not based on empirical survey or interview data *per se*. Rather, the data forming the analysis combines secondary data, such as policy documents, previous research, with the empirical and analytical work of both authors. Documents as source of data are discussed in the final part of this section.

Although the sources of the data and methods used throughout this program of research is accounted for in each paper, the opportunity for a thorough elaboration varies from paper to paper due to space limitations and preferences of editors, referees and publishers. The following section is therefore devoted to a more thorough presentation and reflection of data used in this thesis. A reflection is also made in connection to the validity and reliability of the various sources of data, and the 'mixed' methods approach is appraised.

# Quantitative data

The following section elaborates on the quantitative data used, the potential problems connected to these data and the operalisation of them. Several different forms of data have been used for the purpose of highlighting the structural changes in Norwegian agriculture over time. Different datasets have been used in the papers because of the absence of one source including all relevant data needed to answer the questions raised during the course of the research. The datasets are described, one by one, below.

#### Statistics Norway 1987 – 1999

Data relating to the variables 'income' and 'time use' both on and off the farm between the years 1987 and 1999 used in paper 2, are published on line by Statistics Norway (Statistics Norway, 2006a; 2006b; 2006c). Data on income from 1987 and 1997 are collected from Statistics Norway (Statistics Norway, 2006a) (which are complemented by Trend-data from 2001 and 2003, see documentation under the heading 'Trend-data'). Figures of 'working hours per year' on and off-farm by male farmers and male spouses in three periods of the 1990s (1989/90 - 1994/95 -1998/99) are collected from Statistics Norway (Statistics Norway, 2006b; 2006c)

The Census of Agriculture (Jordbrukstellingen) which commenced in 1907, is carried out every ten years. The latest of these census data were collected in 1999 (Statistics Norway, 2002). In the census, all farms with minimum 0.5 hectares agricultural area in use or a certain extent of livestock or plant production obliged to participate. In 1999, 70740 farms fulfilled this requirement and these makes data for 1999 in the analyses.

In between the census dates, statistics are collected using yearly sample surveys. Another of these agricultural surveys, Agricultural statistics (Landbruksundersøkelsen) is also used in paper 2. The samples for these surveys are drawn from the agricultural register, which is administered by the Norwegian Agricultural Authority (Statens Landbruksforvaltning), which records farming population information (based on farm attributes such as size or levels of production). New or partly new samples are drawn for the Agricultural statistics each year (Statistics Norway, 2002). The size of the samples depends on thematic variation each year, for example, in 2000, the focus was upon forestry. Every two or three year, work and workload is a particular topic.

Agricultural statistics have, since 1984, been based upon information provided by farmers when applying for production subsidies (Statistics Norway, 2002). Until 1999 one of the criteria was a minimum 0.5 hectares agricultural area in use. However, the minimum production criteria for applying for subsidies has changed over time after 1999. New requirements include a statement on economic turnover and a larger area in production. Statistics Norway still collects data on farms that have minimum agricultural area of 0.5 hectares to ensure that present statistics is comparable to those of previous years. The 0.5

hectare agricultural area in use makes a comparable criterion for all farm surveys in this thesis.

The reliability of such data is connected to Statistics Norway's methods and evaluations. Sampling errors, for example, errors in representativity do not exist where datasets contain 'whole of population' data as is the case for Statistics Norway census data. However, error might occur when respondents provide inaccurate information, or when data is misread electronically. Given the quality control systems instituted by Statistics Norway, who evaluate and control data in several stages before they are published (Statistics Norway, 2002), concerns about data integrity are minimal.

# Trend-data 2002

Trend-data is derived from survey research with a sample of Norwegian farmers. These surveys are conducted bi-annually by the CRR in Norway, with the first survey conducted in 2002. The purpose of the survey is to provide a general base of knowledge on the sociocultural factors of Norwegian agriculture and the changes in these over time. It also provides new research with relevant empirical data and reveals new questions in rural research (Rye and Storstad, 2002).

The target group or population is Norwegian farmers. These are persons that are main operators if farms with a minimum of 0.5 hectares agricultural area in use. As such, Trenddata reflects the sampling criteria of Statistics Norway data as described above. I have not personally been involved in working out the technical specifications relating to sampling or data collection of these data. Colleagues as CRR worked out the sample method and Sentio, a market research company was hired to do the practical collection of data. The discussion of samples, errors and representativity here, is based on a report written by researchers at CRR: Rye, Storstad and Flø (2002).

The sample for Trend-data 2002 was drawn from the Norwegian Agricultural Producers Register (Produsentregisteret). As at January 2002, 69000 farms were included in the register. Out of these, 2000 were smaller than the minimum criteria of 0.5 hectares and therefore were not included in the total population. Further, eight persons excluded themselves due to personal reservations. Out of the remaining, 3206 names were randomly drawn from the

register to represent the farmers. From this number, a further 13 were excluded because the farm was dismantled. The final gross sample was then 3183 persons.

The survey was conducted using postal questionnaires that were addressed to the main operator of the property (as per the Norwegian Agricultural Producers Register). Of the 3183 surveys posted, 1678 were completed and returned representing a response rate of 53 percent, a rather good response. One postal reminder had been sent out. Evaluations of the material were executed to judge whether the sample, after a 47 percent dropout rate, was representative for Norwegian farmers.

On the variables of sex, age and geography, the net sample was compared to the production register and found to be 'close enough' (Rye, Storstad and Flø, 2002). Comparisons were made on the variable 'form of production' using other agricultural statistics from Statistics Norway. It was established that Trend-data 2002 represents more grain producers and fewer milk and sheep producers than comparable statistics. However, for the purposes of the current study, this should not represent too great a problem. It was also found that Trend-data 2002 represents a few more large farms (hectares in production) than comparable results from The Census of Agriculture that occurred in 1999. A reason for this could be the general structural changes that occurred in Norwegian agriculture over the same period, and as such, may be indicative of the trend towards larger farms.

Following several more tests of variables, the evaluation team concluded that the Trend-data 2002 sample population was broadly representative of the total population of Norwegian farmers to capture variation and diversity (Rye, Storstad and Flø, 2002). I concur with this assessment. Data on work and net income from farm and off-farm work from Trend-data 2002, are analysed in paper 2.

### Trend-data 2004

The Trend-data study that was reported above was repeated in 2004. The purpose of the survey was the same as for the 2002 survey. The population-criteria was also the same, targeting; the main operators on farms with a minimum of 0.5 hectares agricultural area in use.

The sample for Trend-data 2004 was also drawn from The Norwegian Agricultural Producers Register (Produsentregisteret). In January 2004, 62326 farms were included in the register. Out of these, 1566 were smaller than the minimum criteria of 0.5 hectares, and was therefore not included in the population. In addition to these, 1127 joint farms<sup>3</sup> were withdrawn from the population together with 2397 farms that were not registered with sole proprietorship. In some cases, these criteria also overlapped. The final net population for Trend-data 2004 was 57908 farms, with 3200 names drawn from the register following the same criteria as Trend-2002. As with the 2002 data, the person who filled in the application form for production subsidies was regarded as the main operator of the farm. Out of this number, 20 reported on deaths or the dismantling of the family property. The final gross sample was 3183 persons. Another 36 questionnaires were returned due to wrong address. To avoid wear out of respondents, participants of Trend-data 2002 were not asked to participate. In total, 1712 Norwegian farmers returned completed questionnaires, giving a response rate of 55 percent. One reminder had been posted. Analyses of the representativity and validity of the data showed that the data was of high quality (Rye, 2004).

In Trend-data, respondents received an initial inquiry about completing the survey, and as mentioned, the *main user of the farm* was encouraged to respond to the questionnaire. In 2002, 88 percent of the received questionnaires were filled in by men; in 2004 this figure was remarkably similar at 87 percent. Correspondingly, 12 percent of responses in 2002 were from women, this figure was 13 percent in 2004. The main users were also asked to report data on their spouses' behalf (husband/wife/partner). In 2004, 83 percent of the male farmers had a spouse, as did 84 percent of the female farmers. As Trend-data were collected in 2002 and 2004, respondents reported activities in the previous year and analyses in the thesis reflect income and time use in 2001 and 2003 (see paper 2).

The questions asked in Trend-data 2002 and Trend-data 2004 were developed by the CRR. As I had a role in preparing the questionnaire items for these surveys, a proportion of the questions asked were directly relevant to this research. Some questions were collected from previous surveys and ongoing agricultural statistics to enable comparisons over time. Others

 $<sup>^3</sup>$  Joint farming is i.e. farmers who join neighbours or relatives in joint enterprises. Joint farming (or group farming) is an intensive form of cooperation in agriculture, where former family farmers join their resources (like land, machinery and buildings) to farm as a joint enterprise. These are not collectives, because they still own their land, neither are they production co-operatives in the traditional form. (Definition by E. P Stræte and R. Almås (2007).

http://www.esrs2007.nl/dynamic/media/1/files/WG20\_Almas\_and\_Straetedef.pdf (06.03.2007)).

reflect information from general agricultural statistics, and others were used in Statistics Norway's study *Living Conditions among Farm Households* that are presented below. Trenddata 2004 are analysed in paper 1, 2 and 4. In paper 1, variables on attitudes on agricultural policy are reported. In paper 4, variables of income and reports on future prospects are analysed in combination with background variables such as gender, age and educational level of the farmers and of production on the farms.

### Living Conditions among Farm Households 1995

The survey *Living Conditions among Farm Households 1995* was carried out by Statistics Norway in 1995. The purpose of this survey, and other surveys of living conditions in the Norwegian population, are to give a status-report of different aspects of people's everyday life (Løwe, 1998). One important objective is to reveal the differences between groups in society. Living Conditions among Farm Households is a particular survey aimed at the farm population. The survey consists of comparable questions to the general survey on living conditions, in addition to questions that relate to farm life and the agricultural industry. Statistics Norway is responsible for the survey and data have been made available to researchers at the CRR through the Norwegian Research Council financed project entitled "Recruitment to farming". The evaluation of data is based on Statistics Norway's own evaluation of data and for this particular survey of 1995. I base the presentation on a report of Løwe (1998).

The sample for *Living Conditions among Farm Households 1995* was drawn randomly, though geographically stratified, from the Agricultural Register (Landbruksregisteret). The unit of analysis is the farm, and farms from 172 municipalities representing all 19 counties in Norway were represented. A minimum requirement for participating in the survey was either; 0.5 hectares agricultural area in use; a minimum of 10 cattle, 25 adult sheep, 10 adult goats, 5 breeding or 200 other pigs, 1000 hens/chickens or 5000 slaughter ready chicken. The survey does, as such, represent a sample of farms with a minimum size or productive output.

1799 farms, representing 3531 persons, were drawn for structural interview. Of this number, 148 persons on 130 farms were not interviewed because farm production had ended. 465 persons were lost mainly due to refusal to participate. Finally, a total of 2918 persons representing 1401 farms were interviewed, most in person, some on phone, giving a high

response rate of 86 percent on an individual level, or 84 percent when calculated at the farm level. In the survey, the farmer, his or her spouse and all other persons aged 18-79 who contributed to farm work were invited to be interviewed. The farmer was defined as the person responsible for the daily operations on the farm. The interviews were carried out in November and December 1995.

Norway was divided into 6 regions with mutual structural differences connected to production, settlement, and so on for sampling. From each region, approximately equal samples were drawn. The total number of farms in each region does however vary substantially. The sample is therefore systematically skewed. Using 'weightings' are both desirable and relevant when there are large geographical variations in the questions studied, when the aim is to predict absolute or whole numbers for the country or compare across regions (Løwe, 1998). Regional variation is obviously a relevant factor in explaining differences in Norwegian agriculture, but this has not been a variable in my thesis (paper 3), where I employ model-based analyses on the un-weighted material.

In the sample of *Living Conditions among Farm Households 1995*, 49 percent are farmers (1398), 38 percent spouses/partners (1069).<sup>4</sup> In addition to these are 378 other persons of whom, 109 are other adult (between 18 and 79 years) household members working on the farm, (109) and 193 adult persons employed on the farm and 92 possible working partners of these. In my thesis, only data from farmers and their spouse are analysed and only those who were married or had a spouse were included. Even though the sample is a farm sample, it can also be treated as a household sample since it is people on the farms and their situation that have been the objective of the interviews. Both Statistics Norway and this current research treat data as household data (Løwe, 1998). Data are analysed in paper 3 and variables used are commented under the presentation of data of Living Conditions among Farm Households 2002.

### Living Conditions among Farm Households 2002

The survey *Living Conditions among Farm Households 2002* was, as the pervious survey, carried out by Statistics Norway. The survey was developed by several sections within the Statistics Norway organisation, including the social and demographic research section and the

<sup>&</sup>lt;sup>4</sup> These are numbers coming out of the weighted sample used in Løwe (1998). In paper 3 an un-weighted sample is used. The numbers might therefore differ slightly.

primary industry statistics section. In addition, representatives from CRR and The College of Stavanger also had input into the data collection. The following information on the evaluation of data is collected from Statistics Norway (Vågane, 2002).

The questions asked in *Living Conditions among Farm Households 2002*, mainly reflected the survey of 1995. The main difference is the sample: only the farmer and his or her spouse were interviewed in this second survey, whereas the previous round of data collection included all members of the farm household and employed personnel. For the purpose of the current study, this does not represent a problem as only farmer and spouse data are used in analyses relating to this thesis. 2002 data are compared to the 1995 survey in paper 3.

During the 2002 survey, 2010 farms were drawn for interviews. Since the objective was to conduct home interviews also in this survey, the samples are drawn from municipalities where Statistics Norway employs interviewers. Forty-one farms were lost due abandonment. From the gross sample of 1969 farms, 417 farmers/spouses were not interviewed, mainly because they did not want to participate. In all, people on 1552 farms were interviewed, a response rate of 79 percent. The survey was carried out between January and April 2002. Approximately 50 percent of the participants were interviewed at home, whilst the rest over phone. Eighty nine percent of those interviewed were male farmers and 11 percent women. Eighty percent of all farmers had a spouse/partner and 92 percent of these were interviewed.

The sample was drawn from those who had applied for production subsidies as at July 2001. Farms smaller than 0.5 hectares and farms smaller than 2.0 hectares without animal production were withdrawn from the sample. The population was divided into 40 strata out of 'region' and 'form of production' (milk, beef, sheep, grain and others). Within each stratum, the farms were grouped by size and drawn systematically to ensure an even distribution among different sizes (hectares) of farms.

In paper 3, the possibility of new work patterns between men and women in Norwegian agriculture are analysed, using data from the two surveys on *Living Conditions among Farm Households*. Analyses are carried out on how much time the farmer and her/his spouse spends on farm work and whether there have been changes in this over time (from 1995 to 2002). Time spent on farm work is explored by using farmer and farmers' spouse reports in the surveys. Statistics Norway operationalised this through a table where farmer and spouse

reported on weekly average hours spent in the previous year's 12 months respectively. Only work directly connected to operating the farm were counted. The question was posited prior to the interview, so that the respondents could have ready answers when the interview was conducted. A problem connected to this question was the predetermined parameter of a maximum of 97 working hours a week, where figures higher than this was rejected by the computerised survey system used under the interviews. A small number of farmers and spouses reported working longer than 97 hours. Some of the numbers were added after the interview, some might have been lost. However, this only represents a few extreme 'cases' and does not considerably detract from the value of the data collected and subsequent analyses conducted in relation to the thesis. Analyses of these variables shows that from November to March 2001, the amount of farmers working 97 hours a week is at a maximum 0.6 in that period, with none working more than 97 hours. In the growing season, the amount is slightly higher, 2.6 percent working 97 hours a week and 0.1 percent working more than 97 hours. The recorded maximum is 0.4 percent farmers working over 97 hours with a height of 3.2 percent working 97 hours a week in May 2001. The variables of working hours are analysed together with some background variables of the farms; size of productive land and production and of farmers; age, educational level and partners activities. Separate analyses are run on men and women.

# **Organic and Conventional farmers 1999**

In paper 6, the aim of the analysis was to explore whether Norwegian women farmers in general exhibit different values and attitudes to agriculture than male farmers, or, whether organic farmers as a group exhibit a more feminine mode of farming than conventional farmers. Quantitative data from samples of organic and conventional farmers were used. These data consists of two surveys carried out in spring of 1999: one sample of organic farmers and one sample of conventional farmers. Data were collected for the project "Food and environment: consumer attitudes and challenges for local production and national distribution of organic foodstuffs". The project was financed by the Norwegian Research Council (1997-2000). The survey was developed and carried out by myself and other researchers<sup>5</sup> at CRR. The purpose of the survey was to reveal the motivational factors for different forms of agricultural production and to identify factors that could enable more farmers to convert to organic farming. Another aim of the study was to get an overview of

<sup>&</sup>lt;sup>5</sup> In particular B. E. Flø.

potential problems connected to the production and distribution of organic food. Through the questionnaires, we asked both organic and non-organic farmers about their attitudes towards general environmental issues connected to farming and towards organic farming in particular. These surveys also involved standard questions on production type, farm size, workload and technical issues. Personal information on farmers, such as their sex, age and educational level, among others, were also gathered. The two surveys were almost the same, however, the 'organic' questionnaire included a specific part on organic farming for the organic sample, and similarly a specific part on conventional farming in the 'conventional' questionnaire. The questionnaires are printed in Bjørkhaug and Flø (1999b). The quality of the data has been evaluated and is reported in a separate publication (Bjørkhaug and Flø, op cit.). The questions were partly new, partly resembling previous surveys and agricultural statistics from Norway. The following section reports on some essential facts relating to these particular surveys.

A sample of 750 organic farms was drawn from Debio's (see footnote 4) register of organic (approved or under conversion) farms in Norway in 1998. This represented approximately 50 percent of all organic farms at that time. Six were removed because of double registration, unknown address or abandoned production giving us a gross sample of 744 farms. Of these, 438 farmers responded to the survey, giving a response rate of 59 percent. One postal remainder was sent out.

Likewise, a sample of 750 conventional farms was drawn from the Norwegain Agricultural Producers Register (same as for Trend-data). The 750 farms represented approximately one percent of all Norwegian farms at the time. The two samples represent disproportional strata, but an overrepresentation of organic farmers was needed to secure an adequate number of organic farmers for statistical analyses. The state grain board (Statens kornforretning), now known as the Norwegian Agricultural Authority (Statens landbruksforvaltning) draw the sample. Five farms were lost because of double registration, unknown address or abandoned production. This left us with a gross sample of 745 farms. Of these, 383 farmers returned filled in questionnaires, giving a response rate of 51 percent. One postal reminder was sent to the farmers. The sample criteria for both samples were, consistent with previous Statistics Norway and Trend-data surveys, a minimum 0.5 hectares agricultural area in use.

With missing responses, the possibility of systematic errors arises. In total, responses were missed from 305 organic and 362 conventional farms. Since this survey was carried out as a

postal survey which depended upon on the respondent's acceptance and willingness to complete and return the questionnaires, the reasons for the missing responses is unknown. Several tests were executed to check the net samples against comparable variables from other statistics. The sample of conventional farmers was controlled for representativeness, compared to Norwegian farms as a whole on farm related variables as well as on the demographic variables of the farmers (Bjørkhaug and Flø, 1999b). The sample was judged to be representative of Norwegian conventional farmers when compared to data from Statistics Norway survey, Living Conditions among Farm Households 1995. The aggregate data departed a little from Statistics Norway's sample, as there were more farmers with higher education levels in both the organic and conventional samples. Further, farmers were also found to have a slightly higher farm income. This could be explained as part of the ongoing trend of young farmers coming into agriculture with higher education, and the relative falling productive output of farming, when compared to off-farm income. There was no comparable information on the demographic characteristics of organic farmers since this was the first survey of its kind to be conducted the topic of organic farmers in Norway. The sample is therefore judged to be accurate and representative when compared to qualitative studies of organic farmers in Norway and neighbouring countries. Data that were compared with available statistics on organic farms were found representative in that respect (Bjørkhaug and Flø, 1999b).

Agreement on one or more characteristic is not necessarily a guarantee for avoiding problems connected to other characteristics. Similarly, a lack of representativity on one variable will not necessarily create problems on other variables. Present available information was limited to the names and addresses of the farmers and a specific reflection can be connected to the share of men and women in organic and conventional farming. The difference between gross sample and responses was larger in the organic than the conventional sample, nearly 2 percent in favour of women. The samples also differed between organic versus the conventional farms on this issue. In the conventional sample, only one person represented the farm. This was the one who filled in the application for production subsidies as was the case with the other surveys above. For the organic farms, 20 percent of the questionnaires were addressed to a couple, a man and a woman. At the point of investigation, we did not know whether a joint ownership was more common on organic than conventional farms. The differences calculated above are based on pure male or female headed farms. The higher share of women in organic

farming might then be related to the fact that women more often answered questionnaires on joint-owned organic farms.

The share of women in conventional farming in 1999 was 11 percent of the net sample. This corresponds to statistics from *Living Conditions among Farm Households 1995* (Løwe, 1998) and also studies by Blekesaune (1996a) and Haugen (1998) showing the share of women farmers of around 10 percent in the second half of the 1990s. In the 'organic' data the share of women is the double.

An additional test illustrates whether the gender difference in organic and conventional farming was random or real for 1999 data. Table 3, below, shows the share of women and men in data from 1999 compared to Trend-data in 2004. The gender pattern, as discussed in several of the papers in this thesis (paper 2 and 3 in general, and paper 5 and 6 on gender differences in organic and conventional agriculture in particular), is that the share of women farmers is rising slowly in Norway, but also that the difference in the share of women between organic and conventional farming found in 1999 still exists in Trend-2004 data.

	199	9	2004		
	Organic	Conventional	Organic	Conventional	
Share of women farmers	20	11	21	13	
Difference between men	Pearson' chi-	p= 0.001	Pearson' chi-	p=0.009	
and women	squared		squared		

Table 3. Women in organic and conventional farming in 1999 and 2004. Percent.

Data on organic and conventional farmers are used in paper 6 to explore value differences among men and women in organic and conventional farming. Variables on motivation for farming and attitudes on environmental issues in agriculture are used. These surveys are also used in paper 7 on the question of foundations of production and consumption of organic food in Norway. Description of the variables used in the paper is commented on under the presentation of consumer data below.

# Data's representativity for Norwegian farmers

The word-pairs "reliability" and "validity" are frequently seen and most expected in a reflection on methods. Errors can occur in every investigation that is carried out and might

occur when developing, carrying out or handling survey-data. Reliability of data is connected to random or accidental errors while systematic errors influence the data's validity (Ringdal, 2001). For each dataset used in the thesis method of sampling, collection and estimates of representativity are outlined. A remaining question is however: is data representative for Norwegian farmers on Norwegian family farms? This is a crucial question regarding the validity of the conclusions of this thesis.

All data collected are using the farm as the unit that was drawn for the sample. On each farm, a name, most often the owner/farmer or those applying for subsidies, has been connected to the farm. All farms represent individual owners, farmers, rather than companies or organisations. As the questions were aimed for personal users, persons that answered the questionnaires should represent Norwegian farmers at the time of the survey. Data are regarded as valid for the purpose of this thesis, as there has not been identified any particular sub-group of farmers that chose not respond. Differing response rates might be an indication of different farmers' interest in the particular topics of the surveys.

A reflection must be made in connection to the conceptualisation of farm size. A minimum criterion for most samples was 0.5 hectares agricultural area in use. In *Living Conditions among Farm Households 2002* the minimum criteria was increased to either 2.0 hectares agricultural area in use or other minimum criteria of livestock production. According to evaluations of minimum size related to collecting Trend-data in 2002 and 2004, the number of farms in this category is low in the population (see Rye, et al., 2002; Rye, 2004). The potential problem of loosing this group from the population is therefore of minor relevance for most parts of my study. If the purpose of my analyses were to estimate the exact changes in size of Norwegian farms in the period studied, a closer evaluation of this matter would be appropriate.

A more substantial reflection can be made regarding using hectares as a measure for size. How relevant are hectares or number of animals on adaptation or coping ability of Norwegian farmers in the new millennium? This thesis elaborates on different measures of coping opportunities and relates this to income from farming and off-farm work, as well as to activities in a wage-earning labour market for the family farm household as a whole. Values of work and production on the farm are clearly a more important measure of differences and change in family farming throughout this thesis.

#### **Consumer data 1999**

Data on organic and conventional farmers 1999 are reported in paper 7 and compared to consumer data from the same year, 1999. The consumer survey was carried out in connection to the project "Risk communication: food, risk and media". The project was financed by the Norwegian research Council in 1998- 2001 and conducted by colleagues<sup>6</sup> at CRR. Data were collected in the mid of November 1999. Details and evaluation of data, and methods are outlined in Storstad and Haukenes (2000) along with a copy of the questionnaire. Essential facts about the survey are summarised below.

3000 questionnaires were posted to a random sample of Norwegian citizens over the age of 18. The sample was drawn from the national telephone directory, which covered 97 percent of all Norwegian households in 1999. The letter accompanying the questionnaire encouraged the person over the age of 18 in the household, who had the most recent birthday, to answer the questionnaire. This method was used to ensure a better gender distribution. The relatively large sample size was chosen to overcome some of the problems of low response rates, which is a common characteristic of postal surveys of this kind (Storstad, 2007). Out of the sample, 70 questionnaires were returned due to address-errors. Forty-seven were lost due the receiver's inability to respond, leaving a gross sample of 2930 persons. Following one reminder a net sample of 967 completed questionnaires was received, giving a response rate of 33 percent.

To inspect the reliability of the final sample, analyses were carried out on representativity compared to the Norwegian population using demographic data from Statistics Norway. There were not found any evidence to assert that the sample was particularly skewed on demographic variables such as gender (men: 49.1 percent 0.3 percent more than in the Norwegian population), age (even distribution except for a certain under-representation of younger (under 30 years) and older (over 80 years), and education (a certain over-representation of highly educated people (34 against 24) compared to people with secondary education (40 percent compared to 53 percent of the population) (Storstad and Haukenes, 2000:18-26).

<sup>&</sup>lt;sup>6</sup> A. Haukenes and O. Storstad.
Like for any other survey, it is not possible to evaluate whether the subject of the survey has led a group of more 'interested' respondents to answer. The survey was not specifically about organic food and consumption, but more generally about consumer perception of risk in food. For the purpose of analyses in paper 7, respondents' answers of how often they bought organically produced food was used to divide the sample of consumers into one group of organic consumers and one group of conventional consumers. The consumption of organic food was, at the time of analysis, low in Norway. Consumer data from the year 1999 included 6.2 percent weakly organic food consumers (16 percent reported on eating organic food). The weekly organic food consumer is defined as the 'organic consumer' in paper 7 of this thesis and is the comparative character to that of an organic producer. The reason for such a strict definition was that this was the only group that could be conceptualised as conscientious organic consumers. This involves only 55 consumers out of a sample of 967 who are actively seeking organic alternatives when they are buying food. The rest of the sample, 912 persons, is thus referred to as 'conventional consumers'.

A set of questions, and attitudinal scales were asked in all three questionnaires (questionnaire for organic and conventional farmers separately and one for consumers). These included questions about: the environmental status of Norwegian agriculture, the use of genetic engineering in food production and conceptions of what would constitute appropriate animal welfare in livestock production. In paper 7, comparative analyses are carried out on these variables.

### Qualitative data

Having dealt in depth with the quantitative data that are used in this research the following section turns to a consideration of the qualitative data component of the research.

### **Interview data of Norwegian farmers**

The research questions raised in paper 5, that is on how different groups of farmers explain their way of farming, their motives and concerns for agriculture and what they recognise as a 'sustainable' agriculture, were explored through semi-structured interviews. The interviews were carried out in connection to two other projects at CRR, *Recruitment to Farming* and *Women in Farming*, both financed by the Research Council of Norway. The topical relation between these projects and my doctoral project, and the fact that I also worked as a researcher on all of them, present a positive overlap of interview material. An additional output was gained through the involvement of colleagues<sup>7</sup> at the CRR. This made it possible to carry out a greater number of interviews for the benefit of numerous research projects.

Interviews were carried out in nine municipalities, in Eastern, Western and Northern Norway, however with a majority in Mid-Norway. The municipalities were chosen due to dominating productions in the area (vegetables, grain, milk or sheep) and also to reflect the variation regarding conditions for production (coastal, inland and mountainous areas) in addition to a judgement of remoteness and distance to a major city centre.

Thirty-five, in-depth interviews were conducted with Norwegian farmers during the period between 2003 and 2005. We cooperated with the local agricultural authorities in the selected municipalities. The local agricultural offices picked out samples of around 40 varied farms in each municipality. From the agricultural office, a one-page questionnaire was sent out accompanied with a letter from the CRR along with a letter of recommendation from the local agricultural office. This questionnaire was developed by the research team and asked for general demographic data in relation to sex, age of the farmers and main production and size of the farms. On the questionnaire, the respondent was also asked to report on their own family relation to the farm and future prospects regarding potential successors. Name and phone-number could be filled in if the farmer agreed to be contacted for a longer, face to face interview in the near future. The response rate for interviews was good (between 30 and 50). This enabled us to choose among several farmers for an interview, based on the information given in the questionnaire.

It was not a goal to put together a statistically representative group of informants, but rather, to access a diversity of Norwegian farmers. The method is therefore more of a strategic one, aiming for variation. In this sense, the sampling process can be described as purposive (see Strauss and Corbin, 1990). Women, organic farmers and vegetable producers are all examples of groups we wanted to target in order to elicit responses in relation to our respective research questions. This process was successful, and resulting in interviews with 21 men, and 14 women. The farmers interviewed also represented different generations to ensure that

<sup>&</sup>lt;sup>7</sup> R. Heggem and M. Farstad.

differences in values and beliefs across generations could be gauged. On all sites, the aim was to interview the person that identified as 'the farmer', however, in some interviews spouse was also present. Interviews were mostly carried out in the respondents' home, lasting between one and two hours. The interviews were taped and transcribed in agreement with the respondents. All data are stored and used in an anonymous from.

As mentioned above, paper 5 addresses questions of conceptions of sustainability in Norwegian agriculture, in agricultural policy and in the daily operations of Norwegian farmers. The material was analysed in several stages inspired by the work of e.g. Strauss (1987), coding with focus on categorisation and conceptualisation. The work is also inspired by Kvale (1996) who argues that one need to look for meaningful categorizations from the narratives of the informants. NVIVO, a software program developed to handle qualitative data such as interview transcripts, was used in the initial analyses to sort and pre-code interviews data. In the final section of the analyses, a full-text reading of the individual interviews was needed to ensure that findings were considered in their original contexts. The interpretations and translations of the informants' narratives are retold through the categories and concepts that were developed through the analyses. These were not completely free, but related to Bourdieu's (1990) theory of practice, which include concepts such as field and habitus. In the farmers' stories, parallels and differences between each farmers experiences revealed themselves. Parallels were found between farmers' with common features, such as their gender, or similar backgrounds, such as being an organic farmer. Differences were linked to the farmer's narratives of their background, socialization, their motives and form of production. The stories enabled a conceptualization of different types of habitus' on the agricultural field. The farmers' stories further revealed that the choices of certain agricultural practices and conceptions of sustainability were connected to the habitus and that habitus structured a certain practice. Citations are used in paper 5 to illustrate values and concepts, not cases.

Of course, neither habitus nor other of Bourdieu's concepts was mentioned in the interviews. Neither was a discussion of different conceptualisations of sustainability. The analyses and categorisations of data are my own interpretations of the information given. The citations used in paper 5 reflect these interpretations. Validity of data should therefore be connected to the usefulness of the examples in connection to the theoretical outlines. I value the material to be a good reflection of the patterns that are constructed. Carefully tests of my analyses and

conclusions have been carried out on colleagues that know the material in addition to colleagues that have not seen the material but know the field. Anonymous referees have also judged and found the story to be credible.

Generalisability is a key consideration. How far can these research findings be generalised within the farming population of a region, or more broadly Norway? Further, can data from interviews with farmers be generalised across all farmers or groups of farmers? I have been inspired in this instance by Williams (2000) and Payne and Williams (2005) who argue for using a 'limited generalisation' of interview data. According to Payne and Williams and Williams (op cit.), is this something that should, can be and not at least are often done. Payne and Williams (2005) argue that researchers should aim for a *moderatum* generalisation, when aspects of a study can be seen as examples of a greater recognisable pattern, related to previous findings in own research or other comparable research. As such, the relevance of the study is more likely evident.

### Interview data of Australian graziers

In paper 1, knowledge built from my own interviews, in addition to knowledge from interviews carried out of my co-author<sup>8</sup> on Australian graziers are used. Interviews with Australian graziers were carried out between 2002 and 2004 (see Richards, Lawrence and Kelly (2005) for initial findings from this research). I was able to participate in one of the field trips to the study area and engage in interviews with cattle graziers. Combined data from this research and my own Norwegian research form the basis for the theoretical arguments put forward paper 1. Descriptions and analyses in the paper are also based on an extensive literature review and my own analysis of statistical material from Norwegian farmer surveys (Trend-data 2004) and use of statistical material from secondary sources that are referred in the paper.

### **Documents**

Documents also form a basis of the work carried out in paper 1. Some policy documents regarding the respective countries' (Norway and Australia) presentation of multifunctionality are employed. Information on Norwegian positioning regarding this issue was collected on the Ministry of Agriculture and Food's international homepage. Input on Norwegian agricultural

<sup>&</sup>lt;sup>8</sup> C. Richards

policy was also collected from pages in Norwegian language. Similarly, information was collected from the Parliament of Australia. These documents were read for the purpose of assessing the current official 'discourse' in relation to national policies. As such, the documents represent a source of data which was handled and evaluated similar to other sources of data regarding authenticity, objectivity, representativity and credibility (see e.g. Scott, 1990; Syltevik, 2005). On the issue of a multifunctional agriculture and Norway's and Australia's positioning regarding WTO versus domestic agricultural policy, the policy goals differ. It is these differences that form the focus of paper 1.

### Reflections on the combination of data and methods

Different sources of data might contribute to a broader understanding of the field studied. Qualitative data contributes to an interpretive sociology. Empirical sociology should be interpretative rather than merely descriptive as Storstad (2000:16) notes: "...describing or descriptive stories is hardly more than flat and uninteresting". Djurfeldt (1996) adds that one should also aim for an understanding and explanation of the reproduction of reality, through statistical extrapolation and scenarios. It is motivating to propose research questions and possess ambitions of also explaining individual or group actions in differing situations.

A way to meet the potential weaknesses of respective methods is to combine them, and that has been an objective in my thesis. Traditional ways of combining qualitative and quantitative data have however not been used if one should follow Brannen's (1992) descriptions of the two most common ways of combining methods. In my work neither sources of data or methods have been used solely to facilitate the others; a) by using qualitative data to identify meaningful categories, concepts, scales or hypotheses that can be tested statistically or b) by using quantitative data to accommodate survey-criteria's for a qualitative study. In my research each source contributes equally and must be viewed as complementary to each other. Conclusions that are drawn in this thesis are based on the meeting of all of the information presented in each paper separately not on a distinctly quantitative or qualitative basis. The strength of combining different data and analyses is revealed in a more 'holistic' analysis of the general patterns and structures of Norwegian family farming over time, whilst also presenting a depth to the field of inquiry. This is most evident where an understanding of the social phenomenon is not simply available through statistical analysis but can be revealed through a longer continuous conversation like a face to face interview.

A possible weakness is the chance of getting lost in one's own material or research tradition. Mixing methods often involves a movement between scientific paradigms (Brannen, 1992). A challenge here is to know the different schools and concepts that are challenged through a triangulation. I agree with Hollis (1994) when he argues that one might well be able to point at weaknesses within different schools of thoughts, but it is not equally wise to place one self in the middle and collect a bits and pieces from everybody. I assume I have overcome this potential problem by being explicit and equally committed to all methods and theories used and in connection to conclusions drawn throughout the papers. The objective of this methodology section has been to outline data and methods used in the papers of my thesis. It is evident that quantitative data dominates the analyses in the thesis. I have followed the present statistical rules of the necessary criteria that need to be fulfilled to draw general conclusions from these analyses. I have not restricted my statistical analyses to the presentation of raw numbers, but have used variables aimed for an understanding of the more 'qualitative' patterns and questions of how and why these detected differences appear. Similarly analyses of interview data revealed some general patterns, not to be confused with generalised patterns. The purpose of data was then not to understand an individual farmer's story but to attach valuable categories and concepts to the narratives in the thesis.

### Conclusions

This thesis, the material outlined above in combination with the thesis' papers, has shown that policy settings and economic conditions are only two, but important parts of the Norwegian family farming 'reality'. Others are those embedded in norms and traditions that family farming as an institution preserves and continues to pursue. The thesis has argued that it is of advantage to challenge the dichotomies of structural and actor oriented social science approaches to the study of agricultural restructuring, family farming and farmer adaptation to prevailing structural conditions within which Norwegian farming is enacted. Through a detachment of a dualistic perspective on either structure or actor, the thesis offers explanations on how structures influence on actors and groups of differently, and that actors possess different interests in changing their current situation.

The political and institutional framework farmers finds their family farm to exist within have been outlined in the thesis. The policy setting is partly based upon national interest, partly on global influence. As agriculture is restructuring, Norwegian farms are increasing in size, both in crop growing area and livestock capacity. The economic output of farming is, however, not corresponding to increased production. Fewer farms can offer a livable income for the farming couple. Present agricultural policy, influenced by ongoing negotiations in the WTO, continuous discussions on EEA and EU related topics, among other things, is leading to reductions in direct production subsidies nationally. Those entering farming are advised to either rationalize or find new ways of developing businesses or niche productions based on agricultural resources. At the present, national agricultural policy aims for continued agricultural production:

• In Norway, agriculture has thrived within a protectionist setting with the support of the public, the state and agricultural actors.

Norway can, when compared to a neo-liberal country like Australia, be seen situated toward a 'strong' end of a continuum of a level of multifunctional agriculture (paper 1).

In this thesis, changes in family farm adaptation to agricultural restructuring are analysed. Analyses are carried out on how central policy and economic changes affect the working conditions and income of Norwegian farmers over recent decades. Analyses in the thesis shows how farmers respond and cope with changing conditions and how groups of farmers respond differently when the economic output of farming decreases, how access to work outside the farm becomes of crucial importance (papers 2, 3 and 4) and how new claims of environmental and cultural heritage considerations are imposed and responded to (papers 5, 6 and 7).

In relation to work and income, including an examination of the changes in women's and men's situation, key findings in paper 2 suggest that:

- Norwegian farmers are depending more and more on off-farm income
- Men work more and more hours on the farms and women work more and more hours off-farm, in relative terms.

There is also an ongoing process of *masculinisation* on family farms with a male head (paper 3). This can be conceptualised as a *modern* adaptation of family farming, where one farmer, more often than not a male farmer, farms alone. Parallel to this, a second gender process is found on farms where women are the main operators of farms:

• Female farmers are more likely to farm alongside her partner; therefore, no parallel 'feminisation' of farming can be detected.

Active women farmers, therefore, more often maintain a *traditional* family farming labour model, though being as much dependent on off-farm income as male-headed farms.

Over the last decades the share of women farmers has increased a little. However, even though women and men hold the same formal rights to inherit a farm on Allodial rights, traditional patterns still prevail, with the majority of the newcomers to farming being men. While external factors are greatly influential on structural and economic conditions on the farms, tradition and culture also offer prime explanations of *how* work is executed and *who* is responsible for the daily operations on the farms and within the farm household.

Why does family farming still exist? Why do many choose to farm when economic output fails, policy continuously changes and prospects of an improvement in the near future seems

blurred? There are several explanations. The analyses in the thesis have revealed various motivations. While the 'Allodial boy' often chooses to 'follow in his fathers footsteps' and become a farmer because of family farm commitments and maybe also plight, newcomers do not hold such obligations and are more often interested in changing practice and production (paper 5). As such, it can be claimed that:

- The will to *change* is a characteristic that suits newcomers, and also women in farming well; and
- *Adaptation* is a more common strategy on family farms that has been transferred between generations of men.

Environmental and ecological questions have been more evident in agricultural policy during the last decades. The thesis has elaborated on these issues with a particular focus on differences between the organic and conventional agricultural modes (papers 6 and 7). It is found that:

- Organic farmers are more interested in questions concerning environmental issues and nature, female organic farmers even more so than male organic farmers; and
- Organic farmers and consumers share the same ideas of why they prefer organic methods of production. Both groups are concerned about environmental issues related to the production of food, more so than concerns for health issues.

On the specific issue of using gene-technology in agricultural production, organic and conventional farmers are likewise sceptical and farmers more so than consumers. Farmers differ in opinion about the status of environmental degradation and animal welfare in traditional production, but share a common view that gene-technology is not welcome in Norwegian agriculture.

In conclusion, the future of Norwegian agriculture is dependent upon the co-existence of a diversity of farmers, both owners and operators of large and efficient productions, but also smaller farms where farmers are willing to sustain production even though the farm itself does not produce a sufficient income for the farm household (papers 4 and 5). Today, most Norwegian family farm households collect the bulk of their income from off-farm work.

There is, however, a limit of how long farmers are interested in using off-farm income for investing in and maintaining the farm. This thesis shows that optimism and the will to invest in the farm is low in a group of farmers that collect the least income from farming. This group accounts for almost half of the present Norwegian farm population. This presents a rather depressing indication of what happens if incomes from farming continue to decrease and the farm is no longer economically sustainable. The thesis, however, do also show that Norwegian family farming is founded on strong traditions and desires to maintain the farming occupation and a rural lifestyle in social sustainable communities. It is likely that these farming values, traditions, self-esteem and a farming identity will push family farming in Norway into the future. With this continued will to sustain the farming lifestyle, and produce food and fibre in addition to common goods in the form of environmental and cultural values, perhaps family farming can be sustained.

### **Future research challenges**

Family farming has, as pointed out many times throughout the thesis, turned into a time consuming activity for one person (most often man), bringing little economic wealth in return. I will however maintain a view that family farming is the appropriate conceptualisation of the present farm structure. Farms are owned by families, families live on the properties and members of family execute most farm work. In addition to this, family members earn money from off-farm work that is used to keep the family farm running. Family farming is a legitimate way of organising agricultural production in Norway and the current research does as such affiliate with the 'survival'-school of family farm research. However, the present situation might be challenged by new farm structures, as both joint farming is expanding its popularity and that there is an increasing use labour immigrants in Norwegian agriculture.

This thesis has not proved any signs of class polarisation in a Marxian sense among *Norwegian* farmers. Obviously some are more successful than others, but this has not enabled a development of a 'rural bourgeoisie' hiring poor neighbouring farmers as a 'rural proletariat'. The situation is however critical with low outputs of production. Farmers' values are however strong and can be maintained. Like Weber (1892) suggested; the value of being an independent farmer will overcome some of the economic concerns, and this can keep people in farming. This thesis supports this hypothesis. The argument of Chayanov (1986 [1909-1929]) should neither be underestimated in connection to this; when farming is carried

out for the family, factors like wages and economic surpluses are less relevant. Reproduction of the family and the farm is a sufficient goal. If this latter argument does not sound sustainable in the present market economy, many farmers are forced to, but also happy to live it.

Norwegian farmers belong to a strong community organised around the farmers' unions. Through the farming families, the rural communities and the unions, values and traditions are protected, maintained and transferred to new generations. Some of these traditions have proved not to be healthy in a gender equality discourse. Gender equality in the Norwegian agricultural sector is now standard policy. One of the goals of this policy is to ensure that women get fair access to positions in farming. However, the policy to recruit women to farming is not complete. The Allodial Act ensures first born children equal rights to inherit the farm, independent of gender. A strong argument for keeping the in Act is to ensure equality between the women and men. Farm traditions of motivating the oldest son instead are however tough and do often surpass formal rights. Equality policies for the agricultural sector might therefore require a re-think. The policies for agricultural restructuring is, over time, forcing farmers to change, diversify and become more innovative to remain in farming. This thesis shows that women might be more open and interested in new political aims of change. We have a situation for agriculture and agricultural politics, where one would believe that women were drawn into the business in equal, if not larger proportions than men; and the paradox that they indeed are not. Further research is needed to understand the complexities of the paradox to enable more appropriate policies.

The sustainability of future farming in Norway is also a field that needs continuous investigation. In particular the environmental situation should be on the agenda both out of consideration of consumer interests in food quality and societal interest of a sustainable nature. It is of interest to study how sustainability is constructed and practiced within an agricultural regime, and in farming reality. How are policies of agri-environmental schemes, organic farming and farm diversification developed? How can agriculture and rural settings become more sustainable within a period of strong pressure for market orientation of agriculture and current trends to move away from agricultural subsidies. As only briefly mentioned in the theory section of this introductorily compilation, there are ongoing debates in the rural sociological community about the sustainability and value of different methods of production. The conventionalisation debate within organic farming is an example of this.

Ongoing debates are necessary and research needs to be conducted so that well grounded input can be disseminated in both academic and popular debates on this topic.

### References

- Almås, R. (ed.) (2004). *Norwegian Agricultural History*. Trondheim, Tapir Academic Publisher.
- Almås, R. (1994). The rise and fall of agricultural policy cycles: from planned economy to green liberalism. *Journal of Rural Studies* 10:15-25.
- Almås, R. (1984). Norwegian agricultural policy and the family farm, 1945-1982. *Sociologia Ruralis* XXIV/2:120-131.
- Almås, R. (1983). *Maskulint og feminint på bygda i dag*. Bygdeforskning notat no. 3, 1983.
   NLVF's bygdeforskningsgruppe, senter for samfunnsforskning. University of Trondheim: Centre for Rural Research.
- Alston, M. (1998). The 'Othering' of Rural Women. In Alston, M (ed.). Australian Rural Women Towards 2000. Wagga Wagga: Centre for Rural Social.
- Alston, M. (1995). Women on the land. The Hidden Hart of Australia. Kensington NSW: UNSW Press.
- Australian Bureau of Statistics (2003). *Australian Social Trends, Family and Community Living Arrangements: Farming families*. http://www.abs.gov.au/Ausstats. 13.10.2003.

Beck, U. (1992) Reflexive Modernity. London: Sage.

- Bjørkhaug, H., R. Heggem and K. Melberg (2006). Diversity of women's role and motivation in Norwegian farms. Pp 206-11 in Langeveld, Hans and Niels Röling (eds.): *Changing European farming systems for a better future. New visions for rural areas.* Wageningen: Wageningen Academic Publishers.
- Bjørkhaug, H. and R. Heggem (2005). Odelsjentenes kamp mot traktorgenet. Chronicle in the newspaper *Nationen*. 23.05.2005
- Bjørkhaug, H. and O. Storstad (2001). *En komparativ studie av økologisk forbruk i Norge og Danmark*, R. 2/01, Trondheim: Centre for Rural Research.
- Bjørkhaug, H and B. E. Flø (1999a). *Production and distribution of organic food in Norway from the farmers point of view*. P-5/99. Trondheim: Centre for Rural Research.
- Bjørkhaug, H. and B. E. Flø (1999b). Mat og miljø. Frekvensrapport fra en undersøkelse blant gårdbrukere. R-14/99. Trondheim: Centre for Rural Research.
- Bjørkhaug, H. (1998). Institusjonelle ordninger rettet mot forvaltning av rurale ressurser.
   Eiendomssystemer, naturvern og lokalbefolkning i Femundsregionen. R-5/98.
   Trondheim: Centre for Rural Research.

Blekesaune, A. and R. Almås (2002). Fra regulergingsgiver til markedslogikk –
bondehusholdets ulike strategier for å overleve. Pp: 19-44 in R. Almås, M. S. Haugen and J. P. Johnsen (eds.): *Bygdeforskning gjennom 20 år*. Trondheim: Tapir Academic Publisher.

- Blekesaune, A. (1996a). *Family Farming in Norway. An analysis of structural changes within farm households between 1975 and 1990.* R-6/96. Trondheim: Centre for Rural Research.
- Blekesaune, A. (1996b). Agrarsosiologien og dens bidrag til de samfunnsvitenskapelige perspektiver på dagens samfunn. P-7/96. Trondheim: Centre for Rural Research.
- Bonanno, A., L. Busch, W. H. Friedland, L. Gouveia and E. Mingione (eds.) (1994). From Columbus to ConAgra. The Globalization of Agriculture and Food. Lawrence: The University Press of Kansas.

Bourdieu, P. (1990). The Logic of Practice. Cambridge: Polity Press.

- Brandth, B. and M. S. Haugen (2005). Doing rural masculinity from logging to outfield tourism. *Journal of Gender Studies* 14/1:13-22.
- Brandth, B. (2002). Gender Identity in European Family Farming. Sociologia Ruralis 42/3:181-200.
- Brandth. B. (1994). Changing femininity. The social construction of women farmers in Norway. *Sociologia Ruralis* 34(2/3):127-149.
- Brannen, J. (1992). Combining qualitative and Quantitative approaches: an overview. Pp. 3-37 in Brannen, J. (ed.) *Mixing Methods: Qualitative and Quantitative Research*.Aldershot: Avebury.
- Bryant, L. (1999). The Detraditionalization of Occupational identities in Farming in South Australia. *Sociologia Ruralis*. Vol. 39, No 2, 1999:236-261.
- Burch, D. and G. Lawrence (2005). Supermarket Own Brands, Supply Chains and the Transformation of the Agri-food System. *International Journal of Sociology of Agriculture and Food* 13/1:1-17.
- Busch, L. and A. Juska (1997). Beyond political economy: actor networks and the globalization of agriculture. *Review of International Political Economy* 4:688-708.
- Buttel, F. H. (2001). Some Reflections on Late Twentieth Century Agrarian Political Economy. *Sociologia Ruralis* 41/2: 165-181.
- Buttel, F. H. (1992). Environmentalization: Origins, Processes and Implications for Rural Social Change. *Rural Sociology* 57/1:1-27.
- Buttel, F. H., O. F. Larson and G. W. Gillespie (1990). *The Sociology of Agriculture*. New York: Greenwood Press.

- Buttel, F. H and G. W. Gillespie (1988). Preferences for crop production practices among conventional and alternative agriculturalists. *American Journal of Alternative Agriculture* 3:11-18.
- Buttel, F. H. (1983). Beyond the Family Farm. Pp. 87-107 in G. Summers (ed.) *Technology and Social Change in Rural Areas*. Boulder, CO: Westview Press.
- Campbell, H., C. McLeod and C. Rosin (2006). Auditing Sustainability: The Impact of EurepGAP in New Zealand. Pp:157-173 in G. Holt. and M. Reed (eds). Organic Agriculture: A Sociological Perspective. Wallingford: CABI Publishing.

Carson, R. (1962). The Silent Spring. New York: Fawcett Crest.

- Chayanov, A. V. [1909-1929] (1986). *The Theory of Peasant Economy*. Madison: The University of Wisconsin Press.
- Cheney, J. (1987). Eco-Feminism and Deep Ecology. Environmental Ethics 9 (2), 115-45.
- Dalecki, M. G. and B. Bealer (1984). Who is the organic farmer. *The Rural Sociologist* 4/1:11-18.
- Daugstad, K., K. Rønningen and B. Skar (2006). Agriculture as an upholder of cultural heritage?
   Conceptualizations and value judgements A Norwegian perspective in international context.
   *Journal of Rural Studies* 22:67-81.
- Debio (2007a) Debio (About). http://www.debio.no/index.cfm?id=1-0-0-3 (06.02.2007)
- Debio (2007b). *History*. http://www.debio.no/text.cfm?id=219-0-499-3 (17.01.07)
- Debio (2007c). Statistikk 2005. http://www.debio.no/\_upl/04-

antall\_driftsenheter\_primaerproduksjon\_inkl\_demeter\_05.pdf (08.03.2007).

- Debio (2007d). Økologisk produksjon. Idébakgrunn, overordnete mål og praktiske forutsetninger. http://www.debio.no/text.cfm?id=9-0-219-1 (15.01.2007).
- De Janvry, A. (1981). *The Agrarian Question and Reformism in Latin America*. Baltimore: Johns Hopkins University Press.
- De Janvry, A. (1980). Social differentiation in agriculture and the ideology of neopopulism. Pp: 155-168 in Buttel, F. H. and H. Newby (eds.) *The Rural Sociology of Advanced Societies: Critical Perspectives*. Montclair: Allanhood, Osmun.
- Djurfeldt. G. and C. Waldenström (1999). Mobility Patterns of Swedish Farming Households. *Journal of Rural Studies* 15/3: 331-344.
- Djurfeldt. G. and C. Waldenström (1996). Towards a Theoretically Grounded Typology of Farms: a Swedish Case. *Acta Sociologica* 39:187-210.
- Djurfeldt, G. (1996). Boström och kaminen. En introduktion till realistisk vetenskapsteori. Lund: Aarkiv forlag.

- Djurfeldt, G. (1995). *Defining and Operationalising Family Farming the view of a sociologist*. Paper for the 16th Congress of the European Society for Rural Sociology 31 July – 4 August 1995.
- Djurfeld, G. (1981). What Happened to the Agrarian Bourgeoisie and the Rural Proletariat under Monopoly Capitalism? *Acta Sociologica* 24/3: 167-192.
- Eikeland. S. (1999). New Rural Pluriactivity? Household Strategies and Rural Renewal in Norway. *Sociologia Ruralis* 39/3:359-376.
- ERA (2007). Classical Marxism and the Agrarian Question. Lenin on Peasant Differentiation. http://www.era.anthropology.ac.uk/Era\_Resources/Era/Peasants/theory06.html (02.02.2007)
- Flaten, O., G. Lien, M, Ebbesvik, M. Koesling and P.S. Valle (2006). Do the new organic producers differ from the 'old guard'? Empirical results from Norwegian dairy farming. *Renewable Agriculture and Food Systems* 21:174-182.
- Flø, B. E. (2001). Norsk økologisk landbruk frå marginal outsider til verdiskapande insider.
  N-4/01. Trondheim: Centre for Rural Research.
- Flø, B.E. and H. Bjørkhaug (2001). "Når storoksan ikkje beiter ved Femund si'er". Chronicle *Nationen* 06.04.01.
- Flø, B.E. (1998). *Institusjonelle ordningar retta mot forvaltning av rurale ressursar*. *Sikfisket i Femund*. R-4/98. Trondheim: Centre for Rural Research.
- Friedland, W. H. (1984). Commodity systems analysis: an approach to the sociology of agriculture. *Research in Rural Sociology and Development* 1:221-235.
- Friedland, W. H., A. E. Barton, and R. J. Thomas (1981). *Manufacturing Green Gold*. Cambridge: Cambridge University Press.
- Friedmann, H. and P. McMichael (1989). Agriculture and the state system. The rise and fall of national agricultures, 1870 to the present. *Sociologia Ruralis* 29:93-117.
- Friedmann, H. (1980). Household Production and the National Economy. *Journal of Peasant Studies* 7/2:158-184.
- Friedmann, H. (1978a). World Market, State and Family Farm: Social Bases of Household
  Production in an Era of Wage Labour. *Comparative studies in Society and History* 20:545-586.
- Friedmann, H. (1978b). Simple Commodity Production and the National Economy. *Journal of Peasant Studies* 6, 1:71-99.
- Garnaut, J., C. Rasheed and G. Rodriguez (1999). *Farmers at work. The Gender Division*. Canberra: Australian Bureau of Agriculture and Resource Economics (ABARE)

- Garnaut, J. and H. Lim-Applegate (1998). *People in Farming*. ABARE Research report 98.6. Canberra.
- Gasson, R. and A. Errington (1993). The Farm Family Business. Wallingford: CAB International.

Giddens, A. (1991). Modernity and Self-Identity. Cambridge: Polity press.

- Goodman, D. E. (2004). Debating production-consumption linkages in food studies. *Sociologia Ruralis* 44/3:332-342.
- Goodman, D. E. and M. R. Redclift (1988). Problems in Analysing the Agrarian Transition in Europe. *Comparative Studies in Society and History* 30/4:784-791.
- Goodman, D. E. and M. R. Redclift (1981). From Peasant to Proletarian. New York: St. Martin's Press.
- Gray, I. and G. Lawrence (2001). *A Future for Regional Australia. Escaping Global Misfortune.* Cambridge: Cambridge University Press.
- Guthman, J. (2004a). *Agrarian Dreams: The Paradox of Organic Farming in California*. Berkeley and Los Angeles: University of California Press.
- Guthman, J. (2004b). The Trouble with 'Organic Lite' in California: a Rejoinder to the 'Conventionalisation' Debate. *Sociologia Ruralis* 44/3:301-316.
- Harvey, D. (2005). A Brief History of Neoliberalism. Oxford: Oxford University Press.
- Haugen, M.S. (1998). Women Farmers in Norway. R- 9/98. Trondheim: Centre for Rural Research.
- Haslam-McKenzie, F. M. (1998). Farm Women and the F' word. In Alston, M (ed). *Australian Rural Women Towards 2000.* Wagga Wagga: Centre for Rural Social Research.
- Hetland, P. (1986) Pluriactivity as a strategy for employment in rural Norway. *Sociologia Ruralis,* XXVI, (3/4):385-395.
- Higgins, V. and Lawrence, G. (2005). Introduction: Globalization and Agricultural Governance. Pp: 1-15, in V. Higgins and G. Lawrence (eds.) *Agricultural Governance: Globalization and the New Politics of Regulation*. London: Routledge.
- Hill, B. (1993). The 'Myth' of the Family Farm: Defining the Family Farm and Assessing its Importance in the European Community. *Journal of Rural Studies* 9/4:359-370.
- Hollis, M. (1994) *The philosophy of science. An introduction.* Cambridge: Cambridge University Press.
- Holt, G. C and M. J. Reed (2006). Sociological Perspectives of Organic Research: to Policy and Beyond. Pp: 284-304 in Holt, G. C. and M. Reed (eds.), *Sociological Perspectives* of Organic Agriculture: from Pioneer to Policy. Wallingford: CABI.

Innbjør, H. (1983). Økologisk jordbruk. Oslo: Landbruksforlaget.

- Jennings, G and D. Stehlik (2000). Agricultural Women in Central Queensland and Changing Modes of Production. *Rural Society* 10/1:63-78.
- Jervell, A. M. (1999) Changing Patterns of Family Farming and Pluriactivity, *Sociologia Ruralis*, 39 (1):100-116.
- Jervell, A. M. and J. Løyland (1998) Endringer i jordbrukshusholdenes inntekt utenfor bruket 1986-96. *Landbruksøkonomisk Forum (LØF)*. 4/98:63-75.
- Johnsen, S. (2004). The redefinition of family farming: agricultural restructuring and farm adjustment in Waihemo, New Zealand. *Journal of Rural Studies* 20/4:419-3.
- Johnsen, S. (2003). Contingency Revealed: New Zealand Farmers' Experiences of Agricultural Restructuring. *Sociologia Ruralis* 43/2:128-153.

Kautsky, K. [1899] (1988). The Agrarian Question. London: Zwan Publications.

- Kristensen, N. H. and T. Nielsen (1997). From Social Movement to Food Industry. Social Actors, Strategies and Regulation and Organic Food Production. Paper to the XVII Congress of the European Society for Rural Sociology August 1997.
- Kvale, S. (1996) *InterView. An introduction to qualitative research interviewing.* Thousand Oaks: Sage.
- Loureiro, M.L. and A. M. Jervell (2005). Analyzing Farms Participation Decisions in Agrotourism Activities in Norway. *Tourism Economics* 11/3:453-469.
- Lawrence, G. (1987). *Capitalism and the Contryside. The Rural Crisis in Australia*. Sydney: Pluto Press.
- Lenin, V. (1915). New Data on the Laws Governing the Development of Capitalism in Agriculture PART ONE—Capitalism and Agriculture in the United States of America. http://www.marxists.org/archive/lenin/works/1915/newdev/5.htm (02.02.2007)
- Lenin, V. (1899) The Development of Capitalism in Russia. The Process of the Formation of a Home Market for Large-Scale Industry.

http://www.marxists.org/archive/lenin/works/1899/devel/index.htm (02.02.2007)

- Lockie, S. and D. Halpin (2005). The 'Conventionalisation' Thesis reconsidered: Structural and Ideological Transformation of Australian Organic Agriculture. *Sociologia Ruralis*, 45:284-307.
- Lowe, P., J. Clark, S. Seymour and N. Ward (1997). *Moralizing the Environment. Countryside change, farming and pollution.* London: UCL Press.
- Lowe, P., J. Murdoch, T. Marsden, R, Munton and A. Flynn (1993). Regulating the new Rural Spaces: the uneven development of land. *Journal of Rural Studies* 9:205-22.
- Lowe, P. (ed.) (1992). Industrial agriculture and environmental regulation. Sociologia Ruralis

- Løwe, T. (1998). *Levekår i landbruket. En studie av landbruksbefolkningens levekår*. Rapport nr. 25/98. Oslo Kongsvinger: Statistisk sentralbyrå.
- Mann, S. A. (1990). Agrarian Capitalism in Theory and Practice. London: University of North Carolina Press.
- Mann, S. A. and J. M. Dickinson (1978). Obstacles to the Development of Capitalist Agriculture. *Journal of Peasant Studies* 5, 4:466-481.
- Marsden, T. K. (2003). The Condition of Rural Sustainability. Wageningen: Van Gorcum.
- Marsden, T.K. (2000). Food matters and the matter of food. Sociologia Ruralis 40/1:20-30.
- Marx, K. [1867]. Capital. e.g. http://www.marxists.org/archive/marx/works/1867-c1/ (04.02.2007)
- McMichael, P. and G. Lawrence (2001). Globalising Agriculture: Structures of Constraint for
   Australian Farming. Pp: 153-164 in Lockie, S and L. Bourke (eds.) *Rurality Bites: The Social and Environmental Transformation of Rural Australia*. Annandale: Pluto Press
- Meert, H., G. Van Huylenbroeck, T. Vernimmen, M. Bourgeois and E. van Hecke (2005). Farm Hoursehold Survival Strategies and Diversification on Marginal Farms. *Journal of Rural Studies* 21:81-97.
- Michelsen, J. (2001). Recent Development and political Acceptance of organic farming in Europe. *Sociologia Ruralis* 41/1: 3-20.
- Mies, M. and V. Shiva (1993). *Ecofeminism*. Halifax: Freewood Publications.
- Moore, O. (2006). Turf Wars: the Organic Movement's Veto of GM in UK Agriculture. Pp: in Holt,G. C. and M. Reed (eds.), *Sociological Perspectives of Organic Agriculture: from Pioneer to Policy*. Wallingford: CABI.
- Munton R. and T. Marsden (1991). Dualism or Diversity in Family Farming? Pattern of Occupancy Change in British Agriculture. *Geoforum* 22/1:105-117.
- Murdoch, J. and M. Miele (2004). A new aesthetic food? Relational reflexivity in the 'alternative' food movement. Pp: 156-175 in Harvey, M., A. McMeekin and A. Warde (eds.). *Qualities of Food. Alternative Theoretical and Empirical Approaches*. Manchester: Manchester university Press.
- Murdoch, J. and T. Marsden (1995). The spatialization of politics: local and national actor-spaces in environmental conflict. *Transactions of the Institute of British Geographers* 20:368-380.
- Nationen (2007). NHO vil forsvare norsk landbruk. Newspaper arcticle.

http://www.nationen.no/nyheter/wto/article2510172.ece (10.01.2007)

Newby, H. (1983). European Social Theory and the Agrarian Question: Towards a Sociology of Agriculture. Pp: 109-123 in G. E. Summers (Ed.) *Technology and Social Change in Rural Areas*. Boulder, CO: Westview Press. Newby, H. (1980). Rural Sociology – a Trend Report. Current Sociology 28/1:1-141.

- Newby, H. (1978). The Rural Sociology of Advanced Capitalist Societies. Pp: 3-30 in H. Newby (ed.) *International Perspectives in Rural Sociology*. Chichester: Wiley.
- Norwegian Ministry of Agriculture (2007). Økologisk.

http://odin.dep.no/lmd/norsk/tema/okologisk/bn.html (07.02.2007).

Næss, Arne (1974). Økologi, samfunn og livsstil, utkast til en økofilosofi. Oslo: Universitetsforlaget.

- Olsson, G. A., and K. Rønningen (1999). *Environmental values in Norwegian agricultural Landscapes*. R-10/99. Trondheim: Centre for Rural Research.
- Payne, G. and M. Williams (2005). Generalization in Qualitative Research. *Sociology* 39/2:295-314.
- Peine, E and P. McMichael (2005). Globalization and Global Governance. Pp. 19-34 in V.
  Higgins and Lawrence, G. (eds.) *Agricultural Governance: Globalization and the New Politics of Regulation*. London: Routledge.
- Peter, G., Bell, M. M., Jarnagin, S. and D. Bauer (2000) Coming back Across the Fence: Masculinity and the Transition to Sustainable Agriculture. *Rural Sociology* 65/2:215-233.
- Potter, C. and M Tilzey (2005). Agricultural policy discourses in the European post-Fordist transition: neoliberalism, neomercantilism and multifunctionality. *Progress in Human Geography* 29/5:581-600.
- Potter, C. and J. Burney (2002). Agricultural multifunctionality in the WTO legitimate non-trade concern or disguised protectionism? *Journal of Rural Studies* 18:35-47.
- Redclift, M. (1986). Survival Strategies in Rural Europe: Continuity and Change. *Sociologia Ruralis* XXVI (3/4):218-227.
- Reed, M. J. and G. C. Holt (2006). Sociological Perspectives of Organic Agriculture: an Introduction. Pp: 1-17 in Holt, G. C. and M. Reed (eds.), *Sociological Perspectives of Organic Agriculture: from Pioneer to Policy*. Wallingford: CABI.
- Richards, C., Lawrence, G., and Kelly, N. (2005). Beef production and the environment: is it really 'hard to be green when you are in the red'? *Rural Society* 15/ 2:192-209.
- Ringdal, K. (2001). Enhet og Mangfold. Samfunnsvitenskapelig forskning og kvanntitativ metode. Bergen: Fagbokforlaget.
- Rogstad, B. (2002) *Likestilling og landbruk. Status og utvikling i 2002*. Oslo: Norsk institutt for landbruksøkonomisk forskning (NILF).
- Rye, J. F. and O. Storstad (2004) *Trender i norsk landbruk 2004. Frekvensrapport.* R. 4/04. Trondheim: Centre for Rural Research

- Rye, J. F. (2004). *Trender i norsk landbruk 2004. Dokumentasjonsnotat spørsmål, metode og kodebok.* N-02/04. Trondheim: Centre for Rural Research.
- Rye, J. F. and O. Storstad (2002) *Trender i norsk landbruk 2002. Frekvensrapport.* R. 8/02. Trondheim: Centre for Rural Research
- Rye, J. F., O. Storstad and B. E. Flø (2002). *Trender i norsk landbruk. Dokumentasjonsrapport*. N. 3/02. Trondheim: Centre for Rural Research.
- Scott, J. (1990) A Matter of Record. Cambridge: Polity Press.
- Share, P., H. Campbell and G. Lawrence (1991) The Vertical and Horizontal Restructuring of Rural Regions: Australia and New Zealand. In Alston, M. (ed.). *Family farming. Australia and New Zealand*. Keypapers Number 2. Wagga Wagga: Centre for Rural Social Research.
- Shiva, V. (1989). Til livets opphold. Kvinner, økologi og utvikling. Oslo: Oktober.
- Shucksmith, M. (2002). Habitus and Agency in British Farming: Understanding Divergent Farm Household Behaviour in the Post-Productivist Transition. Paper presented at The XV International Sociological Association World Congress of Sociology, Research Committee 40, Sociology of Agriculture and Food, Session: Food biotechnologies. Brisbane, Australia.
- Shucksmith, M. (1993). Farm Household Behavior and the Transition to Post-Productivism. *Journal* of Agricultural Economics 44: 466-478.
- Statistics Norway (2007a). *Tal driftseiningar, etter jordbruksareal i drift og fylke. 1969, 1979, 1989 og 1999* (Jordbruksteljing 1999. Endelege tal). http://www.ssb.no/emner/10/04/10/jt1999/tab-2001-04-03-01.html (04.02.2007)
- Statistics Norway (2007b). *Brukarar, etter når dei tok over hovudbruket og fylke. 1989 og 1999* (Jordbruksteljinga 1999. Endelege tal). http://www.ssb.no/emner/10/04/10/jt1999/tab-2001-04-03-15.html (04.02.2007).

Statistics Norway (2006a). *Personlige brukere, etter bruket som inntektskilde*. http://www.ssb.no/emner/00/minifakta/no/arkiv/2001/arkiv/2001/17.html5 (05.11.2006)

- Statistics Norway (2006b). *Gjennomsnittleg arbeidsinnsats på og utanom driftseininga for mannlege* brukarar og mannlege ektemakar/sambuarar. 1989/90, 1994/95 og 1998/99. Timeverk. http://www.ssb.no/emner/10/04/10/nos\_jordbruk/arkiv/nos\_c708/tab/7.6.html (05.11.2006)
- Statistics Norway (2006c). *Gjennomsnittleg arbeidsinnsats på og utanom driftseininga for kvinnelege brukarar og kvinnelege ektemakar/sambuarar. 1989/90, 1994/95 og 1998/99. Timeverk.* http://www.ssb.no/emner/10/04/10/nos\_jordbruk/arkiv/nos\_c708/tab/7.7.html (05.11.2006)

- Statistics Norway (2002). NOS 2002 C 708. *Jordbruksstatistikk* 2000. Agricultural statistics 2000. Olso Kongsvinger: Statistics Norway.
- Steiner, R. [1924]. Agriculture Course. http://www.garudabd.org/Agriccourse/contents.html (09.03.2007)
- Storstad, O. (2007). Naturlig, nært og trygt. En studie av hvordan forbrukertillit til mat påvirkes av produksjonsmåte og matskandaler. PhD Thesis, Trondheim: NTNU.
- Storstad, O. (2006). Mens de venter på Godot. Norske bønders interesse for omlegging til økologisk drift 2002-2006. Frekvensrapporter fra undersøkelsen Trender i norsk landbruk 2002, 2004 og 2006. N-8/06. Trondheim: Centre for Rural Research.
- Storstad, O. (2000) *Grenser for sosial konstruksjon*. Essay til dr. politkrus i "Vitenskapsteori for samfunnsfag". NTNU.
- Storstad, O. and A. Haukenes (2000). *Forbrukeroppfatninger om mat og risiko. Resultat fra en spørreundersøkelse*. R-10/00. Trondheim: Centre for Rural Research.
- Strauss, A. and J. Corbin (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques.* Newbury Park, CA: Sage Publications.
- Strauss, A. (1987). *Qualitative Analysis for Social Scientists*. New York: Cambridge University Press.
- Syltevik, L. J. (2005) Document Analysis and Case Study Design. Forelesningsnotater fra kurset "Case Study Analysis and Theory" ved Universitetet i Bergen, 27-29 april 2005.
- The Federation of Norwegian Agricultural Co-operatives (2007). *Aktuelle tall* 2006. http://www.landbruk.no/index.cfm?obj=document&act=displayDoc&doc=746 (09.03.2007)
- Tilzey, M. (2003). A Framework for Conceptualising Agricultural Multifunctionality. EPMG Working Papers- London: Imperial College.
- Tovey, H. (1997). Food, Environmentalism and Rural Sociology: The organic Farming Movement in Ireland. *Sociologia Ruralis* 37/1:21-37.
- Vartdal, B. (1993). *Motivasjon og meistring av omlegging til økologisk jordbruk*, R. 3/93, Trondheim: Centre for Rural Research.
- Vartdal, B. and Blekesaune A. (1992). *Sosiale sider ved økologisk jordbruk. Ein sosiologisk studie av omleggingsprosessen.* R. 1/92. Trondheim: Centre for Rural Research.
- Vatn, A. (2002). Multifunctional agriculture: some consequences for agricultural trade regimes. *European Review of Agricultural Economics* 29/3:309-327.

- Vågane, L. (2002). Levekårsundersøkelse blant landbruksbefolkningen 2002. Dokumentasjonsrapport. N-77/02. Oslo: Statistisk Sentralbyrå.
- Ward, N. (1993). The Agricultural Treadmill and the Rural Environment in the Postproductivist Era. *Sociologia Ruralis* 33:348-64.
- Weber, M. [1904] (1958). *The Protestant Ethic and the Spirit of Capitalism*. New York: Scribner's Press
- Weber, M. [1892] (1947). Die Verhältnisse der Landarbeiter im ostelbischen Deutschland.(From Max Weber: Essays in Sociology, (trans. and ed.) by H.H. Gerth and C. Wright Mills).
- Williams, M. (2000). Interpretivism and Generalization. Sociology 34/2:209-24.
- Wilson, G. A. (2001). From productivism to post-productivism ... and back again? Exploring the (un)changed natural and mental landscapes of European agriculture. *Transactions* of the Institute of British Geographers 26:77-102.

# Paper 1

Multifunctional Agriculture in Policy and Practice? A Comparative Analysis of Norway and Australia

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## Multifunctional agriculture in policy and practice? A comparative analysis of Norway and Australia

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#### Abstract

Ideals of productivist agriculture in the Western world have faded as the unintended consequences of intensive agriculture and pastoralism have contributed to rural decline and environmental problems. In Norway and Australia, there has been an increasing acceptance of the equal importance of social and environmental sustainability as well as economic sustainability. Alongside this shift is a belief that primary production needs to move away from an intensive, productivist-based agriculture to one that may be defined as post-productivist. In this paper, we argue that the dualism of productivism and post-productivism as concepts on agricultural policy regimes are too simplistic and discuss whether multifunctional agriculture is a better concept for a comparison of rural primary production at two extreme points of the scale, the market-oriented, liberalistic Australian agriculture and the market-protected small-scale Norwegian agriculture. We argue that multifunctionality in Australia rates relatively weakly as an ideology or policy and even less as a discourse or practice and hence is situated toward a 'weak' end of a continuum of a level of multifunctional agriculture. In Norwegian agriculture, multifunctional agriculture has thrived within a protectionist setting with the support of the public, the state and agricultural actors. In this sense it is very clearly a policy, practice and discourse that aims to preserve and conserve rural spaces, the cultural landscape, the farming way of life and food safety. Norway is as such situated toward a 'strong' end of a continuum of a level of multifunctional agriculture and food safety. Norway is as such situated toward a 'strong' end of a continuum of a level of multifunctional agriculture and food safety. Norway is as such situated toward a 'strong' end of a continuum of a level of multifunctional agriculture.

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Keywords: Norway; Australia; Comparative analysis; Multifunctionality; Post-productivism; Sustainability; Political economy; Green liberalism

### **1.** Introduction: productivism, post-productivism and multifunctionality as conceptual tools

This paper examines the inter-related issues of productivism, post-productivism and multifunctionality in agricultural and pastoral production and the value of the concepts applied to contemporary agriculture and agricultural policy. Research into these agricultural modes of operating is well established in Europe with geographers and rural sociologists taking up the challenge to conceptualise current formats of agriculture and rural land use. In his article on productivism and post-productivism, Wilson (2001) highlights the fact that there has been a tendency for much of the writing in this area to be 'UK-centric'—and this certainly does seem to be the case. However, the quality of the work coming out of Europe has provided a platform for the analysis of the status of rural production elsewhere. To date, there have only been a small number of Australian rural researchers using the concepts of postproductivism and multifunctionality to problematise the notion of a move to greater environmental sustainability at the same time that global market signals suggest that farmers and graziers need to increase production from the current natural resource base to remain economically viable (Richards et al., 2005; Gray and Lawrence, 2001).

In this paper, we use the conceptual frameworks of productivism, post-productivism and multifunctionality to address the current and future directions of agriculture and pastoralism in both Norway and Australia. We argue that Norway as a nation has already incorporated its understanding of multifunctionality, and has embedded

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such terminology into its agricultural policy and practices (Almås, 2004; Rønningen et al., 2004; Daugstad et al., 2006). In Australia, however, we argue that whilst there is some evidence of a move from productivism at the ideological and policy levels, the majority of primary producers as 'agricultural actors' have not necessarily embraced this way of thinking. We argue that the green agenda in Australia that has now been adopted bilaterally by state and federal governments implicitly signals the values of natural resources beyond the production of food and fibre. Programmes such as Landcare, the National Action Plan for Salinity and Water Quality (NAPSWQ) and the Natural Heritage Trust's funding of regional bodies highlight the government's move towards a more environmentally sustainable agriculture (Lawrence, 2005).

Before delving into this topic, it is necessary to attend to some definitional problems—what meanings do the concepts of productivism, post-productivism and multifunctionality convey? The aim of this paper is not to give the 'right' answer but to focus upon what is happening within agriculture and pastoralism, and whether these terms hold value in understanding Norwegian and Australian primary production and the complexities of environmental degradation relating to the production of agricultural commodities.

In particular, it is questioned whether post-productivism and/or multifunctionality moves from a policy to a practice at the property level and we discuss whether such reconceptualisations of agricultural policy and practice hold any value for the agricultural environment of Australia and Norway, which to different degrees are experiencing a crisis of rural decline, reduced agricultural profitability and environmental degradation (Olsson and Rønningen, 1999; Gray and Lawrence, 2001; Lawrence et al., 2005). Are post-productivism and multifunctionality merely academic conceptualisations on changing agricultural discourses? Are the concepts used as policy instruments presenting desired solutions to problems? Or is multifunctional agriculture the most fitting description of emerging agricultural practices? Or all of the above? This paper focuses upon different aspects of conceptualising agricultural production in a perspective where the importance of social, economic and environmental sustainability is considered. Using the two widely different agricultural policy settings of Norway and Australia, the rationale behind the contrasting forms of agriculture is assessed across the two countries.

### 2. Defining the concepts of productivism, post-productivism and multifunctionality

### 2.1. Productivism

With the benefit of hindsight, now that a number of decades of productivist agriculture have been experienced, productivism is perhaps the easiest of the three concepts to define. It refers to a mode of both agricultural policy and practice that is input intensive and where emphasis is placed on the maximisation of the production of commodities (Wilson, 2001; Burton, 2004; Ilbery and Bowler, 1998). The ideology behind productivism precedes the Second World War but greater intensification of production can be traced to war efforts to increase production and secure food for war-torn nations (Argent, 2002; Burton, 2004). Productivism describes not only the style of agriculture, but the level to which a nation's government supports production through subsidisation, price guarantees and protectionist policies (Argent, 2002; Gray and Lawrence, 2001). Following concerns about underfed 'Western' nations during the Second World War, the policies of subsidisation and agricultural protectionism were so 'successful' that the European Union and other Western countries were later faced with an over-supply of commodities (Walford, 2003). These products were often withheld from markets to prevent prices from plummeting, resulting in the 'butter mountains' and 'milk lakes' that epitomise the surplus production of some advanced capitalist nations in the 1980s.

The intensified form of rural production requires an ever-increasing application of inputs such as agri-chemicals, machinery and Fordist-type management practices which reduce labour inputs and lock producers into a treadmill of production that is geared toward increases of production and profit (Gray and Lawrence, 2001). At the same time markets are flooded with surplus commodities, reducing prices for all those economies that no longer rely on protectionist policies, such as Australia. This acts as an incentive to produce more goods to maintain profit margins, and therefore the economic viability of the family farm (Gray and Lawrence, 2001). It is rational to suspect that this increased exploitation of natural resources, coupled with the necessity to increase inputs such as agri-chemicals, has had a detrimental effect on the environment.

We concur with Wilson's (2001, p. 80) analysis of *productivism* which identifies that agriculture holds a strong *ideological* position in society; there is a strong connection or co-operation between agricultural *actors;* the *food regime* is Fordist; the *agricultural production* is industrialised and specialised; the *agricultural policy* is marked by strong government support for production, property rights and protectionism.

### 2.2. Post-productivism

The farming crisis of the 1980s, which saw high commodity costs, agricultural overproduction and environmental degradation, facilitated several new measures to reverse the negative effects of productivist-style agriculture (Ward, 1993; Walford, 2003). Policy makers in the EU countries reformed the Common Agricultural Policy (CAP) with the intention of reducing agricultural production, budgetary costs and environmental problems associated with intensified agriculture (Walford 2003). In Norway, environmental issues were recognised within agricultural production from the mid-1970s, alongside the key goals of productivity. Policy reform measures are characterised as having gone through a transition from a 'productivist' to 'post-productivist' era (Walford, 2003; Wilson, 2001), however, as 'productivist' is so easily defined, the term or content of 'post-productivism' is accordingly difficult.

'Post'-productivism implies a transition to a mode of agricultural production that has occurred after productivism (Ilbery and Bowler, 1998; Wilson, 2001) and is often offered as a critique of the intensification of primary production and its detrimental effects on rural society and the environment. Social scientists have pointed at the fact that when the social and economic significance of agriculture has lost its relevance for the national economy, problems of rural development, poverty and social exclusion cannot be solved through agricultural means (Marsden, 2003). Additionally, the consequences of intensified agriculture on the countryside, the changing landscape and environmental issues caused by agricultural pollution have brought about a different view of farmers as 'destroyers' rather than 'stewards of the land' (see Wilson 2001, p. 82; Holmes, 2002). With this change, the rural is increasingly separated from agriculture with new groups and interests gaining ideological ascendency, from the consumption of agricultural products to consumption and preservation of the countryside and the biodiversity held within it.

As with the productivist regime, a post-productivist regime also contains a set of dimensions. Agricultural production or the food regime has moved into a free market, a liberalised world market that is critical of protectionist policies. Within agricultural production a new emphasis is laid on consumer demands: diversification, pluriactivity and exstensification (Wilson, 2001; Holmes, 2002). At the same time, the state reduces support for production but offers some financial assistance or incentives for activities that help sustain the environment or reverse environmental degradation (Ilbery and Bowler, 1998). Ilbery and Bowler (1998, p. 71) argue that the postproductivist transition is strongly regulated through the 1992 CAP reforms, General Agreement on Trades and Tariffs (GATT) negotiations and the EU convergence of agricultural and environmental policies. As such, EU agricultural policy has widened to incorporate the interests of other actors, such as green groups. This has also implied a weakening of the relationship between the farm lobby and agriculture ministries.

#### 2.3. Multifunctional agriculture

The state retreat from financial support of agricultural production has been accompanied by *increased* regulation of agricultural practices, voluntary agri-environmental policies that encourage conservation practices and the enhancement of local planning control. The popularity of (neo) liberal policies in Western countries, with their emphasis on global trade in a de-regulated market has unintentionally contributed to a further intensification and concentration of the food chain (Burch and Rickson, 2001; Campbell and Lawrence, 2003; Lawrence, 1987) and many landholders in Australia are aiming to intensify their production through further vegetation clearing or the purchase of additional land (Richards et al., 2005). It is within this contradictory manifestation that productivism and what has been referred to as post-productivism are occurring at the same time. As Wilson (2001) argues, there is a flaw in thinking of 'post'-productivism as something that has occurred after productivism as there is evidence that both models exist side by side. As Marsden (2003, p. 11) wisely emphasises, there is an embodiment of conflict when these models are being played out amongst the farming and rural population. In recognition of this dilemma of terminology, Wilson (2001, p. 95) posits the phrase 'multifunctional agricultural regime', a term which acknowledges the complexity of agricultural modes of production that may be occurring at different spatial and temporal localities. Used in this way, he argues, postproductivism is useful in describing the 'transition' from one mode to the other, whereas

... the notion of a multifunctional agricultural regime allows for multidimensional coexistence of productivist and post-productivist action and thought and may, therefore, be a more accurate depiction of the multilayered nature of rural and agricultural change (Wilson, 2001, p. 95).

As noted throughout this paper, Wilson (2001) stands as one key supporter of the 'multifunctional agricultural regime' as a preferable term for conceptualising changes in contemporary agriculture and rural societies, arguing that 'post-productivism' indicates something that occurs 'after' productivism that is also different from it. Although Wilson's understanding of multifunctional agriculture is well argued, his assertion that

...just as the post-productivist transition may only occur in societies that have gone through the PAR [productivist agricultural regime], so the multifunctional agricultural regime may only occur in societies that have gone through the post-productivist transition (2001, p. 95)

is contestable. Claiming a 'post-productivist' transition for multifunctional praxis is in our view narrows rather than opens up the debate for analysis and understanding changes outside of a UK—or Eurocentric—point of view and situation. The dualism of productivism and postproductivism is a too simplistic a way of conceptualising rural primary production, but does 'multifunctionality' represent something different, or as Wilson (2001) puts it 'beyond' post-productivism? This argument stems from research, or rather a lack of research, showing evidence of a post-productivist re-orientation at the property level. As extensification and diversification of production has occurred in many regions of advanced economies, there is also evidence that production has intensified alongside this (Wilson, 2001, p. 83). While the idea of post-productivism certainly gained attention and supporters in northern Europe, several scholars have shown that there might exist competing rural development dynamics (for example, Marsden, 2003; Holmes, 2006) or, more radically, that 'the dominant framing is in favour of a neoliberal regime of market productivism' (Potter and Tilzey, 2005, p. 581).

The term 'multifunctionality' or multifunctional agriculture might be seen as a policy or regime within, beside or beyond productivism and post-productivism as it includes several functions of agriculture in addition to its primary role which has been mainly understood as producing food and fibre.

While many insightful analyses have been carried out on rural transition, this paper is specifically concerned about the transitions within agricultural policies and practices-(rather than the broader concept of 'landscape' in a purely geographical sense, as Holmes, 2006, has already dealt with) as they relate to the search for sustainable solutions for farming and agricultural production. In this sense, Tilzey (2003, p. 1) argues that agricultural multifunctionality is a concept that seeks to capture the multiple benefits and services related to agricultural systems that should benefit human and non-human nature alike. According to the OECD's (2001, p. 7) 'working definition'—the key elements of multifunctionality are the existence of multiple commodity and non-commodity outputs that are jointly produced by agriculture-and the fact that some of the non-commodity outputs exhibit the characteristics of externalities or public goods when markets for these goods do not exist or function poorly. In addition to producing commodity outputs such as food and fibre and other marketable products (for example, tourism), the noncommodity outputs include food security/safety, a rural way of life, and the protection of the environmental protection, biodiversity and landscape (see Durand and Van Huylenbroeck, 2003, p. 4).

In examining the sociological components of agricultural multifunctionality, Tilzey (2003) offers two distinct approaches to framing the issue: multifunctionality as 'reality' and as a 'discourse'. The first refers to the practical performance of agricultural activity, the latter to the policy. Looking into the policy level first—multifunctionality is recognised as a key policy concept in World Trade Organisation (WTO)-policy negotiations (Potter and Burney, 2002). At the level of world trade in agriculture, the term multifunctionality has referred specifically to the 'public good' relating to the non-tradable concerns (NTCs) of agriculture. Countries reliant on exports such as Australia have strongly opposed the WTO's 'green light' on domestic subsidies and border protection as they are claimed to distort markets (Parliament of Australia, 2001).

Tilzey's findings resonate with those of van der Ploeg and Roep (2003) who found that multifunctionality holds a strong paradigmatic position at both an EU policy level and at the practical level (farmers involved in rural development practices)—however with varying endorsement at the national level. The nation state supporters of multifunctionality in WTO concessional terms argue for the opportunity to support their farmers economically without being accused of distorting trade. Yet, among supporters there is a limitation of valid arguments, with a general view that the WTO 'box' categories are, in essence, a veiled form of protectionism. Potter and Burney (2002) state that the EU is also distancing itself from extreme statements issued by countries such as Norway and Japan. Norwegian agricultural authorities want to move economic support for farming from the 'yellow box' in WTO terms, where most funding is found today, to the 'green box'-transfers that do not disturb international production and trade (Prestegard, 2004). However, does this exclude food exporting countries from practising multifunctionality outside of the WTO frameworks? In other words, can multifunctionality exist as a concept in its own right, decoupled from its bureaucratised meaning, and function as a response to social, economic and environmental decline due to the intrinsic potential of a multifunctional approach to improve rural and environmental sustainability?

This viewpoint is also forwarded by Cocklin et al. (2006) who argue that conceiving of multifunctionality purely in terms of trade liberalisation reflects the neoliberalism philosophy that also contributed to the commoditisation of nature and the relegation of social and environmental sustainability. To develop a multifunctional agriculture changes are needed on more than policy level (Durand and Van Huylenbroeck, 2003), rather a sustainable multifunctional agriculture, accepting the equal importance of social and environmental sustainability and economic sustainability, would necessarily mean that a sustainable practice was possible at the farm level. We will not argue that a 'correct' comprehension of a sustainable multifunctional agriculture needs to be attained, but will discuss whether the opportunities for a sustainable output is present. It is in this vein that we examine the prospects of multifunctionality as a facilitator of social, economic and environmental sustainability in its own right.

As a point of departure from purely WTO conceptions of multifunctionality via the 'green-box' agreement, we examine the present agricultural and pastoral modes at two extreme points of a scale, the market-oriented, liberalistic Australian agriculture and the market protected small-scale Norwegian agriculture. In doing this, an evaluation can be made regarding the emerging agricultural and pastoral land use in both Norway and Australia and to what degree a sustainable agricultural multifunctionality exists—meaning an environmentally sound, socially sustainable and economically viable agricultural production, as an ideology, policy or discourse and a practice or reality—that can be enacted at the property level.

### 3. The status of agricultural production in Norway and Australia

The value of multifunctionalism will be further ascertained through the grounding of this concept within the agricultural format of both Norway and Australia. These two countries are both advanced capitalist nations yet have conceived of the relational role of agricultural production and society in quite different ways. Before embarking on this exercise, it is important to consider the contextual settings of each nation by describing some key characteristics.

The descriptions and analyses are based on an extensive literature review in addition to building upon our own research in Australia and Norway. Data consist of interviews with Norwegian farmers (thoroughly described in Bjørkhaug (2006a, b)), analyses of statistical material from Norwegian farmer surveys<sup>1</sup> and the use of statistical material from secondary sources. Interviews with Australian graziers were conducted between 2002 and 2004 (see Richards et al., 2005, for initial findings from this research). Data are not presented as a symmetrical analysis or test of arguments throughout the paper, but represent the foundation of how the comparative description and analysis is outlined.

#### 3.1. An Australian story

In Australia, agricultural production was introduced to the Australian landscape through a process of colonisation. The Europeans brought with them a system of agriculture that had evolved over time to suit a wet and fertile landscape, rather than the arid and semi-arid landscape of Australia. Rather than adapt their styles of farming and pastoral production to the new environment, the new settlers set about dominating the landscape to suit their purposes (see Barr and Cary, 1992; Gasteyer and Flora, 2000; Gray and Lawrence, 2001). This later involved the 'opening' of new lands for production by clearing trees then, following the Second World War, progressing to more intensive forms of production through broadscale clearing and the use of agricultural inputs such as irrigation, chemical fertilisers and pesticides and converting native pastures with exotic grass species.

As at December 2006, the Australian Bureau of Statistics (2006b) estimated the total resident population to be just under 21 million. Despite its vast size, Australia is arguably one of the world's most urbanised nations with around 80% of Australians living within 50 km of the coast (Bourke and Lockie, 2001). In rural areas, 99.6% of broadacre and dairy farms are traditional family farms— although the number of corporate farms is growing, particularly in the beef and cotton industries (Gray and

Lawrence, 2001). According to ABS estimated data, there were approximately 130,000 farms as of June 2005. Of these, the beef cattle industry was the largest in terms of farm numbers, consisting of 28% of all farms. Mixed farming (grain/sheep/cattle) represented 13% of all farms followed by sheep and grain with 10% respectively (Australian Bureau of Statistics, 2006a). Over the last 25 years, the number of farms has declined by 25%, leaving only relatively small or large farms (Gray and Lawrence, 2001). This has been facilitated by the 'get big or get out' rural restructuring of industrialised agriculture, whereby larger properties and increased outputs are needed to compete with global commodity prices.

Given the scale of the Australian continent, property size can be small on urban fringes or thousands of square kilometres in remote, beef cattle areas. In many remote areas, land is marginal, soils are poor and rainfall is infrequent. Hence pastoral properties span great distances in order to be economically viable. Clearing of vegetation and overgrazing, coupled with long periods of dry weather, has the potential to cause the desertification of large tracts of the Australian landscape. Due to the climatic variability, shifting commodity prices and, in some cases, high debt level, graziers tend to adopt a low-risk strategy, which reinforces productivist-style management practices (Richards et al., 2005).

As the rural population is decreasing, those who have remained in agriculture and pastoralism increasingly find themselves on a 'treadmill of production' (see Marsden, 1998; Vanclay and Lawrence, 1995; Ward, 1993). This necessitates increased inputs such as agri-chemicals, and hence costs, which in turn has a negative effect on farm viability and environmental sustainability. Broadscale tree clearing is a prime example of the ever-increasing need to obtain more land for production (Rolfe, 2002; Richards et al., 2005; Lawrence, 2005). The recent ban on broadscale clearing in the state of Queensland was met with fierce opposition from the farm lobby, a further testament to the commitment to broadscale, productivist-style agriculture and pastoralism in Australia. Ironically, on the other side of the world, a lack of agricultural activity and grazing animals is causing Norway to become a forest, which is seen largely as an environmental problem (Olsson and Rønningen, 1999).

### 3.2. A Norwegian story

Norway has a significantly different system of agricultural production than Australia, a system more in accordance with natural land capacity, capabilities and traditions which have evolved to match the landscape over centuries. Geography and climate create different conditions for agricultural production and Norway is considerably smaller than Australia in size. Climatically, the differences between these two countries are extreme. Norway has temperate, mild winters and cold summers along the coast, cold winters and warmer summers in the

<sup>&</sup>lt;sup>1</sup>Trend-data 2004 is survey data of Norwegian farmers collected by Centre for Rural Research, Trondheim, Norway, in January 2004. Numbers are based on own analyses of these data.

interior (Atlapedia, 2003). Despite its northern position, Norway takes advantage of the warm Gulf Stream, which provides agriculture with fair conditions for a reasonable level of production in the summer season.

The 4.5 million Norwegians are spread over a major part of Norway. About 75% of the Norwegian population live in what Atlapedia (2003) defines as urban, but 'cities' are often small, having between 10,000 and 50,000 people. This means that the population is dispersed throughout the country. The process of centralisation of the population is also perceived as a problem in Norway. The goal to uphold a populated countryside is maintained within the Norwegian regional policy and is widely supported throughout the Norwegian population (for example, see Almås, 2004). This issue is also strongly supported by the farmers themselves and their role as maintainers of rural communities is highly valued. In Trend-data (footnote 1) from 2004, about 70% of Norwegian farmers agreed that agriculture contributes to a high degree to 'living rural communities' and 'a beautiful countryside'. Around 60% believed agriculture's role in 'contributing to knowledge of food production and shaping the Norwegian identity' to be of great value. Still, many farmers find it difficult to handle the policy goals of rationalisation on the one hand and to produce public goods on the other (Rønningen et al., 2004).

### 4. Agricultural policies in Norway and Australia

Agricultural production, the market situation and policy relating to agriculture have gone through major alterations since the Second World War. Now, globalisation, or more specifically, global capitalism, has an enormous influence on agribusiness and the agri-food market. Global firms view regions of the world as potential markets and the policy environment enables goods and capital to flow around the world with minimal restrictions (Gray and Lawrence, 2001). Still, nations and political and economic institutions respond to world trade with different policies. Australia and Norway, two Western countries originating from the same cultural cradle, have developed quite different agricultural policy settings. Agricultural production in Australia and in Norway is aimed at different markets and the distinction between domestic or foreign markets is also illustrated through Norwegian and Australian policies on agriculture. Some essential features illustrate the developments in these two countries.

In Australia, agricultural products like wool, sugar, beef and wheat supplied a post-war European market. The production was protected, subsidised and regulated by the state (Lawrence et al., 1997). During the 1950s and 1960s agriculture prospered under the liberal-country-party expansion goals of increasing agricultural products and increasing sales abroad (Lawrence, 1987). Australia's rural producers used the substantial benefits they gained from state subsidisation of agriculture to increase production and improve productivity throughout the 'long-boom' of capitalist expansion (Lawrence, 1987, p. 9). Already established with a 'world trade perspective', Australian markets send raw agricultural commodities overseas and import a large volume of processed and manufactured goods.

As agricultural expansion also increased in other Western countries, overproduction occurred. As this forced the prices of agricultural products down, agriculture was left vulnerable to market forces. This led farmers into a cost-price-squeeze in the late 1960s, accelerated by the increasing expenses on agricultural inputs produced by agribusiness firms:

Although the terms of trade had begun to move against agriculture from the early 1950s the state, ever conscious of agriculture's contribution to export earnings, had succeeded in underwriting farming providing, amongst other benefits, cheap credit, input bounties, loans to marketing authorities, quarantine services, water resource development, research, extension services, subsidies, concessions and taxation relief (Lawrence, 1987, p. 9).

Later, Great Britain's entry into the common market fenced out Australian and New Zealand from free access to traditional trading partners. During the few years following this period, subsidies were abolished in Australia. Even with the reinstatement of a conservative coalition in 1975, subsidies were not brought back to earlier levels (Lawrence, 1987). The farmers themselves responded to the crisis by forming The National Farmers' Federation (NFF) taking on an 'anti-state-interventionist' approach, applauding economic rationalist views that inefficient farmers and general wage inflexibility were the two major problems facing agriculture.

Australia responded differently from Europe and the US to the emerging realities of integrated global agriculture (Share et al., 1991). While Europe and the US have had ongoing protection of their family farming, Australia chose the free trade path. The logic was that with a decline in agricultural subsidies in Europe and the US, these nations would lose their competitive edge and Australia could serve these markets with low price food. Yet, with the European and US trading blocks not giving ground, this strategy served limited success (Share et al., 1991, p. 6).

Australian agricultural policy has, since the mid-1970s, travelled on a pathway towards non-subsidised agriculture within a free trade world market. However, more recently, increasing attention is being paid to the negative consequences of intensive agriculture on the environment. At this stage governments encourage individuals and local communities to take action (and recognise) their own environmental problems caused by high pressure on the land (see Cheshire, 2006).

Different ideals and political goals, than those developed in Australia, dominated the second half of the 1900s in Norway. The integration of Norwegian government and the agricultural interests is a key factor in the explanation of how Norwegian agriculture has been sustained through the shift of industrialisation and rationalisation of agricultural production (Almås, 2004). Through organisation in co-operatives, unions and political parties, the Norwegian farmers have, since the late 1930s, had an ability to influence policy in a social democratic model of strong cooperation between state and sector interest, natural resources and labour (Almås, 2004). Norway has had and still has one of the world's most comprehensive systems of agricultural subsidies with a system of little export and little import of 'competing' agricultural products.

From the 1950s, Norway found itself in an era of productivist ideals, with the techno-scientific development, mechanisation and rationalisation of agriculture (Almås, 2004). Modernisation was the mantra, but so too was protection and support through agricultural subsidies. In the 1960s, Norwegian policy concentrated on developing a stable family farm through planned national policies (Almås, 1994). Taking the market into consideration, Norwegian agriculture was to be protected. Welfare issues took over the political agenda in the 1970s to secure the social status of farmers in a market where prices were falling and farmers were forced to leave. A political goal was to equalise the incomes of industry workers and farmers. The goal never materialised but brought about substantial welfare gains for farmers (Almås, 1994). It also opened a short period of optimism and growth in Norwegian agricultural production (Almås, 2004; Blekesaune and Almås, 2002). In this period environmental issues are first found written down in agricultural policy documents (Blekesaune, 1999). Protection was still important, but now Norway was also involved in international trade agreements like GATT (the forerunner of WTO) (Almås, 2004).

With new international commitments and the problem of overproduction, focus on negative effects of agricultural production on nature and farmers' increasing dependence on subsidies also entered the public debate in Norway, alternatives had to be developed. From 1980 onwards, there has been a greening and a re-regulation of Norwegian agriculture (Almås, 1994). Almås' studies, however, have indicated that there has been little change for farmers with changing policies. The key word has been 'persistence' rather than 'change'. Norwegian farmers adapted to policy changes even before actual changes were made. It was found that 'farmers in Norway lowered their investments and used less fertilisers and pesticides even before the present policy of "green liberalism" was implemented' (Almås, 1994, p. 15).

From the 1990s a new era arrived with new internal and external competition through institutionalisation and deco-operativisation. Power moved to the market and the WTO. The WTO agreement of 1994 forced Norway to lower tariffs over time and state control was decentralised, and many institutions like marketing boards and the agricultural banks were abolished or merged with others. Despite this, farmers' voices were still heard through the meat and dairy co-operatives and the yearly Agricultural Agreement.<sup>2</sup> However, as Almås (2004) notes, the Norwegian blend of democracy and capitalism is under pressure, partly because Norwegian politicians are abdicating before the global market forces, and partly because Norway is bound by international agreements.

One response to this has been to emphasise the NTCs of agriculture. In 1991, Alstadheimutvalget (a government appointed committee) formulated food security as the major goal of Norwegian agricultural policy. This was to be achieved through 5 points: food preparedness, environment and resource protection, rural settlement, equality of status between farmers and other people, and secure incomes in agriculture (Blekesaune, 1999). In 1998, the Department of agriculture for the first time invited tenders for a report on the *multifunctional* role of agriculture. Norwegian research institutions were invited to analyse the 'multifunctionality' of Norwegian agriculture and with that possible NTCs of economic support to agriculture in Norway. The research focused on food preparedness, rural policy and environmental issues, and added to production of food and fibre, this was suggested as the multifunctional role of agriculture in Norway (Blekesaune, 1999). In this context, multifunctionality refers to the additional outputs or functions of a viable ('traditional') agriculture. Agriculture's contribution to a long-term food security, the viability of rural areas, cultural heritage, land conservation and the maintenance of agri-biodiversity are all on the official Norwegian 'NTC list' and put forward in negotiations in the WTO. According to the Norwegian Ministry of Agriculture (2004a) the multifunctionality of Norwegian agriculture is now ensured through economic, legislative and administrative measures and through training and extension. Even though trying to protect its agricultural production, policies are also changing at the national level. From the end of the 1990s, domestic agricultural policy has encouraged increased rationalisation on the one hand, and value-adding based on agricultural resources on the other.

Norwegian policy might resemble EU policy in its arguments for protecting the nature of its agriculture. One of the key arguments for Norway not joining the EU was however, and still is, agricultural concerns. As Norwegian interests fear the consequences of international trade on its agriculture, the fear is greatly related to the possible effect of competing with goods served by the EU. Norway does co-operate with the EU through the European Economic Area (EEA) Agreement. The Agreement involves the free trade of products among agreeing partners, however, with limitations on agriculture and fishery products. So far, there have been no dramatic consequences for Norwegian agriculture, either through

<sup>&</sup>lt;sup>2</sup>Important parts of the agricultural policy are laid down in the Agricultural Agreement, negotiated between the farmers' organisations and the government and approved by the Parliament (Norwegian Ministry of Agriculture, 2004a).

collaboration with WTO, the EU or through changing national policies (Veggeland, 2001). At the time of writing, the Norwegian opinion is not in favour of extending the collaboration to a proper EU membership.

In sum, governments of Australia and Norway have taken quite different approaches to managing their nation's agriculture. Australia has not been impervious to global capitalism and political leadership that has exposed agriculture to global competition and free trade by withdrawing financial support through subsidies. Norway's policies have been more protectionist in nature and have been able to engage in a level of global trade whilst supporting NTCs, such as the landscape, environment and rural communities, through subsidisation and the re-regulation of agriculture.

### 5. Agricultural modalities in praxis

Having provided the social, political, historical and geographical context of current agricultural practices in Australia and Norway—and considering some of the definitional and inherent problems of productivism, postproductivism and multifunctionality—the issue of multifunctionality, and the extent to which it has been accepted and implemented by agricultural and state actors in both Norway and Australia, will be analysed.

### 5.1. Is there a multifunctional Australian agriculture?

While cognisant of the problems posed by dualistic thinking (Argent, 2002; Evans et al., 2002; Wilson, 2001), a move away from protectionism and subsidisation of agriculture has occurred indicating what some may claim as a 'post-productivist transition' (see e.g. Wilson, 2001). The neoliberal state now places greater emphasis on regulatory signals to respond to environmental damage and producers are expected to be independent of government assistance. In Australia, extension services that offered technical advice to farmers and graziers on ways to improve production have traditionally been delivered by state government agencies (Departments of Agriculture/ Primary Industries). Over the last decade these services have generally been in decline. Increasingly, landholders are expected to purchase services from the private sector that was historically the province of state-sponsored extension.

There is evidence that countries such as New Zealand (Willis, 2001) and the UK (Burton, 2004) and Australia (Argent, 2002; Smailes, 2002) to a lesser extent have made the conceptual shift away from productivism to something else. In Australia, can 'something else' be described as postproductivist or multifunctional? Having noted the pitfalls of the concept 'post-productivist' due to the inherent reliance on dualisms that do not begin to capture the scope of diversity within and between these concepts, multifunctionality is opted for as the most appropriate analytical term. Therefore, is Australian agriculture, like its Norwegian counterpart, 'multifunctional'? Does it attend to the needs of NTCs such as biodiversity, landscape maintenance, cultural heritage, indigenous rights and vibrant rural communities?

The rural geographer Holmes (2002, 2006) has been one of only a few in Australia to take up this challenge by examining the Australian rangelands in terms of its commodity versus amenity-oriented regions. Holmes (2002) argues that there has been a change in Australia's pastoral areas towards post-productivism but stresses that this is not a result of any attitude change by pastoralists. In a recent paper. Holmes (2006) suggests that there are three key forces propelling the multifunctional transition in rural Australia: (1) agricultural overcapacity, due to technological advances and agricultural policies to a lesser extent (production values); (2) the emergence of alternative amenity orientated uses, which are capable of competing with, complementing, or replacing agriculture-for example, the increasing importance of non-market uses and the rural as a site of consumption (consumption values) and (3) changing societal values, such as the valuing of biodiversity, ecological sustainability and social justice (protection values). Out of this Holmes (2006, p. 146) has proposed that there are seven definable landscape types (or 'modes of occupance') that have appeared in Australia's transition to multifunctionality. He describes these as a productivist agricultural mode (production values dominate), a rural amenity mode (consumption values dominate), a small farm or pluriactivity mode (mix of production and consumption values), a peri-metropolitan mode (intense competition of values), a marginalised agricultural mode (integration of production and protection values) and conservation and Indigenous modes (protection values emphasised).

Clearly, there has not been a wholesale shift, at the property level, towards the values of multifunctionality. What can be asked, however, is not only whether Australian agriculture has moved away from productivism, but to what extent it has moved away and what might be preventing transitions into multifunctionality. To assess this, it is necessary to examine the varying conceptual spaces within society such as at the level of ideology, policy, discourse or reality and how these areas of thought are manifested in legislation and policy or in landholder and 'green' discourses. At the level of government or the state, an ideology of multifunctionalism may be held, and, to some extent, this may be subsequently translated into practice or reality via legislation and the provision of economic incentives to landholders for ecosystem services.

Of importance to the discussion in this paper is that Holmes (2002, 2006) contests the value of agency among rural actors in facilitating the transition to a multifunctional countryside. However, it can be argued that the role of agricultural actors is pivotal if this continuum towards a multifunctional agriculture is to be maintained. However, there is much evidence that landholders are resistant to change for a number of complex reasons, including concerns about land autonomy (Reeve, 2001), suspicion about government agendas (Richards et al., 2005), a mismatch between landholders' values and practices (Cary et al., 2002); an internalised and embodied culture of productivism as the only legitimate form of primary production (Burton, 2004), the political–economic imperatives that lock landholders into productivist practices (Lawrence et al., 2005).

It is suggested here that the 'litmus test' for how far Australia is along a multifunctional pathway is to gauge how well such concepts are embraced by landholders, who are in essence the caretakers of the majority of the land in Australia. Landholders often possess ethics of stewardship, but often do not practise it to its full potential (Vanclay and Lawrence, 1995; Lawrence et al., 2005). Landholders are subject to a range of contradictory and conflicting messages relating to their levels of production and sustainable land management. Regulatory and policy signals promote sustainable agriculture and at the same time global economic imperatives are forcing producers to increase outputs to remain competitive and economically viable as a business. This, more often than not, requires that producers engage in more intensified forms of production, for example, clearing native vegetation, reseeding pastures with non-native species, increasing the use of agri-chemicals or looking towards genetically modified organisms to help increase production and profits. This cycle experienced by many Australian producers suggests a more deeply entrenched 'advanced productivism' rather than a shift from productivist practices or values (see Burton, 2004). This argument is further demonstrated in Richards et al. (2005, p. 202) where landholders reported that levels of sustainability could be determined by economic success, or the 'balance sheet' and where unproductive land was referred to as 'rubbish country' and forested areas were described as 'worthless scrub'.

Whilst landholders themselves may not be fully conversant with the potential sustainability outcomes of multifunctional approaches to primary production, over the last decade or two in Australia, governments have instituted a range of regulations and incentives to encourage better environmental management of natural resources on private property. At present, the rural is a site of contested knowledge (see Marsden, 1998), with the green lobby gaining more ground politically, to the extent that the Australian governments have legislated against any further broadscale tree clearing. This ban on clear-felling is not only significant in terms of preserving natural heritage but is symbolic that Australian governments are moving towards environmental protection rather than production and hence taking some important, early steps towards mutifunctionality. Clearly, at the state level, with the institution of programmes such as Landcare and sustainability programmes through agencies such as the NAPSWQ, there are tangible shifts toward policies recognising the rural as a site not only for agriculture but also as a place for services, such as the conservation of natural and social assets. At this stage, there still appears to be a mismatch between the goals of primary producers and those of the green lobby and governments.

The productivist paradigm has been the dominant mode of production for generations and to shift from this now embedded way of doing things strikes at the core of their own knowledge base, identity and role as producers (Burton, 2004). With decreasing opportunities for farm families to improve their financial situation (and in many cases it is dire), landholders report feeling cornered by governments who no longer recognise the farmer as the key actor in rural landscapes. This loss of rural hegemony has had a marked impact upon landholders both emotionally and practically. At the emotional level, landholders report to feeling besieged by green groups and governments who are now seeking to regulate the land management practices of the once-revered farmer. Farmers who were previously upheld as the protectors of the countryside are now at odds to explain why they are often labelled as environmental vandals through the popular media. Landholders are still receiving the message of 'get big or get out' (Higgins and Lockie, 2001; Richards et al., 2005) and witnessing the success of corporate farming that has intensified production, outputs and profits. Considering this scenario, it is not difficult to understand why farmers and graziers do not support their government's agricultural policies and why landholders often dispute 'best practice' conservation methods.

It can be argued that the multifunctional context undermines the hegemony of the farmer as the holder of private property rights and custodian of the countryside. In Australia, landholders are very aware that their private property rights are less robust, with state and federal governments regulating in a number of areas including vegetation management and water allocation. For Australian landholders, new environmental policies are perceived as a demand that interrupts their own beliefs and ideals of good stewardship of the land (Lawrence et al., 2005).

Whether Australia is merely 'greening' its agricultural policies, or is on the cusp of reform towards a truly sustainable, multifunctional agriculture, is debatable. What is apparent is that Australian governments are a reasonable way toward conceptualising the necessity of multifunctional agriculture if both agriculture and the environment are to be viable in the future. Landholders' views often do not synchronise with those of politicians and policy makers, mostly due to the inherent contradictions of development versus conservation (see Buttel, 1998) and a sense of betrayal and abandonment at the hands of government (Richards et al., 2005). Not only is the move from a productivist form of agriculture disparate across time, agricultural industries, geographical localities, institutions and agricultural actors (Holmes, 2002, 2006) but it is clear that in Australia there is a chasm between the
ideology of local agricultural actors and state and federallevel bureaucrats.

#### 5.2. Multifunctional agriculture in Norway

The Norwegian situation is quite different from that currently experienced in Australia. As for other European countries, multifunctionality in Norway is bound up with a social mode of regulation and the contradictory dynamics of agriculture (Tilzey, 2003, p. 3). Tilzey (2003) clearly gives an indication of how to critique the model of multifunctional agriculture and the way it has developed in Europe and in this case, Norway. With this come questions of national protectionism.

Whilst Australia has not labelled itself multifunctional in terms of its agriculture. Norway has certainly embraced the notion of a multifunctional agriculture, endorsed through the WTO. This is clearly expressed within Norwegian agricultural policy. The Norwegian Ministry of Agriculture defines agriculture as multifunctional when it has one or several roles or functions in addition to the production of food and fibre. These other outputs from agriculture include among others food security over time, viability of rural areas, cultural heritage, land conservation, the maintenance of agricultural landscapes and agri-biological diversity (Norwegian Ministry of Agriculture, 2004b). These categories of support in the WTO Agreement on Agriculture are essential for Norwegian agriculture as agricultural production conditions vary considerably, climatically or for other reasons, among WTO member countries. In order to establish a fair and market-oriented agricultural trading system there is, according to the Norwegian agricultural authorities, a need to acknowledge the right of every country to secure the coexistence of various types of agriculture (Norwegian Ministry of Agriculture, 2004b). Given the greater social good of such services, the landholder should be assisted financially. Norway, as such, has not adjusted its policy in the post-productivist sense described by Wilson (2001). The social democratic model of Norway, though certainly liberalised over time, still holds strong corporate elements. Norwegian agriculture has been re-regulated, emphasising green elements or 'green liberalism' (Almås, 1994, 2004).

With this, goals for a multifunctional agriculture are stressed in words, but the effect might not be clear. The 2004 Agricultural Agreement negotiated between the farmers' organisations and the government encourages further effectiveness and rationalisation to ensure competitiveness in a future of increased international trade and the Norwegian consumer demand for cheaper food (Norwegian Ministry of Agriculture, 2004c). This means fewer and bigger farms. At the same time more funding is moved to 'green' actions like further economic support for converting to organic farming and support to take care of cultural landscapes. Farmers are encouraged to take action on their properties and financial support is also given to increase the value added from the agricultural properties like letting out hunting rights, rural and farm tourism, refining farm products, engaging in 'green care'<sup>3</sup> and so on.

Does this imply that Norwegian agricultural policy and its agriculture as such can be defined as multifunctional? Some critical voices would say that agri-environmental measures function as an alibi for further restructuring of agriculture and food production (Rønningen, 1999). By this, Rønningen (1999, 2001) means that most agricultural support is aimed towards the rationalisation of agricultural production whilst at the same time direct support is given to fulfil green goals of multifunctional agriculture. Many farms are getting bigger and more effective in a productivist spirit, while multifunctional land use is mainly found on marginal land and in extensive production like haymaking and grazing land (Flø, 2002). Further restrictions and regulations are imposed on agricultural or farmer's land due to both international conventions and national goals and policies. These involve national parks, protected landscape areas and the protection of large predators such as bears and wolves. These aims are conflictual at several levels, between rural and urban interests but also for the farmers' themselves. For many, changing production to farm tourism or niche products is possible, but for others changes are difficult (Rønningen et al., 2004). Difficulties are connected both to farm resources and the stage of life the farming family finds itself in.

New roles emerge for the farmers as their role interpretation is changing from being, just a farmer, or food producer to becoming landowners and rural business people (Rønningen, 2001). Some struggle as they understand that their work is changing and they are in essence becoming 'public gardeners'. Even though many want to fulfil new goals, the ability to 'nurse' the land is the last thing to be done after a long workday. In addition, as also found in Australia, there is a discrepancy in the interpretation of what is 'aesthetically pleasing' and what is 'good management'. For example, inherited (productivist) ideals of fully fertilised, dark green, re-seeded meadows often exceed the farmers' 'capability' to leave the cultural meadows full of weeds and wildflowers, as is said to be 'best' by accepted environmental management standards (Flø, 2002).

Norwegian agriculture and its family farmers are under pressure economically, due to the food-market situation globally, but also due to economic viability in a domestic labour and food market. Farmers are struggling to find new and different solutions to these problems in order to stay in agriculture, including pluriactivity, part-time farming, organic farming or farm-based tourism. Many support the new programmes out of economic necessity for farm survival (Rønningen, 1999).

<sup>&</sup>lt;sup>3</sup>Green care is welfare programme whereby people with special needs can engage in activities on the farm as a therapeutic environment. Farmers enter into contracts with local agencies to provide such services in collaboration with welfare workers.

A sense of multifunctionality is not brand new in Norway. Traditional farming in combination with forestry, fishing and/or hunting has historically been a common strategy among many farmers, especially in areas of low production (Hetland, 1986; Flø, 1998; Flø and Bjørkhaug, 2001). Pluriactivity is common since most Norwegian farms are small and an essential amount of income needs to be derived from wage labour outside farming (Bjørkhaug and Blekesaune, 2004; Blekesaune and Almås, 2002; Løwe, 1998; Rognstad, 1991). However, this should not only be viewed as farm income being too low. Many farmers have chosen a double career (Jervell, 1999; Rye, 2002) and/or have a partner in the wage earning labour market (Bjørkhaug and Blekesaune, 2004).

Norwegian farmers have been found to be ready to change, even before a new regulation is enforced (Almås, 1994), and when asking them about what agricultural policy should give priority to, the majority respond most positively to 'multifunctional' aspects of agriculture, such as decentralised food production, food security, safe food, Norwegian food, rural settlement, cultural landscapes and biological diversity (Norsk Landbrukssamvirke, 2005). Farmers' attitudes are in favour of multifunctional goals but they fear cuts in financial support. Farmers and politicians both agree upon multifunctional ideals for agriculture, but farmers do not agree that further rationalisation for cheaper food needs to exist alongside this policy (Trend-data, refer to footnote 1).

The majority of Norwegian farmers feel that the environment of the Norwegian agriculture is healthy (Bjørkhaug and Flø, 1999). However, what is recognised as 'healthy' or 'good' might vary both between farmers and environmentalists and also between farmers involved in different modes of production. For instance, the opinions regarding the environment and possible effects of pesticides and other artificial inputs on land vary significantly between organic and conventional farmers in Norway (e.g. Bjørkhaug and Flø, 1999; Storstad and Bjørkhaug, 2003) but also among male and female farmers (Bjørkhaug, 2006a, b).

The Norwegian farmers might not find it as difficult to make the transition to this multifunctional mode of production as has been the case in Australia. With smaller farms and the availability of off-farm work and government payments, landholders earn their income from numerous sources and are protected from the anomalies of the global market. Farmers have not lost their trust with policy makers or society at large. Eighty percent of the Norwegian population wants to keep Norwegian agriculture at the present level to preserve rural communities, Norwegian food production and cultural landscapes (Norsk Landbrukssamvirke, 2005) and farmers perceive that consumers are supportive (Trend-data, see footnote 1). Within this context Norwegian actors provide an emphasis on farmers as the main defenders of cultural heritage linked to agriculture and rural communities (Daugstad et al., 2006).

Competing within a non-regulated world market is not believed to be sustainable for the majority of Norwegian farmers. By attaching itself to the 'outside world', through agreements with the WTO and international acts of environmental sustainability, Norway is bound to an eventual change. Protectionism is no longer easy, and as other countries' agricultural policies are open to criticism for using 'green-box' arguments in WTO negotiations, Norway is doing the same. Some economic analyses have shown that even though other sectors can deliver some of the outputs of a multifunctional agriculture, it is cost effective to let joint agricultural production take care of it (Vatn, 2002). As Potter and Burney (2002, p. 46) argue: it is not the existence of multifunctionality as such that is controversial but rather the design of domestic subsidies and to which these are deemed to be trade distorting. Such subsidies are presently viewed as legitimate in Norway, both at the policy level, among the farmers and in the general public.

#### 6. Conclusion

It has been argued that whilst multifunctionality is an appropriate concept through which to assess changes in agricultural formats-and a necessary component of social and environmental sustainability-the multifunctional agricultural paradigm is currently weak in Australia. However, it can be detected in some policy settings largely through programmes that seek to devolve responsibility for sustainability to the regional level-although this has not necessarily trickled down to the property level to any great degree. Norway, however, has embedded both the language and action of a multifunctional agriculture into its agricultural mode of operation. This has been, to a great extent, facilitated through a high reliance on governmental subsidies, a system based on an agreement between governments and farmers' organisations (As described in footnote 2). As such, agricultural actors have a voice and role in bringing about a multifunctional countryside. At a policy level, there is a shift towards a requirement of more sustainable production and development. Special financial support is given to farmers for their efforts in sustaining biologically diverse, cultural landscapes on agricultural properties. Whilst subsidies have often been used to encourage productivism, the Norwegian experience has also shown that they can be used to bring about multifunctional landscapes. The history of a conflict-free settlement in rural areas might be one of the reasons for the successful maintenance of the environment and viability of rural communities. The Norwegians are used to an active utility and *use* relationship to the resources both through agriculture and harvesting of fish and game. This might have brought about a more amenity-oriented approach to a multifunctional agriculture that focuses upon the problematic externalities of a productivist agricultural regime (Rønningen et al., 2004).

We have argued that it is not necessary to examine multifunctionality only in terms of WTO agreements, and that the concept holds integrity in its own right. The importance of looking separately at the ideology and practice of multifunctionality has also been posited. It has been shown that Australian governments and some nonagricultural actors such as green groups are in the process of making the conceptual shift toward a multifunctional agriculture and viewing the rural as not only a site of production, but also as a site of consumption, biodiversity and cultural heritage. Whilst Holmes (2002, 2006) correctly claims that a number of changes have already occurred in Australian pastoral lands without reliance on changes of values of pastoralists, it is suggested here that agricultural actors also need to be engaged to continue to move away from hardcore productivism and embrace greater environmental conservation principles. However, in Australia, landholders are experiencing conflicting messages and market signals that ever-increasing productivity is required, whilst at the same time they are increasingly subject to regulations in relation to sustainable land managementthe recent reduction in tree clearing rights is a prime example. At present, Australia's landholders are generally opposed to government interference in natural resource management at the farm level and are resisting top-down approaches to shift toward more sustainable practices, concerning social, environmental and economic viability (Richards et al., 2005).

Norwegian landholders have evidently been working in collaboration through the farm lobby groups to find a common ground that serves Norway's national interests. From the farmers' point of view, it is important that Norway gains acceptance internationally in the WTO for continued financial support for agricultural production to ensure survival of Norwegian family farming for the purpose of maintaining the farms, the rural population and the multiple values and functions agriculture produces. At this stage it is believed that emphasising the multifunctional role of agriculture might be the right way.

In conclusion, multifunctional agriculture requires support at the levels of agricultural actors, the public and the state. There is little to be gained from an ideological position of multifunctionality if there are still barriers to the implementation of some of these key features of multifunctionality at the property level. From this perspective, a sustainable multifunctional agriculture should strive for a joint production of functions, not a splitting up of functions where neoliberal ideals dictate a further concentration of productivist-style production on farms in favourable areas, whilst farms in agriculturally more marginal areas are supported to produce amenity and biodiversity outputs.

Arguably, Australian primary production is currently situated toward a 'weak' end of a 'multifunctionality continuum' and is constrained not only by the remote location of many Australian properties but also the overarching neoliberal political economy which serves to send market signals that more raw commodities need to be produced for farmers and pastoralists to remain competitive in the global markets. At this stage, agricultural multifunctionality in Australia rates weakly as an ideology or policy and even less as a discourse or practice. It has been demonstrated that the concept of multifunctionality in Norwegian agriculture has thrived within a protectionist setting with the support of the public, the state and agricultural actors. In this sense it is very clearly a policy, practice and discourse that aims to preserve and conserve rural spaces, the cultural landscape, the farming way of life and food safety.

#### 7. Uncited References

OECD, 2001.

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#### References

- Almås, R., 2004. Agricultural History of Norway: from State Driven Modernisation to Green Liberalism: 1920–2000. Tapir Akademisk Forlag, Trondheim.
- Almås, R., 1994. The rise and fall of agricultural policy cycles: from planned economy to green liberalism. Journal of Rural Studies 10, 15–25.
- Argent, N., 2002. From pillar to post? In search of the post-productivist countryside in Australia. Australian Geographer 33, 97–114.
- Atlapedia, 2003. <a href="http://www.atlapedia.com">http://www.atlapedia.com</a>, accessed 18 November 2003.
- Australian Bureau of Statistics, 2006a. Population Clock <a href="http://www.abs.gov.au/ausstats/abs%40.nsf/94713ad445ff1425ca25682000192af2/1647509ef7e25faaca2568a900154b63?OpenDocument">http://www.abs.gov.au/ausstats/abs%40.nsf/94713ad445ff1425ca25682000192af2/1647509ef7e25faaca2568a900154b63?OpenDocument</a>, accessed 15 December 06.
- Australian Bureau of Statistics, 2006b. Agricultural Commodities, Australia, 2004–05 <http://www.abs.gov.au/AUSSTATS/abs@.nsf/productsbytitle/ 2829A5E125F18442CA2568A9001393FC?OpenDocument >, accessed 15 December 06.
- Barr, N., Cary, J., 1992. Greening a Brown Land: The Australian Search for Sustainable Land Use. MacMillan, Sydney.
- Bjørkhaug, H., 2006a. Sustainable agriculture in the Norwegian farmers' context: exploring farming habitus and practice on the Norwegian agricultural field. The International Journal of Environmental, Cultural, Economic and Social Sustainability 2/4, 123–131.
- Bjørkhaug, H., 2006b. Is there a female principle in organic farming? An interpretation of data for Norway. In: Holt, G.C., Reed, M. (Eds.),

Sociological Perspectives of Organic Agriculture: From Pioneer to Policy. CABI, Wallingford, pp. 195–209.

- Bjørkhaug, H., Blekesaune, A., 2004. Work and income patterns of men and women of Norwegian family farms: masculinisation, feminisation, or professionalisation of farm work?". In: Cristóvão, A. (Ed.), Farming and Rural Systems Research and Extension. European Farming and Society in Search of a New Social Contract – Learning to Manage Change, pp. 139–150.
- Bjørkhaug, H., Flø, B.E., 1999. Organic farming in Norway—production and distribution of organic food. Paper presented at the XVIII Congress of the European Society for Rural Sociology, Lund, Sweden, 24–28 August 1999.
- Blekesaune, A., 1999. Agriculture's importance for the viability of rural Norway. Report no. 08/99. Centre for Rural Research, Trondheim.
- Blekesaune, A., Almås, R., 2002. Fra regulergingsgiver til markedslogikk—bondehusholdets ulike strategier for å overleve. In: Almås, R., Haugen, M.S., Johnsen, J.P. (Eds.), Bygdeforskning gjennom 20 år. Tapir akademisk forlag, Trondheim.
- Bourke, L., Lockie, S., 2001. Rural Australia: an introduction. In: Lockie, S., Bourke, L. (Eds.), Rurality Bites: The Social and Environmental Transformation of Rural Australia. Pluto Press, Annandale, NSW, pp. 1–16.
- Burch, D., Rickson, R., 2001. Industrialised agriculture: agri-business, input-dependency and vertical integration. In: Lockie, S., Bourke, L. (Eds.), Rurality Bites: The Social and Environmental Transformation of Rural Australia. Pluto Press, Sydney.
- Burton, R., 2004. Seeing through the 'good farmer's' eyes: towards developing an understanding of the social symbolic value of 'productivist' behaviour. Sociologia Ruralis 44, 195–215.
- Buttel, F.H., 1998. Some observations on states, world orders, and the politics of sustainability. Organization and Environment 11 (3), 261–286.
- Campbell, H., Lawrence, G., 2003. Assessing the neoliberal experiment in Antipodean agriculture. In: Almås, R., Lawrence, G. (Eds.), Globalization, Localisation and Sustainable Livelihoods. Ashgate, Aldershot.
- Cary, J., Webb, T., Barr, N., 2002. Understanding Landholders' Capacity to Change to Sustainable Practices. Bureau of Rural Sciences, Agriculture, Fisheries, Forestry-Australia, Canberra.
- Cheshire, L., 2006. Governing Rural Development: Discourses and Practices of Self-Help in Australia Rural Policy. Aldershot, Ashgate.
- Cocklin, C., Dibden, J., Mautner, N., 2006. From market to multifunctionality? land stewardship in Australia. The Geographic Journal 172 (3), 197–205.
- Daugstad, K., Rønningen, K., Skar, B., 2006. Agriculture as an upholder of cultural heritage? Conceptualizations and value judgements – A Norwegian perspective in international context. Journal of Rural Studies 22, 67–81.
- Durand, G., Van Huylenbroeck, G., 2003. Multifunctional and rural development: a general framework. In: Van Huylenbroeck, G., Durand, G. (Eds.), Multifunctional Agriculture. A New Paradigm for European Agriculture and Rural Development. Ashgate, Aldershot, pp. 1–16.
- Evans, N., Morris, C., Winter, M., 2002. Conceptualizing agriculture: a critique of post-productivism as the new orthodoxy. Progress in Human Geography 2, 313–332.
- Flø, B.E., 1998. Institusjonelle ordningar retta mot forvaltning av rurale ressursar Sikfisket i Femund. Rapport 4/98, Centre for Rural Research, Trondheim.
- Flø, B.E., 2002. Kulturlandskapet i bryting mellom individuell rasjonalitet og kollektive interesser. Biolog 3/4, 37–39.
- Flø, B. E., Bjørkhaug, H., 2001. Når storoksan ikkje beiter ved Femund si'er: Chronicle Nationen 06.04.01 (also printed in Østlendingen 19.04.01).
- Gray, I., Lawrence, G., 2001. A Future for Regional Australia: Escaping Global Misfortune. Cambridge University Press, Oakleigh.
- Gasteyer, S.P., Flora, C.B., 2000. Modernizing the savage: colonization and perceptions of landscape and lifescape. Sociologia Ruralis 40 (1), 128–149.

- Hetland, P., 1986. Pluriactivity as a strategy for employment in rural Norway. Sociologia Ruralis 26, 385–395.
- Higgins, V., Lockie, S., 2001. Getting big and getting out: government policy, self-reliance and farm adjustment. In: Lockie, S., Bourke, L. (Eds.), Rurality Bites: the Social and Environmental Transformation of Rural Australia. Pluto Press, Sydney.
- Holmes, J., 2002. Diversity and change in Australia's rangelands: a postproductivist transition with a difference? Transactions of the Institute of British Geographers 27, 362–384.
- Holmes, J., 2006. Impulses towards a multifunctional transition in rural Australia: gaps in the research agenda. Journal of Rural Studies 22 (2), 142–160.
- Ilbery, B., Bowler, I.R., 1998. From agricultural productivism to postproductivism. In: Ilbery, B. (Ed.), The Geography of Rural Change. Longman, Harlow, pp. 57–84.
- Jervell, A.M., 1999. Changing patterns of family farming and pluriactivity. Sociologia Ruralis 39, 100–116.
- Lawrence, G., 1987. Capitalism and the Countryside. The Rural Crisis in Australia. Pluto Press, Sydney.
- Lawrence, G., 2005. The regional approach to natural resource management in Australia: achievements and continuing concerns. In: The 11th International Symposium on Society and Resource Management, Ostersund, Sweden, 16–19 June.
- Lawrence, G., Gray, I., Stehlik, D., 1997. Changing spaces: the effects of macro-social forces on rural Australia. Paper presented at the XXII Congress of the European Society for Rural Sociology Mediterranean Agronomic Institute at Chania, Crete, Greece 25–29 August.
- Lawrence, G., Richards, C., Herbert-Cheshire, L., 2005. The environmental enigma: why do producers professing stewardship continue to practice poor natural resource management? Journal of Environmental Policy and Planning 6 (3/4), 251–270.
- Løwe, T., 1998. Levekår i landbruket: en studie av landbruksbefolkningens levekår. Report 98/25, Statistics Norway, Oslo.
- Marsden, T., 1998. Agriculture beyond the treadmill? Issues for policy, theory and research practice. Progress in Human Geography 22 (2), 265–275.
- Marsden, T., 2003. The Condition of Rural Sustainability. Van Gorcum, Wageningen.
- Norsk Landbrukssamvirke, 2005. Aktuelle Tall. Norsk Landbrukssamvirke, Oslo.
- Norwegian Ministry of Agriculture, 2004a. Agricultural policy in Norway. < http://odin.dep.no/ld/mf/facts/policy/020031-990037/index-dok000-b-f-a. html >.
- Norwegian Ministry of Agriculture, 2004b. Multifunctional agriculture and the WTO trade negotiation. <a href="http://odin.dep.no/ld/mf/index-b-f-a-html">http://odin.dep.no/ld/mf/index-b-f-a-html</a>).
- Norwegian Ministry of Agriculture, 2004c. Innst.S.nr.260 (2003–2004) Innstilling fra næringskomiteen om jordbruksoppgjøret 2004—endringer Istatsbudsjettet for 2004 m.m. (midlertidig versjon). <http:// www.stortinget.no/inns/midl/inns-20032004-260-i.htm >.
- OECD, 2001. Multifunctionality. Towards an Analytical Framework. OECD, Paris.
- Olsson, G.A., Rønningen, K., 1999. Environmental values in Norwegian agricultural landscapes. Report no. 10/99. Centre for Rural Research, Trondheim.
- Parliament of Australia, 2001. Multifunctionality and Agriculture Why the Fuss? Current Issues Brief no. 13. <a href="http://www.aph.gov.au/library/pubs/CIB/2001-02/02cib13.htm">http://www.aph.gov.au/library/pubs/CIB/2001-02/02cib13.htm</a> .
- van der Ploeg, J.D., Roep, D., 2003. Multifunctionality and rural development: the actual situation in Europe. In: Van Huylenbroeck, G., Durand, G. (Eds.), Multifunctional Agriculture. A New Paradigm for European Agriculture and Rural Development. Ashgate, Aldershot, pp. 37–53.
- Potter, C., Burney, J., 2002. Agricultural multifunctionality in the WTO legitimate non-trade concern or disguised protectionism? Journal of Rural Studies 18, 35–47.
- Potter, C., Tilzey, M., 2005. Agricultural policy discourses in the European post-Fordist transition: neoliberalism, neomercantilism

and multifunctionality. Progress in Human Geography 29 (5), 581–600.

- Prestegard, S.S., 2004. Multifunctional agriculture and the design of policy instruments: application to the WTO negotiations on agriculture. WP 8. Norwegian Agriculture and Economics Research Institute, Oslo.
- Reeve, I.J., 2001. Property rights and natural resource management: tiptoeing round the slumbering dragon. In: Lockie, S., Bourke, L. (Eds.), Rurality Bites: The Social and Environmental Transformation of Rural Australia. Pluto Press, Annandale.
- Richards, C., Lawrence, G., Kelly, N., 2005. Beef production and the environment: is it really 'hard to be green when you are in the red'? Rural Society 15 (2), 192–209.
- Rognstad, O., 1991. Stadig flere bønder arbeider utenom bruket. Sammfunnsspeilet 30–33, Statistics Norway, Oslo.
- Rolfe, J., 2002. Economics of vegetation clearing in Queensland. Rangeland Journal 24 (1), 152–169.
- Rønningen, K., 1999. Agricultural policies and countryside management: a comparative European study. Report 18/99, Centre for Rural Research, Trondheim.
- Rønningen, K., 2001. The meaning of farming and landscape within agricultural policies and strategies. Paper 6/01, Centre for Rural Research, Trondheim.
- Rønningen, K., Flø, B.E., Fjeldavli, E., 2004. The legitimacy of a multifunctional agriculture. Paper 06/04, Centre for Rural Research, Trondheim.
- Rye, J.F., 2002. Heltid eller deltid? En gjennomgang av bønders preferanser A-07/02, Centre for Rural Research, Trondheim.
- Share, P.H., Campbell, H., Lawrence, G., 1991. The vertical and horizontal restructuring of rural regions: Australia and New Zealand. In: Alston, M. (Ed.), Family Farming in Australia and New Zealand.

Keypapers Number 2. Centre for Rural Social Research, Wagga Wagga.

- Smailes, P., 2002. From rural dilution to multifunctional countryside: some pointers to the future from South Australia. Australian Geographer 33, 79–95.
- Storstad, O., Bjørkhaug, H., 2003. Foundations of production and consumption of organic food in Norway: common attitudes among farmers and consumers? Agriculture and Human Values 20, 151–163.
- Tilzey, M., 2003. A framework for conceptualising agricultural multifunctionality. EPMG Working Papers, Imperial College, London.
- Vanclay, F., Lawrence, G., 1995. The Environmental Imperative. Ecosocial Concerns for Australian Agriculture. Central Queensland University Press, Rockhampton.
- Vatn, A., 2002. Multifunctional agriculture: some consequences for agricultural trade regimes. European Review of Agricultural Economics 29 (3), 309–327.
- Veggeland, F., 2001. Norwegian agricultural policy and international commitments. NILF-rapport 2001-5, Norwegian Agriculture and Economics Research Institute, Oslo.
- Walford, N., 2003. Productivism is allegedly dead, long live productivism. Evidence of continued productivist attitudes and decision making in South-East England. Journal of Rural Studies 19 (4), 491–502.
- Ward, N., 1993. The agricultural treadmill and the rural environment in the post-productivist era. Sociologia Ruralis 33, 348–364.
- Willis, R., 2001. Farming. Asia Pacific Viewpoint 42, 55-65.
- Wilson, G.A., 2001. From productivism to post-productivism... and back again? Exploring the (un)changed natural and mental landscapes of European agriculture. Transactions of the Institute of British Geographers 26, 77–102.

# Paper 2

Gender and Work in Norwegian Family Farm Businesses

Hilde Bjørkhaug and Arild Blekesaune

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# Gender and Work in Norwegian Family Farm Businesses

Hilde Bjørkhaug\* and Arild Blekesaune

#### Abstract

The traditional way of organising agricultural production in Norway has been through family farming. A family farm is defined by the ownership of the farm through kinship over a number of generations. This article examines structural changes on Norwegian family farms based on the impact of increased competition and falling prices and subsidies. The strategy traditionally employed has been to increase total household income on the farm through working off-farm. We map changes in income allocation and work strategies on Norwegian family farms over time, changes in income allocation and work strategies among men and women on family farms over time and we show income allocation and work strategies among men and women as farmers and as farmers' spouses. Through a quantitative analysis of data on Norwegian farmers from 1987 until 2004, we show that there are continuing changes in work and income allocation on Norwegian farms. The trend is a higher dependence on off-farm income. However, this development is not only explained by more off-farm work by farmers which is an indication of lower value of farm work itself – but to a large degree this is a result of the increasing off-farm work of farm women. While at the same time more women are entering agriculture as farmers, we find clear evidence of differences in the organisation of farms operated by men and women. While male farmers are professionalising as 'one-man farmers,' female farmers to a larger degree depend (voluntarily or not) on their partner's assistance in the farm work.

#### Family farming in Norway

How a family farms and to what extent family farming exists, might be a question of definition. Traditionally, researchers have focused on the farm rather than the household as the unit of investigation (Buttel *et al.* 1984). From the 1980s onwards the focus of family farming studies has changed towards looking at the relationship between the farm as an enterprise and the family farm household. Increased attention to the changing roles of women in agriculture is one important reason for this (Almås *et al.* 1983; Gasson 1989; Almås and Haugen 1991; Whatmore 1991; Haugen 1998; Brandth 2002), as is the interest in the increasing numbers of farm women working outside the farm (Buttel *et al.* 1984; Rognstad 1991; Blekesaune 1996; Jervell 1999).

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Even though 'family farming' as a concept represents many qualitative aspects of agriculture, the term usually refers to a farm owned and operated by a family (Blekesaune 1996, p. 7). One definition of the 'farm family business' suggests it consists of six elements:

- Business ownership is combined with managerial control in the hands of business principals.
- These principals are related by kinship or marriage.
- Family members (including these business principals) provide capital for the business.
- Family members, including business principals, execute farm work.
- Business ownership and managerial control are transferred between generations with the passage of time.
- The family lives on the farm. (Gasson and Errington 1993, p. 18).

Gasson and Errington (1993) emphasise that claiming ownership and control of the farm was more important than the number of working hours spent in farming. This recognises that technological improvements in agriculture have increased efficiency and reduced the need for human labour input. The work claim, in Gasson and Errington's (1993), view is therefore of less importance than ownership and management for the definition of the family farm. If the combination of ownership and control of the farm is situated in the family, family farming is a sustainable institution in an institution dominated by part-time farms or farms run by only one person. A serious objection to a definition that gives giving no weight to family work is that it makes it possible to consider a farm in which all farm work is done by hired labour is still, in fact, a family farm. Djurfeldt (1996) disagrees with Gasson and Errington (1993), arguing that do not understand that the comparative advantage of the family farm is that family work essentially has a non-fixed cost. Thus, states Djurfeldt (1996, p. 344) Gasson and Errington (1993) muddle the crucial Chayanovian interface between family and farming.

Other objections have been raised against Gasson and Errington's (1993) definition. Hill (1993, pp. 360–361) argues that with no labour claim in the definition, 'nearly all farms in the European Community would be classed as "family". Hill (1993, pp. 361) suggests a focus upon family labour in order to differentiating family farm from other farms: family farms where unpaid labour contributes all, or almost all, of the work on the farm; intermediate farms where farm work is supplemented by hired labour but family still contributes with more than half and non-family farms where hired labour contributes the majority. Djurfeldt (1996) also argues that as an ideal type of family farming, Gasson and Errington's (1993) definition is too broad. He is, however, not satisfied with a purely labour-based definition of family farming.

Djurfeldt (1996) and Djurfeldt and Waldenström (1996) aim for a definition of family farming that can be used in studying developments over time and for making comparative studies of family farming and agrarian structures. Djurfeldt (1996) develops a definition which, to a large extent, draws upon the centrality of family labour in the farm operations, but also on a criterion of reproduction. This ideal type

of a family farm family is characterised by an overlap between three functional units: the unit of production (the farm), the unit of consumption (the household,) and the unit of kinship (the family). The notional family farm is characterised by requiring family labour for its reproduction that is, labour (not only managerial work) performed by members of the family or household (Djurfeldt 1996, p. 341).

It can be argued that Djurfeldt's (1996) definition of a 'notional family farm' and his subsequent calculations are problematic. Part-time or pluriactive farm strategies are excluded from his definition of family farms due to the lack of labour input on-farm compared to off-farm income generated by the farming family. Given this, Djurfeldt's (1996) definition of farming might be of value when the aim is to map differences between regions and over time, as he suggests. However, we do not find his aim of challenging different understandings of family farming very useful, as the concept of family farming itself might be contextually bounded across cultures and history.

Such a narrowing of the concept of family farming can imply, as Blekesaune argues 'a lack of analytical separation between the farm and the family' (Blekesaune 1996, p. 9). Blekesaune (1996) further argues that

it is necessary to operate with an analytical distinction between the family as a social decision-making unit and the farm as a production unit in order to see the interdependency between these structures. (Blekesaune 1996, p. 9)

Using this analytical distinction between the farm as a unit of production and the household as an interrelated decision-making unit, Blekesaune states that it is possible to uncover how the household allocates resources between farm and non-farm activities in order to satisfy their consumption needs and the needs for labour input on the farm. The analysis of changing family farm structures in this current article builds implicitly on these assumptions, giving weight to Gasson and Errington's (1993) broad definition, but also assuming that most farm work is executed by family members.

The intention of this article is to explore and discuss the dynamics of changing patterns of work and income allocation on Norwegian farms in an environment where farm succession is mainly carried out through inheritance within families, a tradition protected through the Norwegian Allodial Act. Norwegian farms are normally handed over to new successors on allodial rights. The Allodial Act ensures the firstborn child the right to the farm. In 2004, in 83 per cent of Norwegian farm ownership was based on either the farmer or his or her spouse's allodial right (Rye and Storstad 2004).

Through a quantitative analysis of several datasets on Norwegian farmers collected from 1987 to 2004 we reveal some important changes in the structure of Norwegian family farming. We highlight the changes in the work dispositions of men and women (as farm operators or spouses) and the allocation of income on the farms and map the changes in income allocation and work strategies on Norwegian family farms over time, and the changes in income allocation and work strategies among men and women on family farms over time. We show contemporary work strategies among men and women as farmers and as farmers' spouses and discuss how these changes affect the position of family farming in Norwegian agriculture.

#### Restructuring Norwegian family farming

Traditionally, Norway has had one of the world's most comprehensive systems of agricultural subsidies. The goal has been to maintain agricultural production, not only to maintain agricultural areas and food supply, but also to sustain the population and employment in rural areas. Due to external pressure from the EU and World Trade Organisation (WTO), and internal pressure due to the growing influence of liberal political parties and increasing consumer demands for food quality and lower prices, Norwegian agriculture is facing new imperatives. In 2007 there were about 50,000 farmers, which is less than one-third of the number farming 1969 (Norsk Landbrukssamvirke 2007). Several strategies have been employed by the remaining farmers to maintain their positions and different concepts have been developed to describe their strategies: pluriactivity, part-time farming, one-person or combination farms and hobby farms, among others.

Research has showed that one of the most important strategies for dealing with decreasing farm incomes is off-farm work. Off-farm income is of increasing importance for the welfare of farm households in most European countries (Jervell and Løyland 1998). In recent decades income from work outside the farm has been growing in importance in Norwegian farm family households and part-time farming can be seen as a stable strategy for farm families that need off-farm income due to the inadequate revenue received from full-time farming (Blekesaune 1996, p. 49). By 1980 the wage income from off-farm work exceeded farm income on an average Norwegian farm (Jervell and Løyland 1998).

This may be taken to mean that part-time work or pluriactive strategies are symptomatic of small, uneconomic farms or lower incomes in agriculture (Jervell 1999), but this is not always the case. Research has shown that there are many reasons for adopting these strategies, such as to continue a career that was established before the farm was taken over. Further, combinations of on-farm and off-farm work, or pluriactivity, are not new in Norwegian agriculture. Traditional farming in combination with forestry, fishing or hunting has historically been a common strategy among many farmers, especially in areas of low production (Hetland 1986; Flø 1998; Almås 2004).

Different phases of agricultural restructuring have brought about major changes in the traditional gender patterns of farm families. Almås and Haugen (1991) noted two major shifts in agrarian production that altered gender roles in production. The first phase started when livestock products increased in importance as a source of income. With this, women lost power in the production process. The second shift came with the introduction of milking machines, when associated technologies shifted milking into the realm of men's work. Until the middle of the nineteenth century women were more often present in agrarian production. In many rural districts women ran the farms while men were out fishing and hunting, or were engaged in forestry in combination with farming (Berggreen 1982; Brandth 2002). Paid female labour left agriculture due to mechanisation and rationalisation. From the 1960s female kin such as aunts and unmarried sisters left the farm. This period is also known as 'the rural exodus' (Almås 1983, p. 6). From the 1960s onwards the farmer's wife also left farm work. This process of women leaving agriculture has been described as masculinisation; agricultural work is executed by men. Among those women who are left on the farm their role has changed to that of 'the man's assistant' (Almås 1983, p. 22). Almås and Haugen (1991) argued that mechanisation of agriculture was the most important factor in pushing out superfluous labour in the first phases, while new labour market opportunities emerged as important pull factors from the 1970s. An important outcome of this was that women achieved new positions and status in the paid non-agricultural labour market (Brandth 2002).

Work on farms has been, and is still, gendered with women being responsible for housework and caring, while men are responsible for the farm work (Brandth 2001). Even when working off-farm, women tend not to reduce their housework hours. Blekesaune and Haugen (2002) found that women from farm households spent more hours on housework than other women, while men from farm households, on the other hand, did less housework than other men. According to Blekesaune and Haugen (2002) unpaid work in farm family households is of crucial importance to the livelihood of the family.

Although the masculinisation hypothesis of Almås (1983) suggested that women were leaving Norwegian agricultural work, changes in the Allodial Act of 1974 (given retrospective force to 1964) gave firstborn girls and boys equal rights to become successors. Before these changes boys held the allodial right. Female successors now had the opportunity to choose to become farmers in their own right. There is now a group of modern female farmers who have managed to construct an identity partly built on tradition and partly on their modern role as professional farmers (Haugen 1998, p. 59). The number of female farm operators is very slowly rising. Approximately one out of four successors are women and they constituted a total of 13 per cent of the farmers in 2004 (Rye and Storstad 2004). However, the number of 'professional' female farmers, in Haugen's (1998) meaning of the term, has not been found to be growing substantially (Bjørkhaug and Blekesaune 2007). The following analysis explores how these women manage their time and income in Norwegian farming.

#### Analyses of work and income allocation on Norwegian family farms

Analyses in this article are based on several sources. Data showing income and time use on-farm and off-farm between 1987 and 1999 are collected from published survey data from Statistics Norway (Statistics Norway 2006a, 2006b, 2006c). Data from 2002 and 2004 are based on our own analysis of two surveys of representative samples of Norwegian farmers carried out by the Centre for Rural Research in Norway and are called 'Trend-data' (Rye *et al.* 2002; Rye and Storstad 2004). This is a survey of Norwegian farmers that is planned to be carried out every second year, starting from 2002. From 2002 the survey consisted of data from 1,678 Norwegian farmers. In 2004 1,712 Norwegian farmers responded to the survey. An analysis of the representativeness and validity of the data has shown that the data are of high quality (Rye *et al.* 2002; Rye and Storstad 2004).

In Trend-data the respondents received an initial inquiry about completing the survey and the main user of the farm was encouraged to respond to the questionnaire. We believe that most of the respondents followed the instructions. In 2002 men answered 88 per cent of the questionnaires received, and in 2004 this figure was 87 per cent. We call them male farmers while the female informants represent the

	1987	1997	2001	2003
More than 50%	45	43	36	33
Less than 50%	55	57	64	67
Total	100	100	100	100
N	97,415	78,907	1,563	1,681

 Table 1. Share of net income of farmer and spouse allocated

 on farm in 1987, 1997, 2001 and 2003 (%)

Source: *Statistics Norway* (2006a) and authors' analysis of trends, 2002 and 2004

female farmers in the following analyses. These farmers reported data on their spouses' behalf (husband/wife/partner). In 2004, 83 per cent of the male farmers had a spouse, as did 84 per cent of the female farmers. Twelve per cent of the male farmers reported that they were single, whilst the figure for female farmers was significantly lower at 7 per cent. The others were divorced or separated or were widows or widowers. As Trend-data were collected in 2002 and 2004, the respondents reported on activities in the previous year, and therefore the analyses reflect income and time use in 2001 and 2003.

The analysis in Table 1 shows a decrease in the share of income to agricultural households coming from agricultural work through the whole period from 1987 to 2003.

The number of farms depending on on-farm income decreased considerably through this time period, from 45 per cent who depended on more than 50 per cent of their income from farm work to 33 per cent in 2003. This is a continuation of an ongoing trend found in analyses of agricultural statistics before 1989. In the early 1980s more than 50 per cent of Norwegian farm households earned less than half of their income from farm work (Jervell and Løyland 1998; Rognstad 1991).

A reasonable assumption would be that working hours outside the farm correspondingly increased in the same period. Table 2 shows the working hours on-farm and off-farm for male farmers and male spouses in three different surveys conducted in the 1990s. The reason for separating men and women was to discover whether the changes in working hours on Norwegian farms can be explained by the off-farm working hours of the farm spouses, mainly women.

There were not substantial changes in the working hours of male farmers and spouses on-farm and off-farm in the 1990s. A weak tendency is for male farmers to work a little more on-farm by the end of the decade than at the beginning. At the same time, men worked less off the farm by the end of the decade. Changes in income from off-farm work cannot be explained by increasing working hours off-farm by men. Several explanations for this can be offered. It might be a result of increasing production on farms corresponding to a general decline in farm profitability (Norwegian Agricultural Economics Research Institute 2003) and the availability of better wages outside farming. An additional explanation is the increasing number of women entering the non-agricultural labour market.

	1989–1990		1994–1995		1998–1999	
	Hours	%	Hours	%	Hours	%
Male farmers and n	nale spouses					
Work on farm	1,271	60.9	1,294	61.8	1,428	64.2
Work off-farm	816	39.1	801	38.2	792	35.8
Total	2,087	100.0	2095	100.0	2,225	100.0
Female farmers and	l female spou	ses				
Work on farm	712	59.8	672	51.8	692	47.2
Work off-farm	478	40.2	625	48.2	774	52.8
Total	1,190	100.0	1,297	100.0	1,466	100.0

 Table 2. Working hours per year on and off the farm by male farmers and male spouses in three periods of the 1990s (hours and percentages of total hours)

Source: Statistics Norway (2006b, 2006c)

 Table 3. Working hours per year on and off-farm by farmer and spouse analysed by gender (average hours in 2003)

	Work on farm by farmer		Work on farm by farmer's spouse		Work off-farm by farmer		Work off-farm by farmer's spouse	
	Hours	N	Hours	N	Hours	Ν	Hours	N
Male farmers	1,425	1,416	422	1,079	885	1,404	959	1,119
Female farmers	1,020	215	973	186	728	204	1,255	176

Source: Trend-data 2004 (authors' own analysis)

Women's relative participation on Norwegian farms, declined by 13 per cent in the 1990s. Their working hours off-farm increased and add up to a higher number of hours in income-generating work for women in this period. The results show a continuation of the developments described in earlier studies (Almås 1983; Blekesaune 1996; Jervell 1999; Rognstad 1991). The tendency could be a generational phenomenon, implicating a new generation who are bringing new working strategies into agriculture. Additional analyses of Statistics Norway's (2006b, 2006c) data on the agricultural population showed that the changes in the distribution of working hours occurred in all age groups (excluding pensioners) among both women and men. This could be an indication of an ongoing masculinisation process in agriculture. The format of data from Statistics Norway did not allow us to separate main farm users and spouses. To provide a better insight into the process we continue the analyses of farmers' labour using Trend-data from 2004.

The pattern described in Table 3 shows a continuation of the trend identified in the data from the 1990s. Men work more hours than women in agriculture. However data from 2004 reveal differences between gender and managerial status on the farm. Male farmers work on average more hours in farming than female farmers, and

	Male farmer	Female farmer	Difference
Farm work			
Farmer	87	73	14*
Spouse	29	66	37*
Other family members	20	20	0
Hired labour	23	18	5
Off-farm work			0
Farmer	55	49	6
Partner	57	57	0

Table 4. Farmers' dependence on labour by farmer's gender in 2003 (%)

\* Significant at 0.05

Source: Trend-data 2004 (authors' own analysis)

female farmers' spouses work more than the spouses of male farmers. Off-farm work does do not differ much between male and female farmers, but it does differ between male and female spouses. The spouse of a female farmer works more off-farm than a spouse of a male farmer.

A general explanation has been that a woman leaves farm work to benefit from work off-farm (Almås 1983; Blekesaune 1996; Haugen 1998; Jervell 1999). Our analysis implies that this trend is continuing. On the other hand, our results do not show any evidence of equal adjustments between male and female farmers. On the contrary, it appears that female farmers are highly dependent on their spouse's assistance in farm work.

One interpretation of the results in Table 3 could be that male spouses are more independent in relation to work than female spouses. According to Blekesaune and Haugen (2002), previously reported findings show that there are major gender differences between women and men in farming households in the time spent on housework. An additional explanation could be that male spouses have more time available to take on wage-earning labour than female spouses do.

The following analysis delves deeper into this question and reveals differences in male and female farmers' dependence and independence in relation to assistance on their farm. On-farm and off-farm work is distinguished with a minimum of 200 hours work a year – on-farm and off-farm work of fewer hours than this was not recorded.

Table 4 shows that most farm operators do contribute with work on their own farm, but there are significant differences between male-operated and female-operated farms. Of the male farmers 87 per cent report on working on their own farm in 2003, three out of four female farmers did the same. The most striking difference was their dependence on their spouses. While 29 per cent of the male farmers co-operated with their spouse in farm work, 66 per cent of the female farmers reported that they did so. The analysis does not, however, reveal any significant differences in the tendency of male and female farmers to use other family or hired labour. The numbers of farms where the farmer or spouse work off-farm do not differ significantly either.



Figure 1. Working hours per year on farm by farmer, spouse, other family members and hired labour, analysed by size of agricultural land and farmer's gender Source: Trend-data 2004 (authors' own analysis)

It is also common to hire labour (as 80 per cent of the respondents do) but half of these hired workers work a maximum of 200 hours a year on the farm. Figure 1 illustrates how the pattern of using your own and additional labour on the farms may differ according to the farmer's own workload. The figure also shows how this pattern changes with the amount of cultivated land.

The correlation between hired work and farmers work is linear, meaning that farmers hire labour when they do a great deal of work themselves. The workload increase with the size of the land under cultivation. There were hardly any farmers who based their production on a hired workforce in 2004.

#### Realities of work and income on Norwegian family farms

The sources of income on many Norwegian farms have changed from the profits of farm work to the profits of non-agricultural work. Off-farm income now represents a growing share of household income. The average working hours on Norwegian farms are rising, probably as a result of the farms being larger and production more intensive. A higher share of income is coming from off-farm work, but this does not correspond to increasing average hours of off-farm work among farmers in general.

The lower value of farm work due to the changes in public subsidies and the price of farm products in general can explain much of this. These results can look rather depressing on their own, and they are easily and frequently used in negotiations between agricultural organisations and government. Why continue farming if it does not pay off? Is the farm first and foremost a place to work, or is the farm and farming a way of life or a leisure project?

Our analysis showed a great variety of work strategies among Norwegian farmers. There is a correlation between off-farm work and on-farm work. Full-time off-farm work necessarily prevents the farmer from farming full-time. On the other hand, there are many farmers who would never give up off-farm work (Rye 2002). Several explanations for this can be proposed. Many farmers might have educational skills and experience from other work before taking over the farm and their occupational identity might be strongly connected to that work (Jervell 1999; Rye 2002; Bjørkhaug 2006). Other reasons are connected to the quality of life, the need for social relations and social feedback in business and personal life. With the reduction in the rural population and the numbers of farms, there has been an increase in reports of lonely farmers who lack colleagues and friends, especially in intensive production (Fjeldavli and Bjørkhaug 2000). In addition, part-time farmers are reported to be more satisfied with their everyday life than have full-time farmers (Rye 1999).

The reasons for keeping the farm, despite poor economic results, can be based in these farmers' bonds to the farm or their traditions. They want to farm because their identity is strongly connected to that specific farm through kinship. These farms can be regarded as hobby or leisure projects, but we should not label them all that way. As one farmer once put it: 'You play football, build your model aeroplane, or go to your cabin in your leisure or spare time. Leisure is when you don't do either farm or off-farm work.'

With a growing number of farms that are not dependent upon a family workforce we might also see an increase in the number of one-person farms, referring to the number of persons working on the farm. A more accurate notion would be one-man farms, since this development is most often connected to male-operated farms. This process can be understood not only as a process of masculinisation, but also as a process of the professionalisation of the farmer when the farm is more of a workplace for one man than a family labour project. In their analysis of mobility patterns of Swedish farming households, Djurfeldt and Waldenström (1999, p. 335) note: 'One-person farms are an interesting phenomenon, since their existence goes to show that modern farming to some extent has broken the age-old link between the family and the farm.' As discussed earlier in this article, a definition like this one, attached as it is to labour, will not provide insights into the relations within the family farm household. Although the co-dependency of the household and the farm might be weaker on these farms, due to the strong connection to farms through place and family traditions we argue that linking the definition of family farming to kinship and not just to the amount of labour input in on-farm compared to off-farm work and the major source of income, gives a good picture of the Norwegian family farm system. This understanding is of no less importance when we return to our findings of the work habits of women, both as farmers and as farmers' spouses.

#### Conclusion: continuing gender differences on Norwegian family farms

An analysis of changes in the proportion of time used on work by men and women in agriculture shows that:

- Men's relative work-time on farms has risen over the period, while women tend to work less on Norwegian farms.
- At the same time, men work less outside the farm.
- Women work more outside the farm and their total working hours have also risen.
- Female farmers, employ their partners to work on the farm more often than male farmers.

We found evidence of gender inequalities related to work dispositions on Norwegian farms on two levels:

- Spouses of female farmers work more hours off-farm than spouses of male farmers and
- Spouses of female farmers work more hours on farms than spouses of male farmers.

Finally, we can identify two parallel processes in Norwegian family farming: the exit of spouses of male farmers as farm labour and the entry of new female farmers.

We support the view that there is a continuation of a masculinisation process on Norwegian farms in Almås' (1983) sense of it. However, this happens only on maleoperated farms in Norway. If women contribute to farm work on male-run farms, they never work more than the farmer himself.

The statistics used in this article have not enabled us to examine additional working hours in the farm household such as housework, childcare and looking after elderly kin. This is an unfortunate drawback of much agricultural statistics. We do, however, know from other studies (Blekesaune and Haugen 2002) that this work has been, and most probably still is, mainly the responsibility of women. According to Blekesaune and Haugen's (2002) analysis, women in farm households do more hours of housework than other women, and their spouses contribute to this work less than other men do. This is evidence of a delay in a development of equality of status among men and women in Norwegian farming households. Within such a masculinity discourse, farming is a male occupation, a development that is also connected to a 'crisis in masculinity' where men are pictured as 'backward, lonely, vulnerable and marginalised' (Brandth 2002, p. 191). Nevertheless, with their entry into the non-agricultural labour market women are building their work careers and gaining independence through their contribution of income to the farm household economy.

When we shift the focus to female farmers, we can argue that female farmers are spouse-dependent. The work pattern of men and women on female-operated farms revealed in our analyses indicates that the traditional role interpretation of male and female work is still applied. Women may own and operate the farm in practice but they remain positioned according to the traditional script (Silvasti 1999). Women do some farm work, like taking care of the animals while their partner handles the

machinery and drives the tractors (Brandth 2001). Such interpretations are handed over to new generations, putting pressure on the need for legal female successors to take into account both their own qualities as farmers, like the need for high educational skills in agriculture and their possible prospective partners before being able to, or advised to, take over a farm (Heggem and Bjørkhaug 2006). Nevertheless, the number of female farmers is rising in Norwegian agriculture. If this continues the structure of farming might change again. The growing number of female farmers may be able to make or create an equal position for themselves as farmers. Studies of the future of family farming and a focus on changes within the family structuring of responsibilities concerning labour, economy and empowerment is still of great importance.

#### Note

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#### References

- Almås, R. (1983) Maskulint og feminint på bygda i dag Bygdeforskning notat no. 3, 1983. (Masculinity and femininity in rural districts today) (University of Trondheim: Centre for Rural Research)
- Almås, R. ed. (2004) Norwegian agricultural history (Trondheim: Tapir Academic Publishers)
- Almås R. and M.S. Haugen (1991) Norwegian gender roles in transition. The masculinization hypothesis in the past and in the future. *Journal of Rural Studies* 7 (1/2) pp. 79–83
- Almås, R., K. Vik and J. Ødegård (1983) Women in rural Norway. *Recent tendencies in the development of the division of labour in agriculture and the participation of rural women on the labour market* (Trondheim: Centre for Rural Research)
- Berggreen, B. (1982) Det tradisjonelle Bygde-Norge og arbeidsdeling mellom kvinner og menn under 1800-tallets kulturskifte. (The gender division of labour in traditional rural Norway during the 1800s) Dugnad 8 (2–3) pp. 87–106
- Bjørkhaug, H. (2006) Sustainable agriculture in the Norwegian farmers' context: exploring farming habitus and practice on the Norwegian agricultural field. *International Journal of Environmental, Cultural, Economic and Social Sustainability* 2 (4) pp. 123–131
- Bjørkhaug, H. and A. Blekesaune (2007) Masculinisation or professionalisation of Norwegian farm work – a gender neutral division of work on Norwegian family farms? *Journal of Comparative Family Studies* 38 (3) pp. 423–434
- Blekesaune, A. (1996) Family farming in Norway. An analysis of structural changes within farm households between 1975 and 1990 (Trondheim: Centre for Rural Research)
- Blekesaune, A. and M.S. Haugen (2002) Landbrukskvinners bidrag til husholdets leve kår arbeid og inntekt i et komparativt perspektiv. (Farm women's contribution to households' living conditions, work and income in a comparative perspective) Pp. 141–154 in R. Almås, M.S. Haugen and J.P. Johnsen eds, *Bygdeforskning gjennom 20 år* (Trondheim: Tapir Academic Publishing)
- Brandth, B. (2001) The gender of agriculture (Trondheim: Centre for Rural Research)
- Brandth, B. (2002) Gender identity in European family farming. *Sociologia Ruralis* 42 (3) pp. 181–200
- Buttel, F.H., W. Gilbert, and G.W. Gillespie Jr (1984) The sexual division of farm household labour: an exploratory study of the structure of on-farm and off-farm labour allocation among farm men and women. *Rural Sociology* 49 (2) pp. 183–209

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- Djurfeldt, G. (1996) Defining and operationalising family farming from a sociological perspective. *Sociologia Ruralis* 36 (3) pp. 340–351
- Djurfeldt, G. and C. Waldenström (1996) Towards a theoretically grounded typology of farms: a Swedish case. *Acta Sociologica* 39 (2) pp. 187–210
- Djurfeldt, G. and C. Waldenström (1999) Mobility patterns of Swedish farming households. Journal of Rural Studies 15 (3) pp. 331-344
- Fjeldavli, E. and H. Bjørkhaug (2000) Ensomme bønder myte eller virkelighet? (Lonely farmers myth or reality?) *Landbruksøkonomisk Forum* 17 (1) pp. 5–15
- Flø, B.E. (1998) Institusjonelle ordningar retta mot forvaltning av rurale ressursar. Sikfisket i *Femund*. (Institutional systems to improve the management of rural resources. Gwyniad fishing in Lake Femund) (Trondheim: Centre for Rural Research)
- Gasson, R. (1989) Farm work by farmers' wives. Occasional paper 15 (Wye: Wye College)
- Gasson, R. and A. Errington (1993) The farm family business (Wallingford: CAB International)
- Haugen, M.S. (1998) Women farmers in Norway. (Trondheim: Centre for Rural Research)
- Heggem, R. and H. Bjørkhaug (2006) *Kvinner i landbruket tilpasning til eller utfordring av en etablert mannlig driftskultur*? (Women in agriculture adaptation to or challenging an established masculine work culture?) (Trondheim: Centre for Rural Research)
- Hetland, P. (1986) Pluriactivity as a strategy for employment in rural Norway. *Sociologia Ruralis*, 26 (3/4) pp. 385-395
- Hill, B. (1993) The 'myth' of the family farm: defining the family farm and assessing its importance in the European Community. *Journal of Rural Studies* 9 (4) pp. 359-370
- Jervell, A.M. (1999) Changing patterns of family farming and pluriactivity. *Sociologia Ruralis* 39 (1) pp. 100–116
- Jervell, A.M. and J. Løyland (1998) Endringer i jordbrukshusholdenes inntekt utenfor bruket 1986–96. (Changes in farm households' off-farm incomes) *Landbruksøkonomisk Forum* 15 (4) pp. 63–75
- Norwegian Agricultural Economics Research Institute (2003) Driftsgranskinger i jord- og skogbruk – Regnskapsresultater 2001 (Statistics for Agriculture and Forestry 2001). Available online at http://www.nilf.no/Publikasjoner/Driftsgranskinger/Bm/2003/Innhold.shtml Accessed 27 February 2008
- Norsk Landbrukssamvirke (2007) Aktuelle tall (Current figures). (Federation of Norwegian Agricultural co-operatives)
- Rognstad, O. (1991) Stadig flere bønder arbeider utenom bruket. Sammfunnsspeilet 3 (1) pp. 30-33
- Rye, J.F. (1999) Økonomi og livskvalitet blant landbruksbefolkningen. En kausalanalyse. (Economy and quality of life among farm households. A causal analysis) (Trondheim: Centre for Rural Research)
- Rye, J.F. (2002) *Heltid eller deltid? En gjennomgang av bønders preferanser* (Full-time or part-time? A review of farmer's preferences) (Trondheim: Centre for Rural Research)
- Rye, J.F. and O. Storstad (2004) *Trender i norsk landbruk. Frekvensrapport.* (Trends in Norwegian agriculture. Frequency report) (Trondheim: Centre for Rural Research)
- Rye, J.F., O. Storstad and B.E. Flø (2002) *Trender i norsk landbruk. Dokumentasjonsrapport.* (Trends in Norwegian agriculture. Documentation report) (Trondheim: Centre for Rural Research)
- Silvasti, T. (1999) Farm women, women farmers and daughters-in-law women's position in the traditional peasant script in Finland. Paper presented to the conference on gender and rural transformations in Europe, Wageningen 14–17 October
- Statistics Norway (2006a) Available online at http://www.ssb.no/emner/00/minifakta/no/ arkiv/2001/arkiv/2001/17.html#5 Accessed 5 November 2006
- Statistics Norway (2006b) Available online at http://www.ssb.no/emner/10/04/10/ nos\_jordbruk/arkiv/nos\_c708/tab/7.6.html Accessed 5 November 2006

Statistics Norway (2006c) Available online at http://www.ssb.no/emner/10/04/10/ nos\_jordbruk/arkiv/nos\_c708/tab/7.7.html Accessed 5 November 2006

Whatmore, S. (1991) Life cycle or patriarchy? gender divisions in family farming. Journal of Rural Studies 7 (1-2) pp. 71-76

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# Paper 3

Masculinisation or Professionalisation of Norwegian Farm Work - a Gender Neutral Division of Work on Norwegian Family Farms?

Hilde Bjørkhaug and Arild Blekesaune

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Masculinisation or professionalisation of Norwegian Farm Work: A Gender Neutral Division of Work on Norwegian Family Farms?

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# **INTRODUCTION**

The penetration of the market economy within family farming has been held as the force behind factors like increased mechanisation and productivity, and the masculinisation of farm work. Empirical studies have described a long process of masculinisation of farm work within Norwegian agriculture (Almås and Haugen, 1991). Women's roles have changed from being 'real farmers' with distinct tasks, to become the farmer's assistant. The expansion of the public service sector created new job opportunities for farm women, and changed the format of many farms from being an integrated part of a household-wide activity, to one which provided a job for only one professional farmer. On the other hand, empirical studies of contemporary Norwegian agriculture emphasise that a number of women have become professional farmers (Haugen, 1990). Through educational training in agriculture, compensating for lack of practical experience in childhood, these women have achieved a professional status within agriculture. In a study of women having the sole or main responsibility for operating a farm, Haugen (1998) found that while many of the older women adapted to gender expectations and accounted for their positions as farmers as a result of circumstances beyond of their control, younger women were more likely to explain their position as a result of individual choices and preferences, indicating a rupture with gender expectations and customary practices.

This paper analyses data from different sources to test whether these changes in men and women's farm work can be described as a transition towards a one-person farm structure. The main hypothesis is that men and women tend to specialise in either on-farm or off-farm work, and that their allocation of work time depends on their educational training in agriculture, their interests in farm work, and the capacity of the farm to provide work for both partners. If this is the case we should moderate the hypothesis of masculinisation as a professionalisation among men into one-man farming (Bailey, 1973), and opt for a gender-neutral conceptualisation of the professionalisation of farm work in Norwegian agriculture, whereby both men and women tend to specialise in farm work and their partners become their assistants.

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# The masculinisation hypothesis

The descriptions of the process of masculinisation within Norwegian agriculture have to a great extent been based on evolutionary descriptions of how gender relations have changed during the capitalisation of agriculture. The masculinisation process has explicitly been connected to the commoditisation of agriculture from the second half of the 19th century (Berggreen, 1982).

The pre-productivist or pre-capitalistic agricultural era has been described with a clear gender division relating to the different activities on the farms. Traditionally men were responsible for 'outdoor' activities and the 'hard work' whilst women took care of the house and the barn (Almås, 2004). Even if men and women operated in separate spheres, women always worked on the farms. A woman's area, in addition to the traditional work in the household and the barn, was connected to refining farm outputs. This could for instance be the processing of milk and wool, for the household's own use and for sale. The gender division of farm work has in this way been described as complementary (Foldøy, 1982; Avdem, 1984).

Norwegian studies (Berggreen, 1982) also show that until the middle of the 19th century, farm work in Norway was to a much greater extent than it is today, executed by women. As many farm operations were pluriactive, women ran the farms while men were out fishing, hunting or working in forestry (Brandth, 2002). This system, where women farm and men combine farming with fishing, forestry, or other short-term, off-farm work represents a tradition in many parts of Norway (Feiring et al., 1988). Research has shown that this complimentary model has mostly been replaced by new forms of pluriactive farming where *women* combine off-farm and household work while *men* farm full time, or combine farming with year-long, off-farm jobs (Blekesaune, 1996).

Two major changes altered the gender roles in agrarian production. Women used to 'control' the barn but not the economic output. The first change came as livestock products increased in importance as a source of income and the economic viability of the farm. Men entered the barn and women's control was wrested (Almås and Haugen, 1991). In the same period farm households, just like other households, experienced a technological revolution. Electricity and water was installed in the houses and barns. The second change is related to this, with the introduction of modern technologies such as milking machines. When machines were introduced, milking shifted to become a man's job (Brandth, 2002; Almås, 2004).

Almås (1983) has described how Norwegian farm women left agriculture through three phases after the Second World War. The first women to leave were paid female labourers as there was no longer work for them. This first phase lasted until the 1950s. In the second phase, female kinfolk, aunts and unmarried sisters, left the farms. This was during the 1960s, a period also known as "the rural exodus", when a lot of people moved to the cities (Almås, 1983:6). In the third phase, the wives also left farm work. This process started in the 1960s with the rationalisation of agriculture, a process which is still not over. A fourth phase has also been identified, when daughters are also leaving the farm and the rural community, leaving the sons behind (O'Hara, 1998 cited in Brandth, 2002). Among women left on the farm the role has changed to a role of "the male's assistant" (Almås, 1983:22). Almås and

Haugen (1991) argue that the mechanisation of agriculture was the most important factor in pushing out superfluous labour in the first phases, while new labour market opportunities within health and educational services, due to an expansion of the public sector, emerged as important pull factors from the 1970s. This research has described how farming has become a business controlled by men, a process that has rendered 'farmer' as a masculine label for occupation (Haugen, 1990; Brandth, 2002).

The overall trend in the Norwegian farm structure during the last 50 years can be described as a transformation from farming based on family labour towards a one-person farm structure. Bailey (1973) has described the fully mechanised, American one-man farm as a technically efficient farm from where one farmer tries to produce the maximum acreage of crops he and his machines are capable of carrying out. In Norway, it is more likely that the motivation behind this transformation has been that farmers have mechanised the production to relieve the work load of other family members. In this context, the increase in one-man farms (or occasionally one-woman farms) represents to some extent a break of the traditional link between family and farm.

# From a masculine to a gender neutral professionalisation

The concept "farm women" is commonly used very comprehensively to include all women living on a farm, from those who are married to a farmer and live on a farm but do not participate in farm work, to those who manage a farm on their own. Rather than describing women's actual work status, the concept "farm women" might refer to women's marital status (married to or cohabiting with a farmer), and place of residence (a farm).

Norwegian farms have traditionally been handed over to new generations on allodial rights<sup>1</sup>, where the oldest son inherited the farm intact from his parents. In 1974 women and men gained equal rights to become successors, and this amendment of the law was given retrospective force to 1964. This means that first born girls and boys born after 1964 have the same formal right to inherit the family farm intact and become farmers. The share of women *taking over* the farm on allodial rights has increased from 9 percent in 1969 to 22 percent in 1999 (Rogstad, 2002). Out of these, about one half become main farm operators, the other half hand their role as a farmer over to partners or their rights to the farm over to younger successors. Survey data<sup>2</sup> shows that the share of female farmers (female farm heads) was only 13 percent in 2004 (Rye and Storstad, 2004).

In her study of women farmers having the sole or main responsibility for operating a farm, Haugen (1998) found that women construct their work identity as farmers in distinct ways.

While many of the older women adapted to gender expectations and accounted for their positions as farmers as a result of circumstances beyond their control, younger women were

<sup>&</sup>lt;sup>1</sup> The Allodial Act is based on an old legal system with roots to the 900th century (Gjerdåker 2001). Originally the Allodial right was connected to land on farms but was later extended to also include all real property on a farm with allodial land (originally the best land (Forbord 2006)). The allodial right ensured the family property rights to the land, preventing a split up of farms or concentration of land on few hands.

<sup>&</sup>lt;sup>2</sup> Trenddata 2002. Survey data of Norwegian farmers.

more likely to explain their position as a result of individual choices and preferences. This study implies that we have a new generation of young professional women farmers who challenge the traditional expectations of farm women and their customary practices. Professional women farmers are defined as "( ... ) women who have the main or sole responsibility for a farm operation. This includes women who farm largely on their own because they are single or have husbands who work elsewhere" (Haugen, 1998:20). These professional women farmers emphasised that farming was their occupational choice (Haugen, 1998). By taking vocational training to compensate for missing training in their childhood, these women have achieved a professional status within agriculture. As female farmers they have changed the role of women as farmers' wives and helpers. Haugen's (1998) analyses, which are mainly descriptive, with a focus on women's strategies within men's areas, have been followed by series of innovative studies of how these women construct a "new" femininity when they break with the traditional division of work within a masculine area (Brandth, 1993; 1994; Haugen and Brandth, 1994; Brandth and Bolsø, 1995; Brandth, 2001; 2002). These women have gradually constructed and internalised a "new" femininity which is based on both masculine and feminine values.

The professional female farmers might represent a break with traditional gender division of work on Norwegian farms and this paper analyses the possibility of a gender neutral division of work on Norwegian farms with an increase in the number of women as farmers. We use the concept female farmers on women who have the main or sole responsibility for the farm operations.

## DATA AND ANALYSES

This paper analyses the possibility of new work patterns between men and women in Norwegian agriculture. Time spent on farm work is explored by using farmer and farmers' spouse reports in surveys. We analyse data from two time periods to reveal possible changes over time. In the final section, the state of masculinisation versus professionalisation, and the possible implications of either, is further discussed.

The paper is based on data from two surveys collected by Statistics Norway. The first survey (*Living conditions among farm households 1995*) was carried out in 1995, and consists of a representative sample of 1 395 Norwegian farm households (Løwe, 1998). The second survey (*Living conditions among farm households 2002*) was carried out between January and April 2002 (Vågane, 2002) and consists of a representative sample of 1 552 farm households. In the first survey, the farmer, his or her spouse and all other family members who contributed with farm work were interviewed, whereas only the farmer and his or her spouse were interviewed in the second survey. In this paper we only analyse data from farmers and their partner.

A farmer is in this paper, a man or a woman who, as active farmer, owns or operates a farm alone or together with their spouse. For the sake of reporting the analysis we use farmer as a concept of the person who, in the survey was coded as the main person responsible for the farm. When this is a man, we report him as male farmer, when woman, female farmer. A farmer's partner will be reported as spouse.

Distribution of male and remain farmers in 1775 and 2002. I creentages.						
	1995		2002			
	Number	Percent	Number	Percent		
Male farmers	1261	90	1364	88		
Female farmers	134	10	188	12		
Total	1395	100	1552	100		

Table 1.			
	Distribution of male and female farmers in	1995 and 2002.	Percentages

Pearson's chi-squared =  $4.747 \ p = 0.029$ 

Table 2

The share of female farmers has risen significantly in the period from 1995 to 2002. The numbers are in accordance with earlier studies using different sets of data (Bjørkhaug and Blekesaune, 2004; Bjørkhaug, 2006). The findings, however, give a pessimistic signal about a more balanced proportion of male and female farmers in Norway in the near future.

In our analysis we only use data from farmers and their spouses, and in our analysis we only include farmers with a spouse or a cohabiter. These include around 80 percent of the farming households in both surveys (Table 2).

Farmer's marital status by sex and year. Percentages.							
	1995		2002				
	Male Female		Male	Female			
	farmers	farmers	farmers	farmers			
Married or cohabit	80	83	80	78			
Single	20	17	20	22			
Total	100	100	100	100			
(n=)	(1261)	(134)	(1364)	(188)			

The share of farm work<sup>3</sup> done by the farmer and his and her spouse is measured by twelve equal questions, one for an average week in each of the month during the year. We have

equal questions, one for an average week in each of the month during the year. We have calculated the average value for these answers.

Table 3 shows changes in the farming couple's share of time spent on farm work in 1995 and 2002. The mean illustrates how much, in percent, the farmer works compared to his or her spouse.

According to the analyses in Table 3, the farmers themselves have increased their share of work on the farm between 1995 and 2002 on male operated farms. From doing 77 percent of the work in 1995 they carried out 84 percent of the work in 2002. There are no significant changes in the farmers work input on farms operated by female farmers. As farmers, women carried out around 55 percent of the work in both of the time periods studied. This shows that

<sup>&</sup>lt;sup>3</sup> Farm work was not defined in the questionnaire. The amount of farm work reflects the respondents own understanding of what farm work is.

2002 by farmer's sex. Mean percentages.					
		Male farmers	Female farmers		
1995	Mean	77.23	55.13		
	Std. Deviation	21.48	21.97		
	(n=)	(927)	(81)		
2002	Mean	83.64	57.73		
	Std. Deviation	18.45	29.38		
	(n=)	(1087)	(131)		
	Differences	6.22	2.60		
	t-values	7.14	0.73		
	<i>p</i> -values	< 0.01	0.43		

Table 3.

Share of the farming couple's total farm work carried out by the farmer in 1995 and 2002 by farmer's sex. Mean percentages.

the masculinisation of farm work on farms operated by men have not been weakened by the increase of farms operated by women. With a sweeping majority of farms run by men, the general masculinisation of farm work on Norwegian family farms is still going strong. The stable pattern of work division on farms run by female farmers indicates that family farming in a traditional understanding might be preserved on these farms.

Table 3 implies that female farmers are much more "dependent" on their husband's assistance on the farm. While male farmers do substantially more farm work than their spouses, women farmers receive much more farm work assistance from their spouses. This indicates that female farmers are, to a high degree, dependent on their spouses in their daily farm activities. What this analysis does not show is the level of support in housework for male farmers. Blekesaune and Haugen (2002) found that farmwomen spent more hours on housework than other women, while farm men on the other hand did less housework than other men. A point made by Blekesaune and Haugen (2002) is that the high level of household work carried out by women frees more time for farm work for men.

We started out with a hypothesis that men and women specialise in either on-farm or off-farm work, and that their allocation of work time depends on their educational training in agriculture, their interests in farm work, and capacity of the farm to provide work for both partners. Table 4 shows regression models estimating the time spent on farm work. This is measured through a variable counting average hours spent weekly throughout the year. Average weekly working hours for male farmers are 39 while female farmers worked an average of 28 hours weekly in 2002.

The purpose of the models is to find out what influences male and female farmers' time spent on farm work. Farm size is included in the model. The average farm size for men is 14 hectares, whereas for women it is 12 hectares. A dummy variable identifying dairy farms is included. Thirty eight percent of men run dairy farms, 34% are run by women. These two variables give an indication on what time is needed to be spent on the farm. Background characteristics of the farmer are also included. The table shows how distinctions in educational background, age and farming preferences influence the farmers work habits on the farm. Both men and women have an average of 12 years school education. Thirty one percent of male farmers have agricultural training (included in the model as a dummy variable), and 15% women have the same. The average age of male farmers is 48, women farmers, on the other hand, are on average 44 years old. Preferences for full-time farming is here measured by a dummy with value 1 for those who prefer full-time farming, which concerns 61% of male farmers and 55% of female farmers, and a value of 0 for those who prefer to combine farming with off-farm work or simply just work off-farm. Partners' involvement in farm work is also included in the model, measured the same way as the farmers' work. Partners of male farmers worked in average 10 hours a week, partners of women farmers worked 21 hour in average on the farm in 2002.

Two separate models of male and female farmers are presented in Table 4.

#### Table 4.

Linear regression models estimating hours of farm work carried out by male and female farmers in 2002.

	Male farme	Male farmers		ners
	В	S.E	В	S.E
Constant	27.901**	4.499	-3.221	16.231
(intercept in the regression equation) Farm size	0.912**	0.092	0.123	0.312
(in hectares) Dairy farms	15.174**	1.111	10.182 *	4.196
(dummy with other prod. as ref.) Farmer's age	0.039	0.048	0.350*	0.175
(number of years) Education	-1.413**	0.261	0.258	0.985
(years after primary school) Agricultural training (dummy with no training as reference) Pref. for full-time farming	2.153*	1.072	5.898	4.907
(dummy with all other preferences as ref.)	5.266**	1.028	$10.687$ $^{*}$	3.633
Partner's hours of farm work	$0.270^{**}$	0.035	0.030	0.095
(n=) R <sup>2</sup>	(1094) 0.440		(119) 0.210	
F	121.796**		4.219 **	

\* Significant at the 0.05 level. \*\* Significant at the 0.01 level.

The model for male farmers shows that most of the included variables gives a significant explanation for the share of working hours spent in farming; Men work more on large farms; Dairy farmers work more than other farmers; Agricultural-trained farmers work more than non-trained farmers; Preferences for full-time farming increases the workload on the farm. On the other hand, years of education reveals the opposite- that is, more years of education decreases the time spent on farm work. Male farmers' working time also increases with his spouse's participation. Farmers' age is irrelevant for the share of time spent in farming by male farmers.

The regression model of female farmers explains less of the variation in female farmers' time spent on farm work than the corresponding model for male farmers. Female dairy farmers work more than other female farmers. As for male farmers this can be explained by the fact that dairy farming is one of the most labour intensive forms of production in Norwegian agriculture in itself. Our analysis also shows that the workload carried out by female farmers is influenced by their preferences for farming. Preference for full-time farming is the most important factor for spending time farming according to the model. The model also shows that female farmers work more the older she gets. These findings are in accordance with Haugen's (1998) analyses of her survey-data of Norwegian female farmers from the late 1980s. When women break into the masculine paradigm of farming they need to be motivated. Haugen (1998) also found that especially older women on farms tended to work hard in the production of food and fibre. Seeing that younger women farmers do not participate as much in the farm work, the masculinisation process will continue.

The farmers' spouse's participation in farm work differs significantly on male and female operated farms. Spouses on male operated farms work more when the farmer also works a lot of hours, in other words, time spent in farming correlates positively with male farmers' hours spent on farming. Spouses' contribution to farm work on female operated farms does not correlate with the time spent by the farmer (woman). One interpretation could be that female farmers are dependent on spouses' assistance no matter size or intensity of her production.

We found for both models that preferences for full-time farming explained much of the variance in farmers time use. We know from other studies that some men, conventional farmers in particular, farm out of family obligation. Surveys questioning farmers' reasons for farming has shown that 'plight' or family obligation as reasons for farming hardly exist among female farmers (Bjørkhaug, 2002; 2006). Future agriculture depends on motivated farmers, and our analysis clearly supports that preferences are of importance for farming in Norway.

# NEW PATTERNS OF A GENDER NEUTRAL DIVISION OF WORK ON NORWEGIAN FARMS?

In this paper, we have asked if there was any evidence for new patterns of gender division of work on Norwegian family farms. In the following section we will point at some new patterns, but emphasise possible problems where new patterns have not been found.

## Further masculinisation of the Norwegian Agriculture

The analyses of the two surveys presented in this paper show three main trends. One general trend is that farm work on Norwegian farms is increasingly being done by one person. On farms operated by male farmers, there is a distinct tendency or strategy to change the farm work from being an integrated part of the couple's conjugal activity, towards a job for one farmer alone. This change could imply that we should no longer talk about family strategies but farmer strategies, because farming has been isolated as a specific occupation.

In contrast to this, the analysis implies that female farmers are much more dependent on their spouse's assistance on the farm. Our analyses indicate that female farmers are supported by a

spouse in their daily farm activities. The share of farm work executed by a female farmer has hardly risen over the period studied. Our data does not reveal what kind of work men and women do on farms, but drawing upon other studies, this pattern might be interpreted as that the traditional role interpretation of male and female work is still applied, as found by e.g. Silvasti (1999) and in Bjørkhaug and Blekesaune (2004). Brandth (2001) accounts for this as men handling the machinery and driving the tractors, whilst women do the 'soft' farm-work and housework (Blekesaune and Haugen, 2002).

With rationalisation and mechanisation of farm work, there has been an ongoing masculinisation of farm work, both literally understood as masculine concepts whereby men not only dominate agricultural work but the whole agricultural industry (Bjørkhaug, 2006; Bjørkhaug and Heggem, 2005; Brandth, 2002). We have seen a long, ongoing restructuring of work within the organisation of the family farm. New technology has both rationalised people out of farming and work operations have been 're-gendered' as men have entered women's traditional areas when technology or machines replaced manual labour. Women in particular have been affected by these shifts, as the farms no longer offer 'recognised' or 'legitimate' work. Our analyses support the masculinisation hypothesis put forward by Almås (1983) meaning most farms are mainly operated by one person, a man. But a small proportion of farms do not look like this. Farms operated by women tend to do so without "traditional" family farming, involving both a man and a woman in the daily operation.

The third strategy can be found on farms run by professional female farmers like those identified by Haugen (1990). By taking vocational training in agriculture these women prove their skills and run farms on a single person basis. Our analyses have not revealed that agricultural-educated women work more in Norwegian agriculture. Preferences for a full-time farming strategy are one of two main reasons for spending time on farming for women. Type of production is a second reason as women in dairy farming are more active farmers than female farmers in other modes of production. These women have chosen to enter a traditionally masculine arena and are farmers by profession (Haugen, 1990; Haugen and Brandth, 1994; Haugen, 1998). In contrast to Haugen and Brandth's studies of these female farmers in the 1990s, however, our analyses do not support that there has been a substantial growth in the number of professional female farmers. Norwegian agriculture in 2002 has not become less masculine.

# IMPLICATIONS FOR THE WORK FOR GENDER EQUALITY IN AGRICULTURE

Research of agricultural restructuring during post-war decades has highlighted several important changes. Earlier, we pointed to changes in the work situation with the mechanisation and rationalisation of farm work. Farms are increasing in the size of land and number of livestock. This involves more time spent on farm work for the single farmer, as most farms still do not support wages for more than one farmer. At the same time, source of income, in particular off-farm income, has increased its importance in farming households in Norway and most European countries (Jervell and Løyland, 1998).

Analysis of data from Statistics Norway between 1987 and 1997 has shown a decrease in the share of income to agricultural households coming *from* agricultural work (Bjørkhaug and

Blekesaune, 2004). This is a continuation of an ongoing process found in analyses of agricultural statistics from before 1989 (Rognstad, 1991). Even in the early 1980s, over 50 percent of Norwegian farmers earned less than half of their income from farm work (Jervell and Løyland, 1998). A survey from  $2002^4$  also showed that this development has continued, with 64 percent reporting that more than half of their household income from 2001 was achieved outside of the farm (Rye et al., 2002). This also corresponded with an increase in the number of farmers working off-farm.

The difference between male and female farmers was significant. While 62 percent of male farmers reported that more than 50 percent of their household income came from off-farm work, the percentage among female farmers was 76. Farms operated by female farmers also had significantly lower farm income than farms operated by men (Bjørkhaug and Blekesaune, 2004). Our analyses fully support previous analyses of survey data which reveal similar differences between male and female farmers (Bjørkhaug and Blekesaune, 2004). The typical single farmer is a man. Women farm mainly in partnership. The latter indicates that women need to negotiate many obstacles before choosing a farming profession. Our analysis also shows that a preference for a full-time farming strategy is a very important predictor for the farmer's share of farm work. For female farmers, this preference is even more important compared to male farmers. This implies that a preference to full-time farming is a suitable indicator on professional attitudes to farming, particularly among women.

In a legal sense, there is nothing preventing young women from taking over the family farm. This right is enforced through law. The Ministry of Agriculture and Food wish to recruit motivated, competent and resourceful young people, and especially girls into Norwegian agriculture (Ministry of Agriculture and Food, 1998; 1999-2000). Politically there is an expressed goal to recruit women. The agricultural organisations support this view when they aim for equal numbers of men and women in their work and on their boards. These external means are probably not good enough to ensure boys and girls equal rights to Norwegian farms and farm work.

It takes time to change established norms about what is suitable work for men and women in agriculture. At this stage, there is no established tradition for girls taking over the family farm. Often a girl with an allodial first right will find herself in a competition with a younger brother. When a younger sister challenges an older brother, we might start talking about gender equality in agriculture. In the current situation, Norwegian agriculture needs to adjust to the incoming recruits or successors' needs and wishes for a sustainable agriculture. These adjustments are most needed on a cultural and social level so that newcomers can sustain a satisfying life situation and expectations of gender equality for both girls and boys in future agricultural practice.

Our research presents clear evidence of a delay in the development of equality in status between men and women in Norwegian agriculture, in particular at the farm household level. How potential newcomers interpret signals regarding which farmers are wanted in the future is of crucial importance for their choices of entering farming or not.

<sup>&</sup>lt;sup>4</sup> Trenddata 2002. Survey data of Norwegian farmers.

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### REFERENCES

Almås, R. (1983). *Maskulint og feminint på bygda i dag*. Bygdeforskning notat no. 3, 1983. NLVF's bygdeforskningsgruppe, Senter for samfunnsforskning. University of Trondheim: Centre for Rural Research.

Almås, R. (2004). Agricultural history of Norway. From state driven modernisation to green liberalism: 1920-2000. Trondheim. Tapir Academic Publisher.

Almås, R & M. S. Haugen (1991). "Norwegian gender roles in transition: The masculinization hypothesis in the past and in the future." *Journal of Rural Studies*, Vol.7, No 1/2: 79-83.

Avdem, A.J. (1984) "Gjort ka gjærast skulle". Om arbeid og levekår for kvinner i Lesja ca 1910-1930. Oslo: Universitetsforlaget.

Bailey, W.R. (1973). *The One-Man Farm. Washington*, D.C.; United States Department of Agriculture Economic Research Service.

Berggreen, B. (1982). "Det tradisjonelle Bygde-Norge og arbeidsdeling mellom kvinner og menn under 1800-tallets kulturskifte." *Dugnad* 2-3, vol. 8: 87-106.

Bjørkhaug, H. (2002). ""Konvensjonell" eller "økologisk"? Bønders motiv for å drive landbruk." In M. Forbord (ed.), *Produksjon, distribusjon og forbruk av økologisk mat* (Pp. 25-59) R07/01. Trondheim: Centre for Rural Research.

Bjørkhaug, H. (2006). "Is there a Female Principle in Organic Farming? An Interpretation of Data for Norway." In Holt, G. C. and M. Reed (eds.), *Sociological Perspectives of Organic Agriculture: from Pioneer to Policy*. (Pp. 195-209) Wallingford: CABI.

Bjørkhaug, H. & A. Blekesaune (2004). "Work and income patterns of men and women of Norwegian family farms. Masculinisation, feminisation, or professionalisation of farm work?" In A. Cristóvão (ed.), *Farming and Rural Systems Research and Extension. European Farming and Society in Search of a New Social Contract – Learning to Manage Change*. (Pp. 139-150) http://home.utad.pt/~des/ifsa/ifsa\_6th\_eu\_proceed.pdf.

Bjørkhaug, H. & R. Heggem (2005). "Odelsjentenes kamp mot traktorgenet." Cronicle in the newspaper *Nationen.* 23.05.2005

Blekesaune, A. (1996). *Family Farming in Norway. An analysis of structural changes within farm households between 1975 and 1990.* PhD dissertation, Department of Sociology and Political Science. Trondheim: The Norwegian University of Science and Technology.

Blekesaune, A. & M. S. Haugen (2002) "Landbrukskvinners bidrag til husholdets leve kår – arbeid og inntekt i et komparativt perspektiv." In R. Almås, M. S. Haugen and J. P. Johnsen (eds.), *Bygdeforskning gjennom 20 år.*(Pp 141-154) Trondheim: Tapir Academic Publisher.

Brandth, B. (1993) "Kvinner er ikke lenger hva de var. Kvinnebønder, teknologi og konstruksjon av kjønn." In B. Brandth, B. and B. Verstad (eds.), *Kvinneliv i landbruket* (Pp. 197-223). Oslo: Landbruksforlaget.

Brandth, B. (1994). *The Social Construction of the Woman-nature Linkage. Agricultural Technology and Women's Farming Practice.* Rural Research Paper 5, Center for Rural Research, University of Trondheim.

Brandth, B. (2001). *The Gender of Agriculture*. Report no. 8/01. Trondheim: Centre for Rural Research.

Brandth, B. (2002). "Gender Identity in European Family Farming." Sociologia Ruralis. 42(3):181-200.

Brandth, B. & A. Bolsø (1995) Kvinner, maskiner og likestilling i landbruket. Report no. 4, Centre for Rural Research, University of Trondheim.

Feiring, T., O. Rovde & S. Tøsse (1988). Den norske småbrukaren 1913-1988. Oslo: Samlaget.

Foldøy, O. (1982). "Levestandard - livsstandard. Slit og ansvar i bondekvinners hverdagsliv". *Dugnad* 2-3, vol. 8.

Forbord, M. (2006). En gjennomgang av odelsloven, konsesjonsloven og jordloven, og endringer i nyere tid. N. 5/06, Trondheim: Centre for Rural Research.

Gjerdåker, B. (2001). *Til odel og eige. Odels- og åsetesrettane gjennom eit millenium, med vekt på dei siste 250 åra.* R 15/2001. Oslo: NILF

Haugen, M.S. (1990). "Female Farmers in Norwegian Agriculture. From Traditional Farm Women to Professional Female farmers." *Sociologia Ruralis* 30(2):197-209.

Haugen, M.S. (1998). Women Farmers in Norway. Report no. 9/98. Trondheim: Centre for Rural Research.

Haugen, M.S. & B. Brandth (1994). "Gender Differences in Modern Agriculture: The case of Female Farmers in Norway." *Gender & Society*, 8/2:206-229.

Jervell, A. M. & J. Løyland (1998). "Endringer i jordbrukshusholdenes inntekt utenfor bruket 1986-96." Landbruksøkonomisk Forum (LØF). 4/98:63-75.

Løwe, T. (1998). Levekår i landbruket: En studie av landbruksbefolkningens levekår. Report 98/25. Statistics Norway.

Ministry of Agriculture and Food (1998). *Likestilling og rekkrutering i landbruket 1997-1998*. Rapport 02.04.98

Ministry of Agriculture and Food (1999-2000). St. meld. nr. 19 Om norsk landbruk og matproduksjon.(White paper)

Rognstad, O. (1991). "Stadig flere bønder arbeider utenom bruket." *Sammfunnsspeilet* 3:30-33. Statistics Norway.

Rogstad, B. (2002). *Likestilling og landbruk. Status og utvikling i 2002*. Oslo: Norsk institutt for landbruksøkonomisk forskning (NILF).

Rye, J. F., O. Storstad & B.E. Flø (2002). *Trender i norsk landbruk. Dokumentasjonsrapport.* N. 3/02. Trondheim: Centre for Rural Research.

Rye, J. F. & O. Storstad (2004). *Trender i norsk landbruk*. Frekvensrapport R. 4/04. Trondheim: Centre for Rural Research.

Silvasti, T. (1999). Farm women, women farmers and daughters-in-law – Women's position in the traditional peasant script in Finland. Gender and Rural Transformations in Europe. Wageningen 14.-17.10.1999.

Vågane, L. (2002). Levekårsundersøkelse blant landbruksbefolkningen 2002. Dokumentssjonsrapport. Notater 2002/77, Statistics Norway.

# Paper 4

**Future Prospects of the Average Norwegian Farm** 

Hilde Bjørkhaug

Pp. 200-5 in Langeveld, Hans and Niels Röling (eds): *Changing European farming systems for a better future. New visions for rural areas.* Wageningen: Wageningen Academic Publishers.
### Future prospects of the average Norwegian farm

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#### Abstract

As a result of agricultural restructuring, Norwegian farms are increasing in size, both in crop growing area and livestock capacity. Fewer farms can offer a liveable income for the farming couple, and as many women have left farming for off-farm income male farmers are also seeking additional income off the farm. Norwegian agriculture is highly dependent on a variety of subsidies. Present agricultural policy is leading to reductions in direct production subsidies. Future farmers are advised to either rationalize or find new ways of developing businesses or niche productions based on agricultural resources. In this paper, farmers' adaptation to agricultural policy is explored, and with that, farmers future prospects, measured through an assessment of their 'will to invest' in their properties. What is the reality of the average Norwegian farm? Who runs the average farm? How do the farmers view the future? What distinguishes an optimistic owner of a farm as compared to a pessimistic one? This paper bases it discussion on empirical survey data of which questioned Norwegian farmers on future plans in agriculture.

**Keywords:** Agricultural restructuring, farm work, farm income, future farm prospects, Norway

#### Introduction

Family farming is the most common way of organizing agricultural production in Norway, but the content of actual participation in agricultural production has changed. From occupying extended families in production, the majority of farms are hardly able to support one person from farm income (Almås and Haugen 1991; Blekesaune, 1996; Bjørkhaug and Blekesaune 2004). From the 1980s, part-time farming has become the dominant type of strategy among Norwegian farmers, a strategy where the farmer or spouse, or both, combine farming with off-farm work (Blekesaune 1996:49). In 2003, near 70% of all farmers in Norway reported working off-farm, as did 80% of their spouses. In a European context this level of off-farm work is high. EU-statistics on employment in agriculture shows that the neighboring countries of Sweden and Finland have a high level of farmers who have also adapted to current policies "with other gainful employment", the former is close to 60%, whilst the latter near 40% (EU Comission 2004). In Norway, part time farming is a stable strategy on farms that need off-farm income (Blekesaune 1996:49). While pluriactivity, or parttime farming, can be seen as a strategy or movement away from farming, pluriactivity might also be a factor that keeps people on the land, reduces the decline in numbers of farms and strengthens the basis of local services (Kinsella et al. 2000).

In this paper, household strategy is used as the unit of analysis to help understand the general process of agricultural change. The argument of a survival or adaptation strategy in farming is built on a model including reproduction of capital like investments in the farm, share of family income derived from the farm and household members adaptation to the labour market outside the farm (Blekesaune 1996). Those households that may sustain in the future, are those that are able to increase production on their farms (Blekesaune 1996:50). In this paper farmers' adaptation to agricultural policies are explored and with that the future prospects of the *average* farm; What is the reality of the average farm; Who runs the average farm; how do the *farmers* view the future? What distinguishes an optimistic owner of an average farm compared to a pessimistic one? The paper is based on analysis of empirical survey data of Norwegian farmers in 2004.

#### The farming context

In Norway, 3% of the land is under agricultural cultivation. In 2005 there were about 55 000 farmers, this is half of the number it was in 1969. Norwegian agricultural policy has changed gradually in the post World War II period. From the 1950s, productivist ideals dominated agricultural policy, encouraging techno-scientific development, rationalization and the mechanization of agriculture. Protection of Norwegian agricultural interests became important (Almås 2004). In the 1970s welfare policy became an issue also in agriculture. Social rights, income goals and gender equality entered the arena. From the 1980s a greening and a re-regulation of agriculture started and by the 1990s the policy, known as green liberalism, prevailed (Almås 1994), increasing its attention to sustainability in agriculture, organic farming and economic support for the maintenance of cultural landscapes.

Present agricultural policy is characterized by further liberalization with support for efficient production but also to explore new ways of utilizing agricultural production. Norway faces a certain external pressure from organizations such as the WTO which questions Norwegian agricultural subsidies. One response to this on behalf of the Norwegian government has been to emphasize the non-tradable commodities through the argument of multifunctional agriculture, where qualities like food safety, biodiversity, rural communities and cultural heritage are highlighted. In this way, Norwegian agricultural authorities want to move economic support in farming from the "yellow box" in WTO-terms, where most funding is found today, to the "green box", transfers that do not disturb international production and trade (Prestegard 2004).

#### Analyzing Norwegian farmers strategies and prospects

The analysis is based on data from a survey of a representative sample of Norwegian farmers. Data were collected by the Centre for Rural Research in 2004 via a postal survey. 1712 Norwegian farmers returned completed questionnaires, a response rate of 55%. The data has been shown to form a representative sample of Norwegian farmers, with good rigour in terms of validity and reliability (Rye and Storstad 2004).

One dimension of a strategy of the adaptation to changing policy and economy is income from off-farm work as reported earlier. The structure of strategies can be seen from the amount of income coming from farming in a household.

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Amount of income	0	1-25	25-50	50-75	75-99	100
Percent	7	40	20	15	12	6

Sixty seven percent of Norwegian farming households earned more than 50 % of their income from sources outside the farm enterprise in 2003. This is a long and ongoing trend. Off-farm income exceeded farm income for one half of Norwegian farmers in the early Eighties (Jervell and Løyland 1998). The median as well as the mean on this variable, is farms that derives 25-50% of their income from farming. Out of this, three groups were constructed for the purpose of describing the structure of income on Norwegian farms; farms with low amount of income from farming (0-25%), average amount of income from farming (25-50%) and high amount of income from farming (more than 50%).

Source of income may be of importance for adaptation to the changing economic environment of the family farm and the following description gives an insight into farmer attributes and production levels, and also reveals some similarities and distinctions between farmers. The Norwegian farmer is, on average, close to 50 years of age. Thirteen percent are women, but the amount of women differs significantly in the three "income groups". While 19% are women farmers in the group of low amount of income from farming, the corresponding amount of women are 9% in each of the two other groups.

While 20% of all farmers have nine years of compulsory primary education, the level of further education differs significantly between the groups. More farmers in the *low farm income* group have education on a university level (27%). Fifty percent in the *average* group have technical/agricultural secondary school qualifications. Nearly 60% of the farmers in the *high* group have a similar educational level. The amount of farmers with education at a university level is similarly lower.

The main agricultural production in Norway is milk and meat production. Near 20% produce grain as their main commodity. Near 90% of farmers deriving a *high* amount of their income from farming, produce milk (66%) or meat (22%). 65% of all milk producing farmers are in this group, only 7% in the *low* group produce milk. The majority of the *low* group produce meat (47%) or grain (30%). They constitute nearly three quarters of Norway's grain producers. The *average* farmers produce milk (42%), meat (29%) or grain (17%). The remaining farmers produce vegetables (7%), wood (3%) or other industries based on agricultural resources (3%).

As most farms in Norway are transferred within families on allodial rights (82%), prospects of a future farmer within the family is important for most farming families. The data reveals that 58% of the farmers believe that someone within the family will take over the farm in the future. There are no differences between the groups on this issue.

The following regression analysis is based on an additive index of farmers' prospects of investments in the farm premises, machines and tools and increasing the area of agricultural production. Prospects of possible investments were given positive values, status quo, 0, and wearing on buildings and equipment or reducing the farming area were ascribed negative values. The final index ranges from -3 to 6, finding its median in 1. The variable is constructed out of the argument that a future in farming is dependent on a certain level of investment.

What distinguishes an investment-willing farmer from a non-investing one? The variables described above are included in the analysis as independent variables in addition to a scale of the farmers' economic prospects of farm income, ranging from negative (-1), no change, to positive (1).

The regression analysis (Table 2) shows that several of the variables included in the analysis reveal significant information on farmer's differences in the 'will to invest' in the farm property. First of all, farmers with an optimistic view on prospect farm income are more likely to invest than others. Further, farmers with a low amount of income from farming are significantly less prepared for investing in their farm property than farmers in the *average* group (control group). There are no major differences between farmers with average or high amounts of income from farming. Farmers within different main production area (grain, meat, milk) do not differ significantly from each other. Milk producers, as a distinct and large group, represents the control group in the analyses, and only farmers in "other" productions (wood etc) are significantly less ready to invest. When looking at farmer characteristics, some interesting distinctions are revealed.

	Coefficients					
Model	Unst.Coeffi. B	Std.Er.	St.Coeff. Beta	t	Sig	
Constant	1.391	0.172	8.076	0.000		
Ec optimism	0.702	0.050	0.327	14.084	0.000	
Am.inc farming						
Low	-0.358	0.099	-0.115	-3.611	0.000	
High	0.159	0.101	0.049	1.576	0.115	
Production:						
Plant	-0.197	0.153	-0.032	1.284	0.199	
Animal	4.642E-03	0.096	0.001	0.048	0.961	
Grain	-0.127	0.116	-0.032	1.092	0.275	
Other	-0.550	0.171	-0.080	-3.209	0.001	
Male farmer	4.057E-02	0.106	0.009	0.382	0.702	
Age						
Younger farmer	0.691	0.087	0.188	7.947	0.000	
Older farmer	-0.546	0.098	-0.130	-5.584	0.000	
Education	7.563E-02	0.046	0.038	0.662	0.097	
Family success.	0.608	0.072	0.193	8.405	0.000	

Table 2: Regression analysis of will to invest in Norwegian farming. (N=1440) Model Summary: R Square: .289, Std. Error of the Estimate: 1.3101. Regression: Sum of Squares 1005.402, df 12, M.Sq.83.783, F 48.811, Sig. 0.000

There are for example, no differences between men and women on the issue of investing. Farmers' age is an important factor explaining differences in will of investments. Young farmers (aged 18-40), are more prepared to invest and old farmers (60-85) less willing to invest than farmers in the mid age group (41-59) (control group). This pattern is quite natural as few farmers at the end of their farming career chose to invest substantially on their farm. They reserve those choices for future successors. Prospects of a future kin successor are the last variable of

explanation in the model. Farmers with a kin successor in sight are also more willing to invest in the farm.

#### Discussion

The aim of this paper is to show how some features of Norwegian farming households adapt to changing agricultural policies and decreasing financial output in farming and to give an insight to how different groups of Norwegian farmers view the future of farming.

The introductory analysis showed that the long ongoing trend of collecting household income from farming still applies, but an increasing number of farmers derive income from off-farm work. One half of the Norwegian farms earn 0-25% of household income from farming, a *low* amount of farm income. On such farms, the level of female farmers are double that of other farms. This corresponds to earlier studies of work and income patterns on Norwegian farms, where female farmers often report to work less on their farms in combination with a husband who also undertakes considerable off-farm work (Bjørkhaug and Blekesaune 2004). Farmers on these properties have higher educational levels - one assumption is that a high skill base in another occupation might dissuade farmers to work more on their farms are often in meat or grain production, production-types that are less time consuming and lend themselves to combining flexible on farm production with off-farm work.

The *average* group of farms supports household with 25-50% of its income. The *average* farm, when amount of household income from farming is considered, is not very different from a farm with *high* amount of the household income derived from the farm, still the difference is the adaptation to the off–farm income. In both of these groups the milk producers are found. Milk production is a time consuming operation, not allowing the farmer much time for off-farm work.

The future prospects of farming were measured through an index of 'will to invest' in farm property and land. 'Will to invest' can be seen as an optimistic view on the future in farming and those with an optimistic view on economic prospects do hold a stronger will to invest than others. The investment prospect is also much stronger among younger farmers than older farmers. A future successor in sight is also a positive factor for 'will to invest'. This might indicate that farm maintenance is connected to a farming ethic of keeping the farm for the family, not investing for an increased market value of the farm. This is interesting as Norwegian market polls state that there is a higher demand than supply of farms on the open market.

While most farmers have for a long time adapted a strategy depending on a substantial amount of off-farm income, a large group of farmers are adapting so well to an off-farm labour market that farming remains more like a hobby. Analysis presented in this paper indicates that that money is not necessarily transferred into the farm, to invest in further production. In time production on these farms will possibly end, the land sold or leased out, or in some scenarios it may remain in the family as a holiday property. Willingness to invest does not differ between the *average* farmer and farming households depending on income from farming. These two groups do still hold a willingness to invest in their farms and production. Future

farming in Norway depends upon these groups ability to adapt to a further decrease in farm income and income generating work outside farming.

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#### References

- Almås, R., 2004. Agricultural history of Norway. From state driven modernisation to green liberalism: 1920-2000. Trondheim. Tapir Akademisk Forlag.
- Almås, R., 1994. The rise and fall of agricultural policy cycles: from planned economy to green liberalism. *Journal of Rural Studies* 10:15-25.
- Almås R. and M.S. Haugen, 1991. Norwegian Gender Roles in transition. The Masculinization Hypothesis in the Past and in the Future. *Journal of Rural Studies*, 7:79-83.
- Bjørkhaug, H. and A. Blekesaune, 2004. *Work and income patterns of men and women of Norwegian family farms. Masculinisation, feminisation, or professionalisation of farm work?* Proceedings from the 6th European Symposium on Farming and Rural Systems Research and Extension, http://home.utad.pt/~des/ifsa/ifsa\_6th\_eu\_proceed.pdf
- Blekesaune, A., 1996. Family Faming in Norway. An analysis of structural changes within farm households between 1975 and 1990. R 6/96. Trondheim: Centre for Rural Research.
- EU-Commision, 2004.

http://www.eu.int/comm/agriculture/agrista/2003/table\_en/3516full.pdf

- Jervell, A. M. and J. Løyland, 1998. Endringer i jordbrukshusholdenes inntekt utenfor bruket 1986-96. *Landbruksøkonomisk Forum (LØF).* 4/98:63-75.
- Kinsella, J. S. Wilson, F. de Jong and H. Renting, 2000. PLuriactivity as a livelihood strategy in Irish farm households and its role in rural development. Sociologia Ruralis, 40/4: 481-496.
- Prestegard, S. S., 2005. *Multifunctional agriculture and the design of policy instruments: Application to the WTO negotiations on agriculture.* WP 8. Oslo: Norwegian Agriculture and Economics Research Institute.
- Rye, J. F. and O. Storstad, 2004. *Trender i norsk landbruk. Frekvensrapport* R.no. 4/04. Trondheim: Centre for Rural Research.

# Paper 5

Sustainable agriculture in the Norwegian farmers' context: Exploring farming habitus and practice on the Norwegian agricultural field

Hilde Bjørkhaug

The International Journal of Environmental, Cultural, Economic and Social Sustainability 4/2 123-131.

### Sustainable Agriculture in the Norwegian Farmers' Context

Exploring Farming Habitus and Practice on the Norwegian Agricultural Field Hilde Bjørkhaug, Centre for Rural Research, Norway

Abstract: The Norwegian Ministry of Agriculture states that beyond its primary role of producing food and fibre, agriculture also contributes to the viability of rural areas, food security, cultural heritage and environmental benefits such as the agricultural landscape, agro-biological diversity, land conservation and high standards of plant, animal and public health. These are all contents of a notion of sustainability that contains elements of economy, people and nature. The goals are highly recognised as 'good' by Norwegian farmers and by the population in general. But what is recognized as a "sustainable" agriculture by the farmers? What is engaging Norwegian farmers? How do different groups of farmers explain their way of farming, their motives and concerns for agriculture? Do the farmers recognize the values of a 'politically correct' definition of sustainability involving the triple bottom line definition of sustainability where the economy, society and environment are considered equally? These questions are explored through analysis of interviews of Norwegian farmers. The analysis rests on assumptions based on Bourdieu's concepts of field and habitus whereby farmers are viewed as reflexive and creative, but at the same time constrained by their social inheritance. In such a perspective, differences in farmers' and practices.

Keywords: Norwegian Agriculture, Sustainable Farming, Farming Motives, Farming Values, Bourdieu, Field, Habitus, Practice

N OUR COMMON Future (WCED 1987) Norwegian Gro Harlem Brundtland, the then leader of the United Nations Commission on Environment and Development, was the first to define the concept of 'sustainability', yet the concept had been used earlier. The Brundtland Commission drew attention to the fact that economic development often leads to deterioration, not improvement, in the quality of people's lives. The Commission therefore called for a sustainable development which is based on the recognition that "Humanity has the ability to make development sustainable, to ensure that it meets the needs of the present, without compromising the ability of future generations to meet their own needs"(WCED 1987:8). Development should not merely relate to bigger profits and higher standards of living for a minority. The aim of sustainability should be to improve life conditions for everyone, avoid pollution and the destruction and reckless use of natural resources. The commission drew attention to the 'triple bottom line' of sustainability, where the economy, society and environment are considered equally. This definition has not satisfied everyone and several attempts of defining sustainability have been launched (Dryzek 1997). Still, the core of the Brundtland definition is often drawn upon even though efforts are made to more precisely define categories illustrating what sustainability should include.

However, sustainability remains a vague and contested term that, while capturing the intention of ensuring that a productive agriculture must be environmentally and socially beneficial indefinitely, does not indicate how a desirable change can be achieved (Richards et al. 2005). In many of the developed nations, including Norway, the term 'sustainability' is conceptualised and employed by social actors in many different positions, in many different ways. The 'litmus test' for how far Norwegian agriculture is along a sustainable pathway, is to gauge how well farmers embrace the concept of sustainability, and how they 'translate' this into real world (on-farm) practices (Bjørkhaug and Richards 2004).

#### **Research Questions**

The paper addresses questions of conceptions of sustainability in the Norwegian agriculture, in agricultural policy and in the daily operations of Norwegian farmers. The paper explores thorough empirical data; 1) What is engaging Norwegian farmers?; 2) How do different groups of farmers explain their way of farming, their motives and concerns for agriculture?; and 3) Whether farmers recognize the values of a 'politically correct' definition of sustainability involving the 'triple bottom line' definition of sustainability? Through an analysis of interviews of thirty-five Norwegian



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farmers, the paper discusses some variations of farmers' narratives of their life in agriculture by applying the social theory of Bourdieu (1990) and his concepts of field, habitus and practice.

#### Background

In Norway three percent of the land is under agricultural cultivation and four percent of the able bodied population is employed in agricultural industries. The number of active farms is decreasing. In 2005 there were about 55 000 farmers in Norway, half the number it was in 1969 (Norsk Landbrukssamvirke 2005). The remaining farms are bigger in both land size and production and farmers are now working harder for less profit (Bjørkhaug and Blekesaune 2004). In 2003, nearly 70 percent of all farmers in Norway reported to be working offfarm, as did 80 percent of their spouses (Rye and Storstad 2004). As more farmers use off-farm work as a strategy to sustain themselves in farming, the farm work is often carried out by one person (Bjørkhaug and Blekesaune 2004). From being an industry of great importance in the Norwegian economy, agriculture now counts for 0.5 percent of GDP. The export percentage of agricultural trade is 0.8, amongst the lowest in OECD countries. Still, food production holds domestic importance as farmers produces 50% of all land based food calories consumed in Norway.<sup>1</sup> The farming style is mostly small-scale, the average farm size is 19 hectares and an average dairy producer holds 15 dairy cows. Milk and meat are major products, followed by grain and vegetable production. Even though the scale of agricultural production is small, agriculture is one of the most important upholders of the cultural heritage in Norway (Daugstad et al. 2006).

Norwegian farms have traditionally been handed over to new generations on allodial rights, where the oldest son inherited the farm from his parents. In 2004, 84 percent farmed on allodial rights, either the main farmer's or his or her spouse's right (Rye and Storstad 2004). In 1974 women and men gained equal rights to become successors, and this amendment of the law was given retrospective force to 1964. This means that first borned girls and boys born after 1964 have the same formal right to inherit the family farm. The share of women taking over the farm has risen commensurately over time. Still 87 percent of the main farmers are men. An average farm normally consists of a married couple (83 percent) (Rye and Storstad 2004). Statistical analysis of data on Norwegian farmers and spouses time spent on farm work show that women contributes to abound 22 percent agricultural working hours.<sup>2</sup>

During the last decades, productivist goals and methods of agriculture has met critique globally and nationally. Goals of rationality, efficiency and productivity have for many proved to be irreconcilable with environmental and social dimensions of sustainability. The environmental impacts of agricultural production have been questioned and aims to achieve 'triple bottom line' outcomes have achieved greater prominence in recent times. Norway has for long been known for its comprehensive system of agricultural subsidies. It has been a goal to uphold agricultural production not only to maintain agricultural areas and food supply, but also to sustain population and employment in rural areas. Norway has made 'strenuous efforts' to incorporate environmental values into policy making (Dryzek 1997:140) and from the 1980s there has been a 'greening' as well as re-regulation also of Norwegian agriculture (Almås 1994). The EU and WTO have been increasingly influential. The WTO agreement of 1994 forced Norway to lower its tariffs over time and the non-tradable commodities in farming associated with the emergence of 'multifunctional agriculture' has been emphasized. This involves an emphasis upon such things as food welfare. biodiversity. safety. animal rural communities and cultural landscapes. The multifunctional argument in WTO negotiations is to secure diverse agricultural production across the whole country and the Norwegian Ministry of Agriculture and Food stresses the importance of sustainable development for Norwegian agriculture (Ministry of Agriculture and Food 1999-2000).

Sustaining rural communities has been present for a long time in Norwegian agricultural policy (Blekesaune 1999). In addition, the concept of cultural landscapes entered the agricultural policy in the second half of the 1980s, and economic means to sustain these valued landscapes was first introduced in 1989 (Daugstad and Rønningen 2004). However, the concept of a multifunctional agriculture was not present in policy until the end of the 1990s (Almås 1999, Rønningen et al. 2005). Norwegian farmers have been found to be supportive of the idea of a multifunctional agricultural policy. Statistical data has showed that even though the farmers' top priority is Norwegian food production and food security, they also agree that agriculture plays an important role in managing the cultural heritage, landscapes and biological diversity (Rye and Storstad 2004). Rønningen et al. (2004) found that farmers have gone through major attitudinal changes in regard of their consciousness on cultural landscapes and the production of collective goods. Many farmers have a strong commitment towards managing the

<sup>&</sup>lt;sup>1</sup> OECD (2005): http://ocde.p4.siteinternet.com/publications/doifiles/012005061T010.xls

<sup>&</sup>lt;sup>2</sup> Analysis of survey-data (See Rye and Storstad (2002) for documentation of data)

cultural landscapes (Daugstad et al. 2002), but for many it might present too much of a personal conflict to change from producing food to nursing a landscape (Rønningen et al. 2004, 2005).

The Norwegian population is quite supportive of a policy of keeping Norwegian agricultural production despite of the fact that it is heavily subsidised. Eighty percent of the population report that they support a style of agriculture as it is today, while nine percent are opposed to this (Norsk Landbrukssamvirke 2005). The elements listed in the Norwegian policy of a multifunctional agriculture are also recognized. Inhabited viable rural communities, Norwegian food and cultural landscapes are reported as the most important reasons for supporting Norwegian agriculture. The rural is defined as a value in Norway (Daugstad 2000) and with this, sympathy for the rural is rooted in the Norwegian identity (Blekesaune 1999). Another important factor explaining a population in favour of Norwegian food production and policy is the, until recently, absence of major food scandals (e.g. Mad Cow's Disease (BCE)), little agricultural contamination of groundwater or other major environmental problems, strong import restrictions on food and live animals and a no-GMO policy (Storstad 2002, Storstad and Bjørkhaug 2003).

#### **Theoretical Approach**

The analysis in this paper rests on assumptions based on the French sociologist Bourdieu's (1990) theory of practice and his concepts of field and habitus.

The theory of practice as practice insists (...) that the objects of knowledge are constructed, not passively recorded, and, (...), the principle of this construction is the system of structured, structuring, dispositions, the habitus, which is constituted in practice and is always oriented towards practical functions. (Bourdieu 1990;52).

Bourdieu (op.cit.) wanted to understand different practices of human beings, through the combined effect of objective conditions, internal interpretations and social action. Bourdieu developed a conceptual framework of how individuals (in this case, farmers) are reflexive and creative while at the same time acknowledging that they are constrained within social structures (Glenna 1996). Through the concepts of field, habitus and practice it is possible to explain how different farmers interpret their practice, their way of farming, and how those interpretations correspond to traditional farming values and practices and the 'official' definition of sustainability. Bourdieu's concepts are abstract, but have proved to be useful in quite different empirical analyses (Sohlberg and Sohlberg 2001).

The *field* is a limited domain where people or institutions struggle for access and resources (Sohlberg and Sohlberg 2001). The field is external in nature and can be defined as a network of objective relations between positions. A field is like a game, consisting of a set of relations maintained between players as they anticipate and react to the moves of other players occupying other positions (Calhoun et al. 2002:262). A field is competitive and actors struggle over positions within the field and impact its structure and corresponding habitus, as actors work to either conserve or transform the field. On the field certain properties (forms of capital such as social, economic, symbolic or cultural) are valued higher than others (Sohlberg and Sohlberg 2001). Farmers attempting to act outside the dominant field or fail to adopt the dominant logic of the field might face consequences (Glenna 1996).

*Habitus* is a system of durable and transposable dispositions (Bourdieu 1990). For a person the habitus provides guidelines for choosing one way of action over another, one choice is reasonable rather than being without meaning. Habitus structures thoughts, evaluations and acts. It ensures the active presence of past experience, which, deposited in each organism in the schemes of perception, thought and action, tends to guarantee the 'correctness' of practices and their constancy over time, more reliably than all formal rules and explicit norms (Bourdieu 1990:54). Individuals and groups express their habitus through their practices (Sohlberg and Sohlberg 2001).

*Practice* is localized in time and space (field), it is not random but like doxical experience (Jenkins 2002). For a farmer, practice within the agricultural field, can be a choice or it might be a matter of course. Bourdieu's relational tool enables an analysis of the connection between farmers' positions on the field (relative position compared with others) out of how values and status is connected to the different positions (Rosenlund 2002) and positions are maintained and signalled to others through position taking (Calhoun et al. 2002). The practical logic of an actor is expressed through its 'feel of the game' (Jenkins 2002;70).

Bourdieu's analysis attempts to move away from the dualism of actor and structure. He does this through communicating the mixture of freedom and constraint that characterises social interaction and presentation of practice as the product are neither conscious nor wholly unconscious, rooted in an ongoing process of learning, from early childhood, and through which actors know, without knowing, the right thing to do (Jenkins 2002:72). Based on this understanding, farmers recruited from an agricultural family are expected to present different experiences and dispositions and motivations in agriculture than newcomers. This is deduced out of the conception that farmers with different habitus interpret their own prospects differently (Shucksmith 2002). In such a way, experience achieved through education, new or alternative productions, life experience, production cultures, etc. might define causes and reasons for (sustainable) agricultural production.

#### Methodology

The research questions raised in this paper are explored through interview data. Thirty-five in-depth interviews with Norwegian farmers were conducted during 2003-2005. Mainly one person, the farmer, was interviewed, but in some interviews spouse was also present. The interviews were taped and transcribed. The farmers interviewed represented different generations to allow any variation in values and beliefs to be gauged. Twenty-one of the main farmers interviewed were men, fourteen were women. The interviewed farmers were involved in various types of productions such as milk, meat, grain and vegetables and five were organic farmers.

The material was analysed in several stages inspired by the work of Strauss (1987); coding with focus on categorization and conceptualisation and Kvale (1996); looking for meaningful categorizations from the narratives of the informants. The interpretations and translations of the informants' narratives are retold through the categories developed. Citations are used to illustrate values or concepts, not cases.

After a "close read" data were coded. The farmers' stories were analysed in the light of the concepts of field, habitus and practice. In the stories, parallels and differences between farmers revealed themselves. Parallels were found between farmers with common features or similar backgrounds. Differences were linked to the farmer's narratives of their background, socialization, their motives, practical performance and mode of production. The stories enabled a conceptualization of different types of habitus on the common agricultural field. The stories further revealed that the choices of certain agricultural practices were connected to the habitus and that habitus structured a certain practice.

#### **Farming Habitus**

A *typical farming habitus* revealed itself in the interviews. One value corresponding to this habitus was *working the land*, to make it more productive. This value corresponds with productivistic ideals of efficiency, and is reproduced through the narratives of the farmers holding this typical farming habitus. It also holds a dimension of managing land in a way

that is illustrated by a 45 year old male farmer giving his reason for farming:

"It means a lot to me to be connected to the land, to see it grow."

*Knowing the land from the inside*, from birth is another value connected to this type of habitus. In the narratives farmers' emphasised the fact that the family has farmed the land for generations, for example, one farmer spoke about:

"Taking over the place I grew up."

This is also a reason these farmers give for why they farm. As identified as a basic farming value mentioned above, *ownership* to the land - the fact that the family owns the land is ascribed importance in a typical farming habitus. One male farmer in his late fifties recounted his story with the preface:

"To start with the beginning: My family came here in 1906."

Autonomy also emerged as a key component of a farmer's habitus. *Freedom*, to manage their own work and time and absence of a boss other than himself, is connected to this habitus. "*I prefer to manage alone*." This quote is taken from a discussion with a male farmer about hiring labour for the farm. The quality of freedom and autonomy was for this farmer not only connected to being his own employer, but also to the freedom of not relating to non-family colleagues in his daily work. Many also talked about the freedom of choosing what to do, and when to do the work. Clearly autonomy is highly valued.

The final value connected to the typical farming habitus extracted from the interviews, is work - or to work hard. Connected to this is, identified as a self-employed lifestyle by Høyrup (1983), little division between work and leisure. A farmer in his late sixties stated that:

"To be constantly occupied with something is a lifestyle."

This farmer revealed that their attachment to their lifestyle and land is so great that he and his wife had not had two continuous weeks holiday since they started farming. Now, as close to pensionable age, they have taken a holiday away from the farm and recalled how it was an "uncomfortable experience" for them. They longed for their work on the farm.

It is not hard to identify these values in the interviews. The quotations given above provide just a few examples to demonstrate how ingrained beliefs are expressed. However, they build upon a construction of the typical or good farmer within the *typical faming habitus.* Common to the farmers holding a typical farming habitus is that they are recruited from within, they have taken over the family farm on allodial rights, they knew they were going to inherit the farm and pursue farming as a career. As such, they learnt farm work, and importantly a farming habitus, from early childhood. Few have higher education or experience from other jobs or careers.

Does this mean that all Norwegian farmers hold a typical farming habitus? Throughout the interviews farmers with different backgrounds and properties were identified and additional types of farming habitus emerged. An example of a different farming habitus is for instance farmers without a family connection to the farm. These farmers bought the farm or married a woman with a right to the farm. For them farming was never a pre-ordained career path. They farm out of a free will and interest. Farmers without an archetypical farming habitus might share many of the values of the typical farming habitus. So much so they appear to run the family farm on allodial rights, but their differing experiences and dispositions or habitus is evident through the way they talk about their motives for farming, their practices and their prospects for their life in agriculture.

*Female farmers*, often do not hold a typical farming habitus, either. Only the first born women after 1965 had the right to the farm, and women born before 1974, when the allodial act was revised, were never expected to take over the farm if a brother existed. Still the socialisation of girls as potential farmers is slow over time, many women, even firstborn girls, are not trained or socialized to become sole farmers (Bjørkhaug 2006, Bjørkhaug and Blekesaune 2005). Hence, arguably the farming habitus is less engrained in many women.

A third distinct group of farmers without a typical farming habitus are *farmers with a previous or existing career outside farming*. An example of this is the gardening couple who moved from the city because they wanted a different (rural) environment for their children to grow up in. The husband inherited the farm from his grandparents; he had never lived there permanently before. When they took over the farm, they started a nursery on the property.

#### **Farming Practices**

It is quite interesting to see how habitus influences on the farmers' practices. The analysis of farmers' stories enabled a distinction between a *traditional practice* and *independent farming practices*. The farmer with a *typical farming habitus* maintains traditional farming practices. Of course the farm is modernized and rationalized as required by economy or regulations, but the main production is maintained over time. This type of farming is taken-for-granted and represents an unquestionable way of managing the farm and production.

Few farmers express a wish to change their practices, as evidenced by the following comments:

"I maintained the same production as my father used to, meat production, pork and beef", and: "Yes, it is the same production, it has always been. Well, it used to be more varieties, more pigs and cows and sheep and lambs, like it used to be then."

These two quotes are prime examples of how the traditional practice is kept up on the farm. The first one, a thirty year old male farmer refers to his father's production, the second farmer, a man in his mid-fifties is also talking about the structural changes in agriculture were farms are becoming more specialised over time. Still he describes the production as to be 'the same'.

Farmers without a typical faming habitus more often represent what can be conceptualised as *independent* faming practices. However, the degree of independence might vary on the agricultural field as the field is competitive and the farmer's disposition to act on the field varies with and are reproduced by their habitus.

Women's independence, for example, might be constrained of their partners' dispositions. Often the farming practice on a woman's farm is changed to fit with her husband's interests or previous experience, as a woman farmer in her mid-forties, who had taken over her parent's farm said:

"Well- the first thing we did was to expand the buildings and we continued vegetable and potato production just as my husbands parents used to."

She did not reflect over why this was the case, it was something that was taken for granted. Another woman farmer explained that as they needed additional income it was more convenient for her than her husband to work off-farm. Then, as he had become the main operator, she felt his choices of practice had to be prioritized. She was fascinated by extensive and organic productions, but felt as long as he was in charge that was not an issue.

A different representative of an independent farming practice is the farmer with a previous or existing career outside of farming. Additional income outside farming or experience and network from different work enables these farmers to choose nontraditional practices. Independence from a family farm tradition can also provide the farmer with opportunities of choosing something new and different. This independence enables a newcomer on the farm to farm organically (see e.g. Bjørkhaug and Flø 1999) or start some kind of entrepreneurial businesses. The consequences of a failure seem to be less dramatic for these farmers as they do not fail the 'family tradition'. Still, there is a risk of failing to be a member of the agricultural game and be accepted as an adequate player on the agricultural field.

#### **Farmers Concerns**

There are several issues that can illustrate what engage or concern farmers in Norwegian agriculture. These can be grouped under the heading of at least four different concerns: *economy*; *activity*; *changing landscape* and; *social conditions*. Most farmers are concerned about the reduction of incomes in farming. Mostly, men were concerned or explicitly occupied with the economic situation of the farm. A woman part-time farmer with her husband full-time on the farm explained:

"I think maybe I am more "small scale" while he (husband) maybe is more into rationalisation. (...) I believe that women can take work-pride in values. Maybe men count money more, they are more related to economy."

While a farmer with the typical farming habitus adjusts his production by increasing his livestock, buying or renting more land and working harder when incomes are decreasing, an independent farmer might change his or hers production completely to meet the market circumstances. An "entrepreneurial" farmer is not scared of acquiring new knowledge relevant to his new or existing production. One of these farmers explains easily his changes on the farm he bought:

"They used to hold animals on this farm, and they produced potatoes for the household. I transformed the farm once I took over, increasing the potato production, ending the meat. But the last two or three year's potatoes became bad economy, so I cut out, and now we produce squash."

This farmer was on his way to Holland to learn more about squash production. *Activity* as a category is connected to the maintenance of the family farm for the sake of the farmer and her or his family and the rural community. The first dimension can be illustrated by a remark of a young woman talking about her pride in farming: "Most important for me is the continued production on this farm. (...) if we for instance chose to enter a joint farm project some of our production would be moved elsewhere. It would be very important for me to utilize the barn for a different purpose, e.g. other kind of animals."

The activity concern is also related to the two following concerns; *changing landscape* and *social conditions*. Changing landscapes are a consequence of rationalization and professionalisation in production because of the fewer numbers of farms in production, fewer animals using farmland and outfields as pastures and new harvesting methods. A particular problem connected to fewer grazing animals is the problem of vegetation control. An aging woman in farming expresses this in the following quotation:

"Well, as I say, if there were no farmers, if all farms are shut down, one might wonder what Norway will look like. It is very sad that there is fewer and fewer farms, it grows, the forests around us. It has started growing now. Cultural landscape, the animals manage that. When animals are gone, it will overgrow and that is dismal. If they turn into tourism here, I cannot understand what there is to show in this village, if there are no farms left".

The cultural landscape has proved to hold both biological values but also great aesthetic values for farmers, people living in agricultural areas as well as Norwegian and international visitors (Daugstad 2005). Keeping up the number of farms, not only the efficient ones, is a way that both farmers as well as scientist believes is a way to maintain the cultural landscape (Olsson and Rønningen 1999).

Also social conditions are related to activity. Living, active farms means people. People maintain social relations within the community. The concern of a loss of this community is also often expressed by women farmers, for example:

"There is an active agricultural environment here, well not next door where people just live, but around. The farms are close (in space), we meet every day, cooperate a little, borrow things from each other. It is a big sustainable unit. So for instance in future, if farmers are forced to give up production, that would be a loss, a reduction of the sustainability."

While men are the spokesmen for economic concerns, women speak for the values of the rural lifestyle, small communities are cited as good place to raise children. The dismantling of agriculture leads to a thinning out of people, both in numbers and in social capital and the social aspect of ensuring a rural population has proven to be especially emphasised by women in agriculture.

# What is a Sustainable Agriculture in Norwegian Farmers' Context?

Qualitative analysis can present the opportunity of penetrating dualisms and categories to reveal a greater understanding of the values, beliefs and dispositions that underpin action and practice. As the analysis of the interviews revealed, there is a dominant style of farming habitus, which has been referred to as 'typical' in this paper. Several additional, although less regular, forms of habitus also found. This allowed for were the conceptualisation of practices, a traditional way of practising agricultural production and independent practices. These are of course ideal categories which will often allow farmers to recognise elements of values and opportunities across the types. The identification of farmers' concerns did point to a number of different forms of habitus depending on the backgrounds or gender of the farmers in the study. However, some commonalities of habitus were detected across the different types of farmers.

What does this research reveal in relation to the way in which Norwegian farmers conceptualise sustainability? The aim here is not to assess sustainability per se, but how farmers' habitus informs their beliefs, values and practices within a particular field, or context, of operation. In particular, the arguments given for the inevitable way of practising a certain style of farming and the farmers' choices of changing their existing methods and types of production can be discussed. Three research questions were raised earlier in this paper: 1) What is engaging Norwegian farmers?; 2) How do different groups of farmers explain their way of farming, their motives and concerns for agriculture?; and 3) Whether the farmers recognize the values of a 'politically correct' definition of sustainability involving the triple bottom line definition of sustainability?

The two first questions have been explored above through habitus and concerns. The content of those analyses are used in the following conclusion on sustainability in Norwegian farmers' context.

Sustainability as a concept with a definition seems to be irrelevant in Norwegian farmers' everyday operations. However, through the way in which farmers talk about their concerns, it is possible to deduce that the concepts of a 'triple bottom line' definition of sustainability address are relevant. For example, farmers are explicitly engaged in the *economic sustainability* of the farm, some with more economic output in mind than others. A farmer with a typical farming habitus adjusts his traditional practice by increasing production slightly if needed or by adjusting to the structure of regulations and economic support (i.e. works harder for less). The more independent farmer might change production completely to meet the market signals and is also more open to achieve new knowledge and skills to achieve these goals. There is however an indication that economic concern is more connected to the farmer's gender than farming habitus. Pure interest in economic profit has revealed itself to be mostly a male concern.

Most farmers were concerned of their ability to sustain their farm, and the ability of neighbouring farmers to do the same. Keeping the farms going, and with that the rural communities, is what most women farmers, but also many men, value. On analysis, this can easily be translated to concerns of *social sustainability*.

Environmental sustainability, on the other hand, did not seem to be an issue in these groups of Norwegian farmers. Organic farmers and some women expressed concerns about environmental degradation in conventional farming. Farmers with a typical farming habitus often experience their own production to be almost organic and organic farming to be something close to nonsense. Farmers' understanding of sustainability is not connected to all of the elements of a 'triple bottom line' definition in a theoretical sense - but to maintain agricultural activities on Norwegian farms as a practical goal. Economic survival of the farms then might have social and environmental sustainability as a consequence, especially connected to the biological diversity of an active management of a cultural landscape and thereby avoiding the spread of undesirable vegetation.

The Norwegian Ministry of Agriculture states that beyond its primary role of producing food and fibre, agriculture should also contribute to the viability of rural areas, food security, cultural heritage and produce environmental benefits such as agrobiological diversity, land conservation and high standards of plant, animal and public health (Ministry of Agriculture and Food 1999-2000). These are all components of the notion of sustainability that - at its core - highlights the need to pursue the so-called 'triple bottom line', where the economy, society and environment are considered equally in decisionmaking. Policy makers attempting to encourage farmers to adapt all elements of a sustainable agriculture need to acknowledge the variety of ways that farmers interpret and acknowledge the policy and the problems it might address (see e.g. Glenna 1996). How can heterogeneity in farming habitus contribute towards aims of sustainability in Norwegian agriculture? Farmers with a 'typical'

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farming habitus are in the majority and possess the dominant farming habitus. This form of habitus might prove its own importance because of its loyalty towards agricultural policy and traditional practices and maintenance of Norwegian family farming. However, diversity might be healthy as this rather homogeneous group of actors has marked the agricultural field in Norway for a very long time with no reason for questioning their practices at all. Objectives of steadily introducing environmental values in a sustainable agricultural practice, if changes are needed, might more easily be achieved through other sort of farming habitus, such as those expressed by organic farmers, "entrepreneurs", women and those with key job or career outside farming. The diffusion of environmental practices will however depend on the position these types of habitus achieve in the agricultural field in the future.

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#### References

- Almås, R. 1994. The Rise and Fall of Agricultural Policy Cycles: from Planned Economy to Green Liberalism. *Journal of Rural Studies*. 10:15-25.
- Almås, R. 1999. How can multifunctional agriculture be secured in Norway? R 11/99. Trondheim: Centre for Rural Research
- Bjørkhaug, H. and B. E. Flø 1999. *Production and distribution of organic food in Norway- from the farmers' point of view.* P 5/99. Trondheim: Centre for Rural Research.
- Bjørkhaug, H. 2006. Is there a Female Principle in Organic Farming? An Interpretation of Data for Norway. Pp. 195-209 in Holt, G. C. and M. Reed (eds.), *Sociological Perspectives of Organic Agriculture: from Pioneer to Policy*. Wallingford: CABI.
- Bjørkhaug, H. and A. Blekesaune 2004. Work and income patterns of men and women of Norwegian family farms. Masculinisation, feminisation, or professionalisation of farm work?" Pp. 139-150 in A. Cristóvão (ed.), Farming and Rural Systems Research and Extension. European Farming and Society in Search of a New Social Contract – Learning to Manage Change. http://home.utad.pt/~des/ifsa/ifsa\_6th\_eu\_proceed.pdf
- Bjørkhaug, H. and A. Blekesaune 2005. N ew Patterns of Gender Division of Work on Norwegian Family Farms? P 05/05. Trondheim: Centre for rural Research.
- Bjørkhaug, H. and C. A. Richards 2004. Sustaining agricultural in Australia and Norway: A multifunctional approach. P 8/04. Trondheim: Centre for Rural research.
- Blekesaune, A. 1999. *Agriculture's importance for the Viability of Rural Norway*. R 8/99. Trondheim: Centre for Rural Research.
- Bourdieu, P. 1990. The Logic of Practice. Cambridge: Polity Press.
- Calhoun, C., J. Gerteis, J. Moody, S. Pfaff, and I. Virk (eds.) 2002. Contemporary Sociological Theory. Malden: Blackwell.
- Daugstad, K. (ed) 2005. Agriculture's Role as an Upholder of Cultural Heritage. Report from a Workshop. TemaNord 2005:576. Copenhagen: Nordic Council of Ministers.
- Daugstad, K. 2000. Mellom romantikk og realisme. Om seterlandskapet som ideal og realitet. Doctoral thesis. Trondheim: NTNU
- Daugstad, K. and K. Rønningen 2004. Landskapet som felles gode og privat ressurs. In Setten, G. (ed). *Det levende landskapet*. Trondheim: Tapir Academic Publisher
- Daugstad, K., K. Rønningen and B. Skar 2006. Agriculture as an upholder of cultural heritage? Conceptualizations and value judgements – A Norwegian perspective in international context. *Journal of Rural Studies*. 22:67-81.
- Daugstad, K., S. Ringdal, K. Rønningen and B. Skar 2002. Agriculture and cultural heritage. A state of the art report on research based knowledge. R 7/02. Trondheim: Centre for Rural Research.
- Dryzek, J. 1997. The Politics of the Earth: Environmental Discourses. Oxford: Oxford University Press.
- Glenna, L. L. 1996. Rationality, Habitus, and Agricultural Landscapes: Ethnographic case Studies in Landscape Sociology. Agriculture and Human Values, Vol 13/4: 21-38.
- Høyrup, T. 1983. Det glemte folk. Livsformer og centraldirigering. Hørsholm: Institut for europæisk folkelivsforskning/ Statens byggeforskningsinstitut.
- Jenkins, R. 2002. Pierre Bourdieu. Revised Edition. London: Routledge.
- Kvale, S. 1996. InterView. An introduction to qualitative research interviewing. Thousand Oaks: Sage.
- Ministry of Agriculture and Food. 1999-2000. St. meld. nr. 19 (1999-2000) Om norsk landbruk og matproduksjon
- Norsk Landbrukssamvirke. 2005. Aktuelle tall. Federation of Norwegian Agricultural co-operatives.
- Olsson, G. A., and K. Rønningen 1999. *Environmental values in Norwegian agricultural landscapes*. R-10/99. Trondheim: Centre for Rural Research.
- Richards, C., G. Lawrence, and N. Kelly 2005. Beef Production and the environment: Is it really 'hard to be green when you are in the red'? *Rural Society* 15/2:192-209.
- Rønningen, K., B.E. Flø and E. Fjeldavli 2004. The legitimacy of multifunctional agriculture. P 06/04. Trondheim: Centre for Rural Research.

- Rønningen, K., E. Fjeldavli and B.E. Flø 2005. Multifunksjonelt landbruk hva salgs legitimitet har fellesgodeproduksjon innad i landbrukssektoren? R 8/05. Trondheim: Centre for Rural Research.
- Rosenlund, L. 2002. Regelmessigheter i den postmoderne uorden. Sosiologi i dag, 32:51-91.

Rye, J. F. and O. Storstad 2004. *Trender i norsk landbruk. Frekvensrapport* R 4/04. Trondheim: Centre for Rural Research. Shucksmith, M. 2002. *Habitus and Agency in British Farming: Understanding Divergent Farm Household Behaviour in* 

*the Post-Productivist Transition.* Paper presented at the XV International Sociological Association World Congress of Sociology, Research Committee 40, Sociology of Agriculture and Food, Brisbane, Australia July 7-13.

Sohlberg, P. og B-M. Sohlberg 2001. *Kunskapens former. Vetenskapsteori och forsknignsmetod.* Liber Förlag. Storstad, O and H. Bjørkhaug 2003. Foundations of production and consumption of organic food in Norway: Common

attitudes among farmers and consumers? Agriculture and Human Values. 20:151-163.

Storstad, O. 2002. Borte tja, men hjemme best! Nordmenn og danskers tillit til landbruket. Pp. 297-316 in Almås, R, M. S. Haugen and J. P. Johnsen (eds.) *Bygdeforskning gjennom 20 år*. Trondheim: Tapir Academic Publisher

Strauss, A. 1987. *Qualitative Analysis for Social Scientists*. New York: Cambridge University Press.

WCED (World Commission on Environment and Development). 1987. Our Common Future. Oxford: Oxford University Press.

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# Paper 6

## Is there a Female Principle in Organic Farming? An Interpretation of Data for Norway

Hilde Bjørkhaug

Pp. 195-209 in Holt, G. C. and M. Reed (eds.), *Sociological Perspectives* of Organic Agriculture: from Pioneer to Policy. Wallingford: CABI.

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## Is There a Female Principle in Organic Farming? An Interpretation of Data for Norway

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It is often claimed that due to different value orientations, men and women practice agriculture in different ways. In particular, the idea that women practice a more environmentally friendly or ecological style of management is a key assumption of this difference. Indeed, the female management principle corresponds on many points to the ideology of organic farming. This paper explores whether female farmers in Norway represent different management values and attitudes to male farmers, or whether male and female organic farmers together represent a more feminine way of farming than conventional farmers do. Using quantitative data collected from a survey of organic and conventional farmers, and examines the relationship between attitudes and farm management structure. Findings show that there is a higher proportion of female farmers in organic than in conventional farming in Norway. This can be explained by the theory of organic as a feminine value, but could equally be a strategy to demarcate a feminine arena within the agricultural sector. In the final analysis, the paper provides further elaboration for the theory of a feminine principle in organic farming by reaching beneath the concept of stereotype to discuss the diversity of femininities and masculinities in both organic and conventional farming.

#### Introduction

Norwegian agriculture is male dominated. This is not an ideal situation concerning politically expressed goals and ideals of gender equality within agricultural production (St.meld. nr 19, 1999-2000). The Committee on Gender Equality and Recruitment in Norwegian Agriculture points to the fact that girls face more barriers to entering farming than boys. Within conventional agriculture in Norway about 13% of farmers in 2004 were women (Trend-data 2004). This proportion has risen slowly over the years but within organic farming the proportion is almost double. In 1999, 20% of organic farmers were women compared to 10% of conventional farmers (Bjørkhaug and Flø, 1999a; 1999b). Moreover, according to Trend-data (2004), 30% of farmers undergoing conversion to organic at the current time are women.

The idea that men and women execute agriculture differently due to different value orientations, with women practicing it in a more environmentally friendly or ecological way than men, is one of the key assumptions of gender research in agriculture. However, whilst the ideology of organic farming might correspond to the idea of a feminine management principle, there remains a majority of male organic farmers in Norway. The research presented here focuses therefore on the extent to which a feminine management principle typifies women farmers or organic farmers. In the chapter empirical data is used to explore motivation for farming and attitudes to environmental issues in Norwegian agriculture, conventional and organic. Based on the analysis, the author discusses whether these different attitudes explain better women farming or organic farming.

#### Background to gender theory

#### Women in farming and female farmers

In this chapter, the farmer is defined as an individual responsible for agricultural production on the farm. Farming is usually regarded as a male occupation. Traditionally, women on farms have been presented as

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farmers' wives, mothers or daughters even when participating in production (Alston, 1998). The woman's role in farming is perceived as helper or assistant (Almås, 1983; Brandth, 2002).

Gender research in agriculture began as a project to explain the situation of women on farms, and why women have an inferior status in agriculture. Many of these studies showed that women loyally reproduce gender roles on farms (Alston, 1995; Brandth, 2002). Other studies suggest that agriculture in Norway has become *masculinized* (Almås, 1983). This phenomenon is related to both the mechanization and rationalization of production, pushing women out of production as their labour becomes surplus (Almås, 1983; Almås and Haugen, 1991). Women have also been pulled out of agriculture as the labour market has given women new opportunities and career choices. These factors have been used to explain why agriculture is not only dominated by male farmers but also how the agricultural infrastructure is predisposed towards the masculine principles of linearity and expansion (see e.g. Brandth, 2002).

Succession of Norwegian family farms is based on a system of allodial rights; the oldest child is the formal sole successor. However, the revised Norwegian Allodial Act of 1974 gave female successors the same right to inherit as male siblings. With this, the number of female farmers has slowly increased. Many of these women choose a traditional farming strategy together with a partner, but studies show that there is a new group of young women farmers who have moved away from traditional female gender roles (Haugen, 1998). Traditionally, women married into the farm, and many women still enter farming this way, however, there is evidence of change, such as women, as farm wives, enter farming through an active construction of a non-traditional farmer identity (Bryant, 1999). With the emergence of women as farmers, gender research in agriculture has found a new direction for enquiry. According to Bryant (1999:245) a non-traditional farmer is more open to change and the marriage partnership is extended to a work partnership. This has most relevance on farms that can give income to more than one person, a group of farms of decreasing numbers in Norway. Other recent studies focus on how women construct their identity as farmers, and more generally, how gender identities in agriculture are constructed and reconstructed (Haugen, 1998; Brandth, 2002). From being studies with a structural focus, showing changes in women's appearance on farms; newer research has taken on a post structural perspective with a focus on female farm people's construction of their own reality.

#### Eco-feminism and gender inequality perspectives

Farmers manage nature through their agricultural practices. Due largely to an emphasis on environmental values in agriculture, policy and society in general, the role of the farmer has taken on other facets as well as agronomics and husbandry. Feminist theory defines land management and the use of natural resources as gendered activities (see e.g. Brandth, 2002). Within some feminist traditions, women are assumed to exist more closely to nature and to have an inherently stronger bond with nature than men (Modelmog, 1998). Earth goddesses notwithstanding, a central tenet of feminist theory is the exposition of inequalities between men and women, and of the consequences of such differences. Difference can be problematized as one class or group subordinated to another but also difference is a critical point at which there is potential for change (Brandth and Verstad, 1993).

Is environmentally friendly agriculture a feminine alternative to existing praxis in the management of natural resources? Through the centuries, the dominant view of nature has been characterized by a mechanistic worldview in which humans (man in feminist thinking) have the necessity, right, and / or duty to dominate and control nature (Merchant, 1984 cited in Pedersen, 1994:56). Women in gender research are understood to hold holistic attitudes to the use of natural resources, encompassing the principle of conservation. Men on the other hand are more focused on economic issues such as output rather than on ecological systems (Braidotti *et al.*, 1994). Gender theory of socialization observes that the socialization process predisposes women to separate themselves from their surroundings (Davidson and Freudenburg, 1996). The theory argues that men look at their surroundings as an object that they are able to control while women perceive their surroundings as the subject, which they are both part of and feel protective towards.

Eco-feminist theory posits a connection between the suppression of nature and that of women. The term eco-feminism refers to 'a sensibility, an intimation, that feminist concerns run parallel to, are bound up with, or perhaps, are even at one with, a concern for the natural world as subject to the same abuse and ambivalent behaviour as women' (Cheney, 1987:115). Experiences from developing countries, publicized by the radical Indian scientist Vandana Shiva, are at the front of this school of thought. The theory holds that the processes of production and reproduction are embedded not only in women's biological role as mother but also in their social role. Shiva argues that the female principle is creatively and organically or holistically connected to, '(diversity and) community in local knowledge, local consumption and expressed needs, in accordance with the principles of equality and ecology' (Shiva, 1989:73).

#### Organic ideology and way of farming

The growth of organic farming can be seen as a reaction to, and movement against, the industrialization of agriculture (Flø, 2001; Michelsen, 2001). Such social movements can be described not only according to how resources are mobilized to create social transformation, but also why individuals come to share the beliefs that mobilized them (Meares, 1997). The concept of organic agriculture is often defined as agricultural production using ecological principles. But, organic farming comprises a multiplicity of methods and practices united by an ideological platform; a fundamental view of nature as value in itself, in which species have a right to develop in the nature of the species. Many organic farmers see humans as part of nature and not outside nature. In this view, earth's resources are limited and have to be managed in order to maintain the quality of soil, air, and water and to sustain non-renewable resources. Humans therefore, because they have a consciousness of and a powerful ability to impact on nature, they also have a responsibility towards nature.

Ideologically, organic farming produces food based on the management of local renewable resources. The main goal is to recycle nutrients according to natural cycles (e.g. the nitrogen cycle), in order to preserve the structure and nutrient content of the soil. This is achieved through non-biologically invasive technologies such as manures, leguminous plants and compost, and crop rotation. In theory this creates a self-contained farm system, self-sufficient in fodder and fertilizer. The ethos of organic farming is to care for biological diversity and plant health, but equally the movement aims to infuse social, cultural, and economic values into food production and consumption.

In Norway there has been a sharp rise in the number of organic farms, from 19 Debio-certified farms in 1986 to 2466 in 2003 (Debio is the control and approval organisation for production, refining and import of organic food). Still, this represents only 3.7% of agricultural area (certified or converting to organic), compared with the target of 10% by 2010 set by Norwegian agricultural policy (Landbruks- og matdepartementet, 2005). Nevertheless, the organic movement has established a visible alternative to conventional farming in Norway (Flø, 2001). Amongst organic farmers, a high level of environmental consciousness is demonstrated by an expressed wish to produce fresh healthy food in a natural way, and the environmental standards of production are reflected in sector regulation and product marketing. But all farmers do not share these environmental values. In much of the literature, researchers have identified a dichotomy between organic and conventional farmer motivation (e.g. Peter *et al.* 2000; Bjørkhaug, 2001; Abaidoo and Dickinson, 2002; Storstad and Bjørkhaug, 2003). Conventional farmers are more concerned about economic performance and many of these farmers reportedly had no choice other than farming (Bjørkhaug and Flø, 1999a; 1999b; Bjørkhaug, 2001).

The organic ideology contains several parallels with the feminine principle as expressed in theory. For example, the dialogue of naturalness is maximized in organic farming praxis. Yet organic production arguably requires greater physical strength for manual work due to restricted use of chemical weed killers, and more general dissociation from modern technologies. These factors warrant closer scrutiny of gender perspectives in agriculture. With growing awareness of negative environmental impacts of agriculture, gender issues become prominent. Many studies have indicated, and others have shown, that women are more concerned than men are about conservation of the environment, and are less resistant to state regulation of agricultural praxis (Geno, 2002); women are often a key influence in the conversion process (Vartdal, 1993). However, this does not necessarily imply that the ecology movement per se is feminist (King in Cheney, 1987:116). For example, the prominent role of male farmers in the organic movement means that much of the gender specificity in praxis, which underpins the perceived masculinity of conventional farming, is also mirrored by the organic movement (Meares, 1997).

#### Feminism, gender research, and women conventional farmers

Feminism of equality theory debates the essentialist natures of rights and opportunities for women. Gender is defined as 'a socially constructed phenomenon, an ambiguous and changeable concept which is not solely connected to biology' (Brandth and Verstad, 1993:14-18). The gender perspective holds that women and men are both equal and different from each other, and that women are also different from each other. In other words, both men and women can embody the feminine principle, and some women potentially embody less of the feminine principle than some men do. By understanding gender as a constructed and multifaceted phenomenon, the gender discourse shapes conceptions of female and male over time. The question of whether female farmers in Norway challenge the values of industrial, male-dominated agriculture remains pertinent. Let some studies illustrate this point.

In one study Haugen and Brandth (1994) found that Norwegian female farmers in different age groups interpreted the farmer's role in different ways. Older female farmers were more ecologically oriented than young female farmers. In addition, young female farmers had moved away from traditional gender roles and thus, with

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respect to the new regime of productivity in agriculture, had more in common with male farmers. Haugen (1998) has also shown that young women construct their identity in part on tradition and in part as professional farmers (Haugen 1998:59). Haugen (1993) emphasizes that the equality project has focused exclusively on how women adjust to male methods whilst men have been assumed to continue without change.

An analysis of time-use on Norwegian farms over time showed that men's relative work time on farms has risen while women tend to work less in Norwegian agriculture than they used to (Bjørkhaug and Blekesaune, 2004). Although this study showed that female and male farmers spent an equal amount of time on farm and off-farm work, there was no clear proof of gender equality on Norwegian farms because spouses spent their work time differently on male and female operated farms; male spouses worked more hours outside agriculture than female spouses, and male spouses worked more on farms than did female spouses. Female farmers therefore might manage to construct their own identity as farmers but, even though male farmers' wives often contribute a substantial amount to labour on farms, female farmers are often dependent on males (Bjørkhaug and Blekesaune, *op. cit.*).

In a qualitative exploration of the female management principle amongst Norwegian entrepreneurs in forestry and summer farming, Daugstad and Villa (2001) concluded that the concept could be misleading when it is interpreted as relating to biological sex. When men do traditional women's work and women do traditional men's work stereotypes are challenged and deconstructed. In Daugstad and Villa's study (*op. cit.*) the scope of a female principle was found among both men and women, and some men expressed a stronger feminine principle than some women did.

Masculinities and femininities are constructed and negotiated by both men and women (Connell, 1995 in Peter *et al.*, 2000), 'femininity exists only in relation to masculinity and vice versa' (Brandth, 1994:130). Peter *et al.* (2000) found that transition to sustainable agriculture was often accompanied by changes in masculinities. Traditional farm systems corresponded to a conventionally understood masculinity; a monologic masculinity with clearly defined and rigidly observed gender roles. Whereas, sustainable farm systems corresponded to a greater openness to change and tendency not to focus on the control of nature; a dialogic masculinity in which more fluid definitions of work and success were fostered (Peter *et al.*, 2000). Thus, newly emerging concerns over the environment are described as a feminization of the masculine attitude to nature (Cheney, 1987).

Research in Norway and elsewhere has shown that in general, women practice less intensive agriculture than men but that the underlying reasons for this are less clear (Haugen 1998). No clear evidence for a female mode has been found even though established gender differences suggest this possibility. But, insufficient research to date has explored this question (Blekesaune and Krogstad, 1997) and for this reason, the analysis presented in this chapter explores the complexity of femininities and masculinities that underpin the concept of a feminine principle in agricultural production.

#### Data analysis Aims and sources of data

Farmers can represent a homogeneous group in terms of class, age, race, ethnicity and culture (Meares, 1997). But, organic and conventional production is frequently depicted at opposite ends of the sustainability scale (Abaidoo and Dickson, 2002) and organic farmers have also been found to hold polarized views about nature (Kaltoft, 1999), with pioneers holding strong, and newcomers weak, associations with the organic ideology (Vartdal and Blekesaune, 1992; Vartdal, 1993). Equally, conventional farmers vary in style of farming, ranging from smallholding to large scale intensive production.

The aim of this analysis was to explore using quantitative data from representative samples of organic and conventional farmers, whether Norwegian women farmers in general exhibit different values and attitudes to agriculture than do male farmers, or whether organic farmers as a group exhibit a more feminine mode of farming than conventional farmers do. The analysis addresses the following specific research questions:

- Are there differences between male and female farmers' motives for farming?
- Are there differences between male and female farmers' responses to the environmental situation in agriculture?

Data was collected via postal surveys in 1999. The surveys related both to technical aspects and attitudes to agricultural production (Bjørkhaug and Flø 1999a). The survey was distributed to two samples; one of 744 farmers drawn from Debio's register of farms (i.e. approved for organic labelling and / or organic production subsidies), representing 50% of all organic farms at that time, and another sample of 745 conventional farmers drawn from the national production register, representing approximately 1% of all Norwegian farms. Response rates of 59% and 51% respectively resulted in terminal samples of 439 organic farmers and 383 conventional

farmers. Samples were representative compared to other studies in either Norway or neighbouring countries (there was no other information available on the demography of organic farmers in Norway), or based on an evaluation of various farm-related and demographic farmer variables.

#### Male and female farmers on organic and conventional farms

One of the key objectives of analysis was to investigate the interrelationship between two dichotomies; the sex of the farmer and his / her mode of production. An exploratory analysis of farm data showed the principle differences and commonalities between the dichotomies. The first point to note is that the proportion of female farmers in organic farming is almost double that of conventional farming (near 20% organic female farmers as compared with 10% female conventional farmers). This difference is statistically significant. Nevertheless, the absolute number of female farmers is considerably higher in conventional faming.

Other data (Trend-data 2004) shows that the proportion of women has stabilized within organic farming but is growing in conventional farming, at around 20%. Of total farm population Trend-data (*op. cit.*) shows that about 5% of male farmers are organic or under conversion whilst the equivalent figure for women is 9%. Within these figures the proportion of farmers undergoing conversion is 2% and nearly 6% respectively, suggesting that the potential for increasing organic production is higher amongst female farmers.

Further exploratory analysis of survey data from 1999 shows demographic and production-related differences between four analytical categories; age, levels of general and agricultural education, and year farming commenced. Means for these variables were compared using the Anova t-test and the non-parametric Kruskal-Wallis test, because variance was not homogenous across categories (shown using the Levene test) in which case the Anova test can be misleading. The variables for farming background and farming with partner were used for cross tabulations to which the Chi square and Pearson's Chi tests were applied. The analysis shows that, on average, organic farmers were the youngest group (46 years). Organic female farmers had higher levels of education in general and in agriculture in particular and were the newest entrants to farming. 80% of female organic farmers farmed with a partner. Male conventional farmers, being the oldest group (mean of 49 years) with the lowest levels of education, predominantly farming without a partner (60%), and with a strong or long background in farming, represented the biggest contrast to female organic farmers. Male organic farmers and female conventional farmers had similar demographic profiles.

Differences in farm-related data between the four categories of farmer did not give the same pattern as found in the farmer analysis. Differences in production appear to be gender-related, with labour intensive milk production more frequently found on male-headed farms (35 to 40% of farms compared to around 30 female-headed farms). Male-headed farms also exhibited greater size and income and the lowest contribution to income from work outside the farm (near 50%). Conversely, female-headed organic farms derived the highest proportion of income from off-farm activity (65%).

#### Factors underpinning the decision to farm

Farmers were asked to evaluate the importance of 12 factors in their decision to farm: Interest in or value of a farming way of life, animals, food production, nature, environment, self-employment, rural life, plight, economic prospects, hard to imagine something else, no other possibilities and owning agricultural property. Following an initial statistical clustering of factors, four significant indices were derived: female, male, organic and conventional. Initial assessment of male and female patterns of choice revealed significant markers of difference between organic and conventional producers. Conventional farming is associated with tradition, inheritance and preservation of the family farm. This situation is generally not seen in the organic agricultural sector in which producers are more likely to be driven by interest in promoting production methods. The analysis lends credence to the hypothesis that organic farmers as a group are concerned with eco-sophy or the so-called eco-feminist perspective. Analysis also indicates that women farmers valued nature, animals and rural life (rurality) more than their male counterparts who as a group, more often expressed value as related to economic opportunity and independence (i.e. self-employment). However, all farmers valued farming as a way of life, and valued food production as an objective of farming, so clearly more than gender determines choice of production mode.

In order to answer the research question concerning a feminine principle in organic agriculture in greater depth subsequent analysis aimed to understand the interaction of gender and mode of production. The 12 motivating factors were used to build models for interacting variables of farmers' sex and mode of production to be used as dependent variables for regression analysis (Table 1). Analysis of farmer motivation adds an

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important dimension to the understanding of values. When sex and mode of production are measured together, sex rarely appears to be of primary significance. However, correlations relating to differences between men and women previously observed demonstrate that it is not only biological sex that is the causal variable. Models 1 to 3 (Table 1) show that women, more than men, are motivated by an interest in animals, whereas organic farmers are motivated more by their interest in nature. Models 4 demonstrate a lack of difference in gender or mode of production concerning the desire to be self-employed, although conventional farmers valued economic prospects more than organic farmers did (Model 5).

	Models	Dependent	Proba- bility		Models	Dependent	Proba- bility
1	Constant	Naturo	000	7	Constant	Food	000
	Women	Nature	.000	'	Women	production	.000
	Organic		.070		Organic		1/9
	Interaction		.013		Interaction		. 140
~		A i.e	.931	0		<b>F</b> acility a	.032
2	Constant	Animais	.000	8	Constant	Environ-	.000
	Women		.010		Women	ment	.775
	Organic		.710		Organic		.000
	Interaction		.124		Interaction		.161
3	Constant	Rural life	.000	9	Constant	Owning	.000
	Women		.057		Women	agricultural	.553
	Organic		.095		Organic	property	.001
	Interaction		.540		Interaction		.732
4	Constant	Self-	.000	10	Constant	Hard to	.000
	Women	employed	.068		Women	imagine	.566
	Organic		.080		Organic	something	.000
	Interaction		.817		Interaction	0.50	.819
5	Constant	Economic	.000	11	Constant	No other	.000
	Women	prospects	.058		Women	possibilities	.982
	Organic		.000		Organic		.000
	Interaction		.685		Interaction		.315
6	Constant	Farming	,000	12	Constant	Plight	.000
	Women	way of life	.324		Women		.297
	Organic		.526		Organic		.000
	Interaction		.008		Interaction		.325

Table 12. 1. Regression analyses of motivation for farming by gender and form of production.

\* Model summary 1: R Square .022, Anova Sig .001; 2: R Square .010, Anova Sig .054; 3: R Square .012 Anova Sig .027; 4: R Square .017, Anova Sig .005; 5: R Square .047, Anova Sig .000; 6: R Square .019, Anova Sig .002; 7: R Square .029, Anova Sig .000; 8: R Square .051, Anova Sig .000; 9: R Square .022, Anova Sig .001; 10: R Square .057, Anova Sig .000; 11: R Square .068, Anova Sig .000; 12: R Square .079, Anova Sig .000

\* Please contact author for further insight to statistics used in this chapter.

Models 6 to 8 reveal the most prominent organic variables and show that the mode of production contributes significantly. There were significant differences between organic and conventional farmers regarding their interest in the environment, with organic farmers more often citing environment as a motivating factor. The interaction between gender and mode of production shows that also male and female organic farmers differ; female organic farmers were more closely associated with motives of a farming way of life and food production.

The analysis indicates that the conventional dimension of tradition, inheritance and preservation of the family farm is not associated with a gender effect. Organic farmers are significantly less concerned with farming as a duty, which in combination with their background profile more easily explains the pattern of new entrants to agriculture who choose a non-traditional mode of production. Of the motivating factors explored, the author finds little support for the hypothesis that women in general typify a different perspective on farming than do men. What findings do show is that the organic mode of production demarcates values amongst the farm population. Therefore, rather than pointing to a masculine-feminine dualism, the analyses presents a dynamic scale of gender and mode of production, which places female organic farmers at one end and conventional male

farmers at the other, between which points male organic and conventional female farmers are variously distributed from issue to issue.

#### Attitudes to environmental issues in agriculture

The final analyses examined attitudes to specific environmental issues. Farmers were asked to evaluate a set of claims concerning the status of the environment, animal welfare, and technological innovation in Norwegian agriculture. Respondents were asked to rate their attitudes on a Likert attitudinal scale (1=strongly agree; 5=strongly disagree). Applying Principal Components Analysis, two discrete factors appeared to hold explanatory power. First, environmental issues in general, covering the following statements:

- Generally, Norwegian agriculture is environmentally friendly;
- The environmental critique directed towards Norwegian agriculture is legitimate;
- Agriculture does little harm to the environment compared to industry;
- Farmers do little to protect cultural landscapes, flora and fauna; and
- Existing husbandry is satisfactory for animal welfare.

These were built into an index for Natural Environment.

Second, statements associated with organic rules & regulations:

- After some time agricultural use of chemicals will cause serious environmental damage;
- Pesticide use in agriculture does not harm the environment;
- Nitrate leaching does not harm the environment;
- Genetic engineering may solve future environmental problems of agriculture; and
- There are no factual arguments for converting to organic agriculture.

These factors were transformed into an index for Environmental Regulation. Regression analysis of the two models (Table 2) show that only the mode of production had explanatory power implying that there are significant differences between organic and conventional farmers in their attitudes to the impact of agriculture on the environment. In particular, organic farmer responses to regulatory issues were critical.

	Model	Dependent	Proba-		Model	Dependent	Proba-		
		variable	bility			variable	bility		
1	Constant	Natural	.000	2	Constant	Environ-	.000		
	Women	environ-	.480		Women	mental	.103		
	Organic	ment	.000		Organic	regu-	.000		
	Interaction		.168		Interaction	lations	.478		

Table 12. 2. Regression analysis of environmental attitudes

\* Model summary 1: R Square .274, Anova Sig .000; 2: R Square .398, Anova Sig .000

\* Please contact author for further insight to statistics used in this chapter.

#### Discussion: Is organic farming a way of expressing a feminine principle?

Previous research on gender, and feminist research in agriculture, has addressed gender inequalities, gender differences in values and attitudes, and the construction of femininities and masculinities (see e.g. Brandth, 2002). In this chapter the author has explored these theoretical approaches to the role of farmer as custodian of nature, using national farm data. The analysis has revealed a higher prevalence of women in organic farming than in conventional farming. However, a greater absolute number of women choose to farm conventionally than organically (Trend-data 2004). These data also indicate that the potential for increasing the number of organic farms is greater among women than among men. Female organic farmers tend to be younger than their male counterparts, with a higher educational level but without a family tradition in farming. This is suggestive of a new agricultural paradigm. By contrast, male conventional farmers typify the old or family farm agricultural paradigm based on inheritance and tradition. Male organic farmers and female conventional farms tend to be large with a strong commercial focus. Women-headed farms tend to be smaller in size, with lower output volume and higher contribution of off-farm income to total farm income. These findings seem to support the view that women manage their farms less intensively than do men.

Motives and attitudes often underpin performance outcome. Through quantified measures of primary interests, some patterning of women versus men and organic versus conventional was found. However, data for

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the mode of production tended to neutralize gender differences. Therefore, it is not possible from the analysis to assert with any certainty that men and women practice agriculture in different ways as a result of their different value orientations. Neither can it be asserted that women practice a more environmentally friendly or ecological style of management than men. The pattern is more complex and appears to relate more to choice of production method than to the sex of the farmer. Organic farmers clearly have different motives for farming than conventional farmers. Organic farmers express strong interest in farming and its relationship with the environment, and perceive the environmental problems, which are associated with agriculture in Norway, to be more serious than do conventional farmers. In this latter instance, gender differences were not found, although factors typically motivating both woman and organic farmers imply an interest in both farming and food production.

The ideology of organic farming corresponds on many issues with the concept of a feminine principle in management. The analysis in this chapter adds to, and also increases the complexity of, an understanding of femininities and masculinities in agriculture. The analysis has shown that female organic farmers expressing traditionally feminine values can be placed at one end of an attitudinal scale and male conventional farmers expressing more typically masculine values at the other end. In the centre of the scale farmers negotiate and interpret their roles and identities, with conventional female farmers expressing femininity in flux (Brandth, 1994), and male organic farmers exhibiting feminine values through dialogic masculinity (Peter *et al.*, 2000). The models constructed for the analysis were based on a limited range of explanatory variables applied to only one data set. But, as Abaidoo and Dickinson (2002:129) point out, 'farmers make choices about farming practices in complex contexts and in the presence of various imperatives'. Further research is needed therefore to provide greater understanding of the research question. Such studies might well employ methodologies complimentary to the findings presented here and bring new interpretations from which to develop a fuller understanding of the relationship between gender and sustainable agriculture.

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#### References

Abaidoo, S. and Dickinson, H. (2002) Alternative and Conventional Agricultural Paradigms: Evidence From farming in Southwest Saskatchewan. *Rural Sociology* 67 (1), 114-131.

Almås, R. (1983) *Maskulint og feminint på bygda i dag.* Bygdeforskning notat no. 3, 1983. NLVF's bygdeforskningsgruppe, senter for samfunnsforskning, University of Trondheim, Centre for Rural Research, Trondheim, Norway.

Almås, R. and Haugen, M.S. (1991) Norwegian Gender Roles in transition. The Masculinization Hypothesis in the Past and in the Future. *Journal of Rural Studies* 7, No. 1/2, 79-83.

Alston, M. (1998) Farm women and their work: why is it not recognised? Journal of Sociology 34, No. 1, 23-34.

Alston, M. (1995) Women on the land. The Hidden Hart of Australia. UNSW Press, Kensington NSW, Australia.

- Bjørkhaug, H. (2001)'Konvensjonell' eller 'økologisk'? Bønders motivasjon for valg av driftsform. N. 5/2001. Centre for Rural Research, Trondheim, Norway.
- Bjørkhaug, H. and Blekesaune, A. (2004). Work and income patterns of men and women of Norwegian family farms. Masculinisation, feminization or professionalisation of farm work? The 2004 IFSA European Symposium Proceedings: http://home.utad.pt/~des/ifsa/ifsa\_6th\_eu\_proceed.pdf
- Bjørkhaug, H. and Flø, B. E. (1999a) *Mat og miljø. Frekvensrapport fra en undersøkelse blant gårdbrukere.* R. 14/99. Centre for Rural Research, Trondheim, Norway.
- Bjørkhaug, H. and Flø, B. E. (1999b) *Production and distribution of organic food in Norway- from the farmers point of view.* P. 5/99. Centre for Rural Research, Trondheim, Norway.
- Blekesaune, A. and Krogstad, T. (1997) *Likestilling og rekruttering av kvinner i landbruket*. N. 4/97. Centre for Rural Research, Trondheim, Norway.
- Braidotti, R., Charkiewicz, E. Häusler, S. and Wiering, S. (1994) Kvinner, miljø og bærekraftig utvikling mot en teoretisk syntese. Universitetsforlaget, Oslo, Norway.
- Brandth. B. (1994) Changing femininity. The social construction of women farmers in Norway. *Sociologia Ruralis* 34 (2/3), 127-149.

Brandth, B. (2002) Gender Identity in European Family Farming. Sociologia Ruralis 42, No 3, 181-200.

Brandth, B. and Verstad, B. (1993) Kvinneliv i landbruket. Landbruksforlaget, Oslo, Norway.

Bryant. L. (1999) The Detraditionalization of Occupational identities in Farming in South Australia. *Sociologia Ruralis* 39, No 2, 236-261.

Cheney, J. (1987) Eco-Feminism and Deep Ecology. Environmental ethics 9 (2), 115-45.

- Daugstad, K. and Villa, M. (2001) Kvinnelige prinsipper- også for menn? Om kvinner, menn, næringsutøvelse og ressursforvaltning. R. 1/2001. Centre for Rural Research, Trondheim, Norway.
- Davidson D. J and Freudenburg, W. R. (1996) Gender and Environmental Risk Concerns: A review and analysis of available research. *Environment and Behavior* 28 (3) 302-303.

- Flø, B.E. (2001) Norsk økologisk landbruk frå marginal outsider til verdiskapande insider. N. 04/01. Centre for Rural Research, Trondheim, Norway.
- Geno, B. (2002) Reconsidering the focus of business and natural resource training: Gender issues in Australian farm management. *Agriculture and Human Values*, 19, 189-203.

Haugen, M. S. (1998) Women Farmers in Norway. R. 9/98, Centre for Rural Research, Trondheim, Norway.

- Haugen, M. S. (1993) Odelsjenter likestilte i loven men hva med praksis? In Brandth, B. and Verstad, B. (eds) *Kvinneliv i landbruket*. Landbruket, Oslo, Norway. pp.23-52
- Haugen, M. S. and Brandth, B. (1994) Gender Differences in Modern Agriculture. The Case of Women Farmers in Norway. *Gender & Society* 8, No 2, 206-229.
- Kaltoft, P. (1999). Values about Nature in Organic farming Practice and Knowledge. Sociologia Ruralis 39, No. 1, 39-53.

Landbruks- og matdepartementet (2005)

http://odin.dep.no/lmd/norsk/tema/okologisk/bn.html

- Meares, A. C. (1997) Making the Transition from Conventional to Sustainable Agriculture: Gender, Social Movement Participation, and Quality of Life on the Family Farm. *Rural Sociology* 62 (1), 21-47.
- Michelsen, J. (2001) Recent Development and political Acceptance of organic farming in Europe. *Sociologia Ruralis* 41, No 1, 3-20.
- Modelmog, I. (1998) 'Nature' as a Promise of Happiness: Farmers' Wives in the Area of Ammerland, Germany. *Sociologia Ruralis* 38, No.1, 109-122.
- Pedersen, K. (1994) Med snøscooter som livsform. In Emmelin, L (ed): *Nordiskt seminarium om friluftslivforskning*. R. 1994:3. NORDPLAN, Nordiska institutet för samhällsplanering, Stockholm, Sweeden.
- Peter, G., Bell, M. M., Jarnagin, S. and Bauer, D. (2000) Coming back Across the Fence: Masculinity and the Transition to Sustainable Agriculture. *Rural Sociology* 65 (2), 215-233.
- Storstad, O and Bjørkhaug, H. (2003) Foundations of production and consumption of organic food in Norway: Common attitudes among farmers and consumers? *Agriculture and Human Values* 20, 151-163.
- Shiva, V. (1989) Til livets opphold. Kvinner, økologi og utvikling. Oktober, Oslo, Norway.
- Storstad, O and Bjørkhaug, H. (2003) Foundations of production and consumption of organic food in Norway: Common attitudes among farmers and consumers? *Agriculture and Human Values* 20, 151-163.
- St.meld. nr 19 (1999-2000) Om norsk landbruk og matproduksjon. Landbruksdepartementet, Norway.

Trend-data (2004) Surveydata from Norwegian farmers. Centre for Rural Research, Trondheim, Norway.

Vartdal, B. (1993) Motivasjon og meistring av omlegging til økologisk jordbruk, R. 3/93, Centre for Rural Research, Trondheim, Norway.

Vartdal, B. and Blekesaune A. (1992) Sosiale sider ved økologisk jordbruk. Ein sosiologisk studie av omleggingsprosessen. R. 1/92, Centre for Rural Research, Trondheim, Norway

# Paper 7

Foundations of production and consumption of organic food in Norway: Common attitudes among farmers and consumers?

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**Abstract.** In Norway, the production and consumption of organic food is still small-scale. Research on attitudes towards organic farming in Norway has shown that most consumers find conventionally produced food to be "good enough." The level of industrialization of agriculture and the existence of food scandals in a country will affect consumer demand for organically produced foods. Norway is an interesting case because of its small-scale agriculture, few problems with food-borne diseases, and low market share for organic food. Similarities between groups of consumers and producers of food, organic and conventional, when it comes to attitudes concerning environment, use of gene technology, and animal welfare have implications for understanding market conditions for organically produced food. The results of our study indicate that organic farmers and organic consumers in Norway have common attitudes towards environmental questions and animal welfare in Norwegian agriculture. Conventional farmers have a higher degree of agreement with the way agriculture is carried out today. Unlike organic farmers and consumers, conventional farmers do not see major environmental problems and problems with animal welfare in today's farming system. But like the organic farmers and consumers, and to a stronger degree than conventional consumers, conventional farmers renounce gene technology as a solution to environmental problems in agriculture. These results are discussed in relation to their importance for the market situation for organically produced foods.

Key words: Agriculture, Animal welfare, Environment, Food consumption, Gene technology, Organic

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#### Introduction

Germany, Great Britain, Denmark, and France are regarded as big markets for organic food in Europe, and Britain has the most rapidly growing market for organic food<sup>1</sup> (Morgan and Murdoch, 2000). The Food and Agriculture Organization of the United Nations estimates that in the year 2010, between 10 and 30% of the agricultural area in Europe will be used to produce organic food. And in the US, organically produced foods have become one of the fastest-growing segments of the food industry (Allen and Kovach, 2000). Despite the rapid increase of organic food production, the market share of organically produced food is still quite low in most European countries. The largest market is that of fresh milk. In Denmark, organically produced milk has a market share of 20–25%, while organic beef has a market share of only 2% (Anon, 1999). There is reason to believe that the price differences between conventionally produced and organically produced beef<sup>2</sup> is the main reason why the market share of beef is so much lower than that of fresh milk. Despite the fact that organically produced foods account for less than 2% of the food market in many countries, organic farming gets a lot of attention, both from the media and, not least, from the politicians.

In Norway, the production and consumption of organic food still is small scale, but the authorities have decided on a national Plan of Action for the development of organic agriculture. Their aim is to use 10% of the agricultural area to produce organic food in the year 2010.

Today, around 2% of the Norwegian agricultural

area in use is organic. For all products, supply is exceeding demand. Consumption of organically produced food is also low in Norway compared with many other European countries. While about 3% of the fresh milk sold in Norway is organically produced, 20–25% of the fresh milk sold in the neighboring country Denmark, is organically produced. A recently conducted study concluded that the share of organic consumers is 15% higher in Denmark than in Norway (Bjørkhaug and Storstad, 2001). Research on attitudes towards organic farming in Norway has shown that most consumers find conventionally produced food "good enough," and this is one of the main reasons why Norwegian consumers do not choose organic (Storstad, 2000, 2001; Bjørkhaug and Storstad, 2001).

Organic agriculture can be viewed as a criticism of mainstream conventional farming with its increasing industrialization. The pioneers of organic farming have not been willing to compromise with regard to the environment. Organic and conventional farmers have different choices regarding production method, and it is likely to expect the two groups of farmers to have different attitudes regarding environmental questions. Built upon the same argumentation as for production, we can argue that consumption of organically produced food might also be a result of a criticism of an increasing industrialization of conventional agriculture. We wonder whether the motivation factors are similar for both production and consumption of organic food. The study reported here explores the connection between attitudes concerning the environment, use of genetic engineering, and animal welfare among producers and consumers of organic food. An empirical comparison of producers and consumers should be of interest especially, since a common set of attitudes among organic farmers and consumers may be an important element for explaining the (potential) market for organically produced food. In the end of this article, we discuss our findings in relation to both the market situation and implications for organic agriculture policy.

#### Small-scale conventional agriculture

Maintaining a decentralized population structure is a political objective in Norway. The agricultural policy has been, and still is, a very important element in attaining this goal. The agricultural sector, therefore, draws relatively high subsidies from government budgets. Norway has one of the most comprehensive systems of agricultural subsidies in the world. However, in the last decade, there have been cuts in the subsidies for farming, with the objective of making agriculture more cost-efficient. This shift in policy

is partly a consequence of WTO agreements, and partly a result of a changing domestic political climate. Another important consequence of the WTO agreements and the next negotiation in WTO is that Norway must be prepared to loosen up its protectionist import policy towards agricultural products. The tariff rates will be reduced, and domestic production will meet competition from imported products. Today, almost all dairy products and meat consumed in Norway are domestically produced. Norwegian farmers and the food industry must prepare for a new situation in which they have to compete with products from other countries on the domestic market. The main challenge will be to meet competition on prices. Food prices are high in Norway compared with our neighboring countries Sweden and Denmark. The policy for a more cost-efficient agricultural production is, therefore, to attempt to lower food prices for the consumer. As a result of this political goal, the VAT on food products was lowered from 24% to 12% in 2001.

Small farms scattered all around the country characterize the structure of agriculture in Norway. There has been a decline in the number of farms since the Second World War. In 1949, there were 213,441 farms in Norway, in 1979, 125,302 and in 1999, 77,740 (Statistics Norway, 2002). Despite the decline in numbers of farms, there has been an increase in total agricultural area in use in the same period. The average agricultural area in use has increased from 7.7 hectares in 1979 to 13.5 hectares in 1998 (Statistics Norway, 2000). Twenty percent of the Norwegian farms have more than twenty hectares of agricultural area in use, and of those farms only eight percent have more than fifty hectares of agricultural area in use (Statistics Norway, 2000). An average Norwegian dairy farmer has 13 cattle.

Over the last two decades, organic farming has been growing in Norway, but the number of organic farms is still lower than neighboring countries like Denmark and Sweden (Michelsen, 2001). In 1986, 19 farms were Debio-approved<sup>3</sup> for organic production. In 1997, the number was 1316 farms and by December 31, 2001, 2099 farms were included in the Debio-arrangement.<sup>4</sup>

Microbial contamination of food is very low in Norway. There are only a few cases of illness caused by unsafe food each year. In general, Norwegian consumers do not need to worry about getting sick from salmonella or other microbes. Norway is also one of the European countries where there have been no cases of BSE, and an EU report about the Norwegian situation states that "it is highly unlikely that domestic cattle are infected (clinically or pre-clinically) with the BSE agent" (EU Commission, 2000: 39). Studies have shown that Norwegian consumers regard domestically produced food as safe, and put great trust in Norwegian agriculture and food control and in food products (Dalen, 2000; Storstad, 2000, 2001; Nygård and Storstad, 1998; Bjørkhaug and Storstad, 2001). The director of the Norwegian Animal Health Authority claims that the reason why Norway has relatively safe food and few problems with animal communicable diseases mainly has to do with two factors: One is the fact that import of animals and meat is strictly regulated in Norway, the other is that farms are small and geographically scattered (Liven, 2001).

So far, genetically modified organisms are not used in Norwegian agriculture, and are strictly forbidden in the production of organic food. In the food market, products containing more than 2% of genetically modified material are required by law to be labeled. So far, there are no (known) products containing genetically modified organisms on the Norwegian food market. Genetic engineering can be characterized with the Face of Janus (Heggem, 2000). On the one side it is seen as the technology of hope, an environmentally friendly technology giving hope for sustainable development. On the other side, the technology is viewed as a technology of fate, a sneaking mechanization of nature and human beings. This gives room for insecurity about what technology is and can be (Brekke, 1995). People associate genetic engineering with risk. Studies show that people respond differently to what they consider to be a useful risk to take. Genetically modified foods are so far considered as useless among the majority of Norwegian consumers, while gene technology related to health and medicine seems easier to accept (Heggem, 2000; Nygård and Almås, 1996). Studies of Danish, German, and British consumer attitudes regarding genetically modified foods show that the more favorable attitudes the consumers hold towards nature, the more risks they associate with the use of genetic modification in food production (Bredahl, 2000). For these consumers, high perceived risk leads to a lower consumer acceptance of genetically modified food (Bredahl, 2000). Norwegian farmers are also skeptical towards biotechnology. Brandth and Bolsø (1992) studied farmers' attitudes on ethical implications of genetic engineering in agriculture. They found a common skepticism of bio-technological developments among the farmers. The skepticism was first and foremost related to a fear of increased rationalization of agriculture. These studies support an understanding of the Norwegian farmers as being genuinely skeptical towards both increasing industrialization and the introduction of new technology such as modern biotechnology.

#### "Natural" and "unnatural" food

Previous research on Norwegian farmers has shown that organic farmers are concerned about nature and protection of the environment to a higher degree than conventional farmers. Organic farmers want to produce "healthy" and "fresh" food in a "natural" way (Bjørkhaug and Flø, 1999a; Flø and Bjørkhaug, 1999). Analyses have also shown that conventional producers emphasize economic profit to a greater extent than organic producers do. The conventional producers also expressed a feeling of obligation to take over the farm on allodial privileges: "They had no other choice than to become farmers." Part of the explanation of the differences between organic and conventional farmers on this issue was the fact that more conventional farmers grew up on the farm they run today (near 80% on conventional, 50% on organic farms). According to the same studies, an interest in nature, environment, and cultivating land was what organic farmers valued highest as a reason for farming. Conventional farmers valued living in a rural district and owning and managing an agricultural property higher than they valued an interest in nature. Owning and managing an agricultural property seemed to be just as important for conventional farmers as an interest in the environment was for organic farmers (Bjørkhaug and Flø, 1999a; Flø and Bjørkhaug, 1999).

Fairweather (1999) goes through several studies from different countries, and finds that the concern for the environment seems to be a common motivation factor for starting organic farming independent of nationality. But there are of course other factors of significance, such as food safety (which in many cases will be linked to concerns for the environment) and economic incentives. Studies from Canada (Hall and Mogyorody, 2001) and Denmark (Michelsen, 2001) show that organic farmers mention a combination of motivation factors, but in both studies the environmental concerns are the most important factor. As Fairweather (1999) shows in his study of farmers in New Zealand, there are multiple sets of reasons for becoming an organic farmer, and he identifies different types of both organic and conventional farmers. Among organic farmers there are at least four types: Organic hopefuls, Frustrated, Pragmatic, and Committed (Fairweather, 1999: 59). Vartdal (1993) grouped Norwegian organic farmers in two main groups: Cosmopolitical organic farmers who had a strong ideological orientation (based on the ideas from anthroposophy or eco-philosophy). It was in this group that she found the innovators or pioneers of organic farming. The second group was locally oriented farmers who wanted to reform or adjust the conventional farming practice, but their ideological orientation was not as strong as the ideological orientation among cosmopolitical organic farmers was. It is this last group of farmers that has increased in numbers during the last couple of years. There is also reason to believe that some of this increase in supply of organic food is consumer-driven, as farmers impose upon consumers' concerns for the environment and food safety.

There is, of course, a strong relationship between society and nature when it comes to both producing and consuming food (Vos, 2000). The foods we eat are both created by humans and "given" by nature. This relationship is powerfully demonstrated by the history of BSE, and is also present in most other cases concerning food and risk. Organic farming has been brought into this discussion as a solution to the many problems brought about by the industrialization of agriculture. According to Beck (1992), the negative side effects of industrialization have made the public more reflexive, and it is reason to believe that increased consumption of organically produced food is a result of consumers becoming more reflexive. That is to say that food scares like BSE, and public awareness of potential risks like salmonella, pesticides, and genetically modified food, are contributing factors in a reflexive process among groups of consumers. DuPuis (2000: 289) argues that food is a particularly important focus for reflexive consumers, since food consumption is a negotiation about what a person will, or will not, let into his or her body. Our point of departure is that both consumption and production of organic food are results of reflexive processes within groups of consumers and producers. That is to say, concern for the environment, welfare of the animals, and/or health are the most important reasons for both buying and producing organic food.

Organic versus conventional food is a part of a broader discussion about the social-natural debate in environmental sociology.<sup>5</sup> If we do not respect nature, nature will strike back; nature has an intrinsic value in itself that is inviolable. The opposite position is that we can use nature to fulfill our needs, even if we need to control nature. We can regard these two positions as "extremes" on a dimension: natural agriculture/food unnatural agriculture/food. Organic farming would be regarded as a far more natural way of producing food than conventional farming. BSE was "nature beating back" and genetically modified food is fiddling with nature (Irwin, 2001). For consumers, organic food becomes their hope to avoid the problems created by modern agriculture's hunt for efficiency and low prices (Murdoch and Miele, 1999). However, conventional agriculture is not a homogeneous category. Conventional farming can be more or less industrialized. As described above, conventional agriculture in Norway consists of small farms and is in most cases quite different from conventional farms on the continent. The term "conventional farming" has mixed usage in Norway (Flø, 2000). To name all kinds of non-organic agriculture as conventional is too narrow, because a lot of non-organic farmers don't regard themselves as conventional in the same way as conventional farming is understood. This applies especially for small-scale farmers, who represent a substantial part of the Norwegian farm structure. Consumers' picture of a small scale Norwegian agriculture is affecting their view of the gap between the conventional and the organic way of production. This influences consumers' (lack of) motivation for buying organic food.

#### Data and method

Data used in this study are survey data from representative samples of Norwegian consumers, organic farmers, and conventional farmers.

The consumer survey consists of 967 respondents over the age of 20, and was collected in the autumn of 1999. The survey was carried out by mail, and one reminder about the survey was sent out. The sample was drawn from the national telephone directory, which covers 97% of all of the Norwegian households. The letter accompanying the questionnaire encouraged the person over the age of 18 in the household, who had the most recent birthday, to answer the questionnaire. This was done to ensure a better gender distribution. From a randomly drawn sample of 2930 persons we got a response rate of 33%. To ensure the reliability of the final sample, we analyzed the representativity compared to the Norwegian population. We could not prove that the sample was skewed on demographic variables such as gender, age, and education (Storstad and Haukenes, 2000). Like with any other survey, it is not possible to evaluate whether the subject of the survey has led a group of more "interested" respondents to answer. The survey was not specifically about organic food and consumption, but more generally about consumer perception of risk in food. We have used the respondents' answers of how often they buy organically produced food to divide the sample of consumers into one group of organic consumers and one group of conventional consumers. As mentioned earlier, the consumption of organic food is low in Norway, and our data shows that only 6.2% eat organic food at least once a week.<sup>6</sup> This group of consumers will be defined as "organic consumers." The reason for such a strict definition is that this is the only group where we find persons who are conscious organic consumers. That is to say

that this group of 55 consumers actively seeks organic alternatives when they are buying food. The rest, 912 respondents, will be referred to as "conventional consumers."

The farmer data consists of two surveys from the spring of 1999, one representative sample of 439 organic farmers and one representative sample of 383 conventional farmers. Both surveys were carried out by mail, and one reminder was sent to the farmers. The questionnaires were almost the same, including a specific part on organic farming for the organic sample, and similarly a specific part on conventional farming for the conventional sample. A sample of 744 organic farmers was drawn from Debio's<sup>7</sup> register of organic farms in Norway. This was approximately 50% of all organic farms at that time. From the sample we got a response rate of 59%. A sample of 745 conventional farmers was drawn from the production register<sup>8</sup> of farms in Norway, approximately 1% of all Norwegian farms. From this sample we got a response rate of 51%. The sample of conventional farmers were controlled for representativeness compared to Norwegian farms as a whole on farm related variables and on demographic variables of the farmers (Bjørkhaug and Flø, 1999b). The sample was judged to be representative of Norwegian conventional farmers. There is no present information on demography of organic farmers in Norway, but the sample is judged to be true compared to other studies of organic farmers in Norway and neighboring countries. We have compared our data to available statistics on organic farms, and our sample seems representative in that respect. The purpose of the farmer studies was to get information about different aspects of production and motives for the production. The survey consisted of questions related both to technical matters and attitudes concerning the production.

In this article, we are analyzing a set of questions, or more correctly, a set of claims,<sup>9</sup> that was asked in all three questionnaires. These claims will be used to measure the attitudes of the farmers and the consumers towards how Norwegian agriculture treats the environment and animal welfare, to examine if there are any differences and similarities between organic/conventional farmers and organic/conventional consumers. The claims we asked the respondents to evaluate are related to, and relevant for, Norwegian agriculture today. The issues we are handling should be well known to most people because of the public debate on agriculture and food production, and people's own experience.

Padel (2001) points out that motivations for organic farming are either farm related or personal (e.g., attitudes). In this study, we examine only the personal motivational factors, and the reason for that is simple: Our attempt is to compare with consumers' motivations for buying organic food, and a relatively small number of consumers have a farm. As mentioned in the introduction, such a comparison of producers and consumers has not been done earlier. With identical questions, we have a special opportunity to explore differences and similarities between those who choose organic and those who do not.

## Women and people with higher education – the pioneers

We begin the analysis with two tables that show the distribution of traditional background variables (gender, age, and educational level) for the two samples of consumers and producers. Table 1 shows the consumer analysis.

The two groups of consumers are statistically significantly different regarding both gender and educational level. There are no age differences between the two groups of consumers. There is a higher percentage of women than men in the group of organic consumers, and the level of education seems to be higher in this group.

Analyses (not shown in the table) also indicate that there is no statistical correlation between organic consumption and income, and there is no evidence of a higher consumption of organic food among urban residents than among people living in rural areas. The lack of statistical significance between the traditional background variables (except gender and education) can be regarded as an indication that attitude variables are important factors to explain why some consumers buy organically produced food while others do not. Table 2 shows the same analysis done on the farmer samples.

As we can see from Table 2, gender, age, and educational level are different in the two groups of producers. The number of female farmers is almost the twice the number in the sample of organic farmers than in the conventional sample. These two introductory analyses indicate that we can claim that being a woman might increase the probability for both buying and producing organic food.

We also have reason to believe that the production is reorganized from conventional to organic when the younger generation takes over the farm from their parents. This results in a younger population of organic farmers than of conventional farmers, and can probably explain most of the age difference between organic and conventional farmers shown in Table 2.

To a large extent, the educational level of the farmers differs between organic and conventional
	Organic consumers	Conventional consumers	Sign.
Gender			
Men	32%	50%	$\chi^2 = 7.228$
Women	68%	50%	P = 0.007
	100%	100%	
	(n = 54)	(n = 816)	
Age (mean)	46 years	48 years	F = 0.891
	(n = 53)	(n = 809)	P = 0.346
Education			
Primary school (9 years)	9%	25%	$\chi^2 = 13.723$
Secondary school (+1-3 years)	35%	41%	P = 0.003
University/college (1-4 years)	30%	21%	
University/college (4 years+)	26%	13%	
	100%	100%	
	(n = 54)	(n = 817)	

**Table 1.** The connection between gender, age, and education and consumption of organically and conventionally produced food.

**Table 2.** The connection between gender, age, and education and production of organically and conventionally produced food.

	Organic farmers	Conventional farmers	Sign.
Gender			
Men	80%	89%	$\chi^2 = 11.725$
Women	20%	11%	P < 0.001
	100%	100%	
	(n = 416)	(n = 369)	
Age (mean)	46 years	49 years	F = 14.232
	(n = 407)	(n = 362)	P < 0.000
Education			
Primary school (9 years)	10%	20%	$\chi^2 = 44.626$
Secondary school (+1-3 years)	53%	63%	P < 0.000
University/college (1-4 years)	23%	13%	
University/college (4 years+)	14%	4%	
	100%	100%	
	(n = 416)	(n = 366)	

farmers. The group of organic farmers has a significantly higher educational level than conventional farmers have. According to innovation theory, the pioneers of organic farming are better educated than late adopters are (Padel, 2001) and there is reason to expect these differences to diminish in the future. Our results correspond with results from several other studies, especially when it comes to organic farmers being younger and more highly educated than their conventional colleagues (e.g., Tovey, 1997; Lockeretz, 1997). We have not found studies that have examined the significance of gender, and Padel (2001) confirms this lack of studies on organic farming and gender. **Table 3.** Mean values of claims on Norwegian agriculture's treatment of the environment, animal welfare, and gene technology grouped by organic and conventional consumers and farmers.<sup>11</sup>

	Organic consumers	Organic farmers	Conventional consumers	Conventional farmers
On the whole, Norwegian agriculture is environmentally friendly	3.06	3.02	2.52	1.93
Agricultural use of chemicals will after some time cause serious environmental damage	1.49	1.54	1.82	2.66
The environmental criticism directed towards Norwegian agricul- ture is just	2.09	2.52	2.64	3.67
Gene technology may solve future environmental problems in agriculture	4.21	4.57	3.88	4.26
There has to be a fundamental adjustment in production methods to bring agriculture and the nature into balance	1.89	1.94	2.42	3.26
Agriculture does not damage the environment as much as industry does	2.84	2.60	2.45	1.82
Existing husbandry is satisfactory for animal welfare	3.15	2.89	2.54	1.89
All animals should have the possibility to be Outdoors	1.36	1.47	1.52	2.03
Free-range animals are happier than animals in pens	1.40	1.49	1.52	2.00

## Do attitudes matter?

In the following section, we examine whether there are similarities between the different groups of farmers and consumers regarding attitudes towards environment, animal welfare, and gene technology (in Norwe-gian agriculture). Table 3 shows the average values on the claims concerning Norwegian agriculture. The respondents were asked to assign values scaled from 1 if they totally agreed with the claim to 5 if they totally disagreed.<sup>10</sup>

Table 3 shows the statistical differences between the four groups. We also controlled for statistical differences between the groups, organic farmers versus conventional farmers, organic consumers versus organic farmers, etc. In the following paragraphs, we sum up the main findings of the analysis.

*Organic farmers* and *conventional farmers* differ significantly on all variables. Organic farmers are generally more critical of the environmental and animal welfare status of Norwegian agriculture than are the conventional farmers.

Organic consumers and conventional consumers also answered differently on most of the variables. An exception is when organic consumers to a higher degree than conventional consumers disagree in the claim, "Existing husbandry is satisfactory for animal welfare," but do not differ in the opinion that "All animals should have the possibility of being outdoors," and "Free-range animals are happier than animals in pens." This result coincides with other studies of Norwegian consumers that show that Norwegian consumers generally are very satisfied with Norwegian agriculture (Nygård and Storstad, 1998; Storstad, 2001; Bjørkhaug and Storstad, 2001). Free-range animals do not represent an ideal situation for these consumers, rather it is the real picture they have of Norwegian agriculture.

*Conventional consumers* are more critical of the environmental status of Norwegian agriculture than *conventional farmers*. There are significant differences between the two groups on all variables, but when it comes to gene technology the pattern changes. Consumers are *less* negative than the farmers are about the use of gene technology for solving environmental problems in agriculture. This very interesting finding will be commented on later in the article.

When looking at differences between organic consumers and organic farmers, we find that organic farmers and organic consumers do not differ significantly on most variables. The exception is the claim, "The environmental criticism directed towards Norwegian agriculture is just," where organic consumers agree to a higher degree than organic farmers do. Organic farmers, on the other hand, are more critical of the claim, "Gene technology may solve future environmental problems in agriculture" than organic consumers are. Again we find that farmers are more critical of the use of gene technology. Within the rules of organic farming, there is a total rejection of genetic engineering. It is, therefore, not very sensational that we found a heavy disagreement among organic farmers towards this claim.

In general, there are similar attitudes among organic farmers and organic consumers, but that is not the case for conventional farmers and conven-

tional consumers, where we find significant differences in attitudes. Conventional consumers are more critical of Norwegian agriculture than the farmers themselves when it comes to environmental questions and questions concerning animal ethics. The explanation may be of methodical character. An implication of the difference between conventional farmers' and consumers' attitudes can be to claim that consumers are more critical of conventional farming than they have reason to be. But this also assumes that we recognize the answers of the conventional farmers as reflecting "the objective reality" of Norwegian agriculture. Our methodical interpretation of the differences between farmers and consumers is that conventional farmers have a need to defend their own way of producing food. They are a part of that same agriculture they are being asked to criticize in the questionnaire. In addition, there is reason to believe that conventional farmers put a more concrete construction in their replies than consumers do. By that, we mean that a conventional farmer will have a problem answering the questions (claims) in general terms, because they will relate the questions to their practice and to regulations. Take the claim, "Agricultural use of chemicals will, after some time, cause serious environmental damage" as an example: It is obvious that environmental damage depends on the amount and kind of pesticides used. The regulations for use of pesticides in agriculture are set to prevent environmental damage and contamination of food that are injurious to health. A conventional farmer may therefore interpret the claim as "given that farmers follow the regulations for use of pesticides; agricultural use of chemicals will not, after some time, cause serious environmental damage."

On all variables, we find the pattern that organic consumers are the most critical of the environmental status and animal welfare in Norwegian agriculture, followed by organic farmers and conventional consumers, while conventional farmers are the least critical of these issues. Here we need to look carefully at the scores of the variables and be aware of the fact that conventional farmers are not totally uncritical of either environmental questions or animal welfare in agriculture.

# Motivation for producing and consuming organic food

In order to see which attitudes towards environmental issues in agriculture influence organic consumption and farming most, and in what way, we constructed three indexes based on the claims we analyzed above.

The indexes are constructed after correlation analyses of the claims. Results from these analyses gave us a basis for building an environment variable based on all the variables involving environmentrelated issues.<sup>12</sup> The variables all correlated on acceptable levels to be included in an aggregated measure of attitudes on environmental questions of Norwegian agriculture. The additive index was standardized back to five values. In the correlation analysis, the *genetic* engineering variable stood out from the others, making it a separate dimension. The genetic engineering variable is used in its original form<sup>13</sup> with five values. An animal welfare variable was constructed of the variables concerning animal welfare in the same manner as for the environment variable. Three claims were added in the index,<sup>14</sup> and the variables were standardized back to five values. We find all three attitude variables to be reliable for the purpose of our analysis.

We used the indexes in binary logistic regression analyses. Two different models were developed: one on organic consumption and another on organic Together with the attitude-variables,<sup>15</sup> farming. gender, age, and educational level were used as background variables. These variables have been shown in other studies to have an effect on attitudes towards the environment. Young people, women, and people with higher education tend to be more concerned about the environment than others (Hofricher, 1991, in Seippel, 1995). Seippel (1995) shows in his studies that these groups have a greater willingness to renounce material benefits for the environment's sake and we saw in the previous analysis that both gender and education were associated with organic consumption. The analysis showed that the number of female consumers and consumers with higher education was higher in the organic sample.

Table 4 shows the equation where organic consumption is dependent variable valued 1 if organic consumption, else 0 and gender, age, and education and attitudes on environment, genetic engineering, and animal welfare are independent variables.

The gender effect disappears when we include the attitude variables in the equation in Table 4. Controlling for possible interaction effects between the variables gives no significant contribution to the model. The results of the analysis indicate that environmental attitudes are the most important explanation. We still have an effect of educational level.<sup>16</sup> Our data show that organic consumption in Norway is primarily explained by the consumer's concern for the environment. Animal welfare and attitudes towards genetic engineering are also important factors, but not statistically significant in the same way as the interest in an environmentally friendly agriculture.

Table 5 shows the equation where organic farming

Table 4. Organic consumption by gender, age, and education and attitudes on environment, genetic engineering, and animal welfare. Binary logistic regression. N = 853.

Variables in the equation	В	S.E.	Wald	Df	Sign.	Exp (B)
Women	0.554	0.325	2.898	1	0.089	1.740
Age (continuous)	0.007	0.010	0.479	1	0.489	0.007
Education (continuous, four values)	0.398	0.159	6.345	1	0.012	1.489
Environment	0.179	0.059	9.188	1	0.002	1.196
Genetic engineering	0.195	0.154	1.616	1	0.204	0.216
Animal welfare	0.166	0.112	2.192	1	0.139	1.180
Constant	-10.258	1.480	48.014	1	0.000	0.000

Cox and Snell,  $R^2 = 0.053$ ; Nagelkerke,  $R^2 = 0.143$ .

**Table 5.** Organic farming by gender, age, and education and attitudes on environment, genetic engineering, and animal welfare. Binary logistic regression. N = 764.

Variables in the equation	В	S.E.	Wald	Df	Sign.	Exp (B)
Women	-0.319	0.288	1.230	1	0.267	0.727
Age (continuous)	-0.021	0.009	5.404	1	0.020	0.979
Education (continuous, four values)	0.654	0.133	24.240	1	0.000	1.922
Environment	0.330	0.031	109.810	1	0.000	1.390
Genetic engineering	0.328	0.098	11.102	1	0.001	1.388
Animal welfare	0.149	0.049	9.160	1	0.002	1.161
Constant	-8.172	0.881	86.022	1	0.000	0.000

Cox and Snell,  $R^2 = 0.389$ ; Nagelkerke,  $R^2 = 0.520$ .

is dependent variable valued 1 if organic farming, else 0 and gender, age, and education and attitudes on environment, genetic engineering, and animal welfare are independent variables.

When we include the attitude variables, the gender effect from the introductory bivariate analysis disappears.<sup>17</sup> Controlling for possible interaction effects gives no significant contribution to this model either. The analysis gives significant results for all the other variables. We find a negative age effect, which means that the organic farmers tend to be younger. The previous findings of educational differences are also still significant. Farmers with higher education are more likely organic farmers. The most obvious difference between the farmer analysis compared with the consumer analysis is the fact that all of the three attitude variables give a significant contribution to the model.

In the agricultural discourse, there has been a heavy focus on all three factors of the farming system that we focus on here: environmental questions, genetic engineering, and animal welfare. These questions are used as arguments for contrasting organic farming from conventional farming by organic farmers, and by Norwegian farmers to contrast Norwegian food production from imported food. This might be one of the explanations of why we found a clear significant connection between all three attitude variables and organic farming in our model. In the following section we bring the results from these analysis into a discussion about the foundation of production and consumption of organic food.

### Implications for the market of organic food

Our results demonstrate that there is a great similarity between organic producers and consumers when it comes to attitudes. Further, organic farmers and organic consumers are more critical of the way environmental issues and animal welfare are treated in Norwegian agriculture, than conventional producers and conventional consumers. When it comes to the conventional producers and consumers, we find that the consumers in general are more critical than the producers are.

The establishment and growth of organic farming is a reaction against the industrialization of conventional agriculture in the Western world. The argument is that consideration for the environment and the welfare of animals are neglected in modern agriculture, and that the main focus is to increase efficiency in production to gain higher profits. The principles of organic farming are a break with the productivist paradigm of the industrial agriculture business (Morgan and Murdoch, 2000). We point out that both production and consumption of organic food can be regarded as a reaction or protest against the industrialization of modern agriculture, especially when it comes to concern for the environment. Implications of these studies are that if the number of critical people increases, the market for organic food will also increase.

An important finding in this study is that farmers in general are more critical than consumers of the use of gene technology. We have not found studies from other countries that indicates the same results, and this may be a Norwegian (or maybe Scandinavian) phenomenon. We will try to explain why this quite rare phenomenon occurs in Norway. As described earlier, Norway has a strict protectionist import policy, high food prices, and few problems with food related diseases. Both conventional and organic producers have a common interest in maintaining a strict import policy, because they fear that cheaper imported products will oust them. The most important advantage Norwegian farmers have is the consumers' trust that Norwegian produced foods are safer than imported foods. Using gene technology may destroy this trust, and will, therefore, be a poor marketing strategy in a situation with competition from cheaper, imported products.

One of the main differences between conventional and organic agriculture is the use of pesticides, which is forbidden in organic farming. The absence of pesticides in organic farming is considered to be a benefit both for the environment and for human beings. However, in general terms, this does not seem to be the main argument for the organic farmers as the solution to environmental and health problems caused by agricultural industrialization. The solution to the environmental, animal welfare, and health problems we see in modern agriculture today is of course more complex. The problem lies both in the globalization of animal and food trade and in making the agricultural industry more efficient (cut costs, the use of hormones, etc.). Organic farming is just a part of the solution. However, there is reason to believe that consumers will regard organic farming as the main answer to their desire for safe food. This is easy to understand, due to the fact that conventional agriculture has been singled out as "the bad guy."

Environmental benefits are the main argument for organic farming, and this is consistent with the consumer's and producer's main motivation for buying

and producing organic foods. The environmental argument for organic farming is mainly based on studies of negative environmental effects of conventional farming (special negative effects to the ecosystem of pesticides) (Allen and Kovach, 2000). In other words, conventional farming is being pit against organic farming, and this is exactly the same thing the consumers do. The consumers regard organic farm products as more "natural" and "original" than conventionally produced food. Organic agriculture may, therefore, primarily represent possibilities for small-scale farmers who want to have a higher credibility as nature managers and producers of safe food (Murdoch and Marsden, 1994). But there are also signs that point in an opposite direction. In California, large organic producers who have many similarities with conventional farmers have squeezed out small organic farmers (Buck et al., 1997). The agribusiness capital entry in organic production may destroy the consumer's idea of what organic farming should be, and in the long run this may also become a problem for the consumer's trust in organically produced food.

Concerns for food safety are also an important motivation factor for buying organic food (Morgan and Murdoch, 2000). However, analyses have also shown that the consumer's consideration of safe food is not as important as their consideration for the environment (Storstad, 2000). Studies show that the same is true for the pioneers of organic consumption in Denmark (Infood, 1997), but as food safety becomes a more significant motive, the market for organic food increases faster. That is to say, the pioneers of organic consumption are primarily motivated by their concern for the environment and this is the same pattern as we find for organic producers.

Politicians often present organic production as a solution in "the era of food scandals." However, it is not always the case that conventional agriculture in itself causes food scandals. For instance, the main problem with foot and mouth disease is the globalization of trade in animals and animal products. When it comes to BSE, the problem was that the heat treatment in production of bone meal used in cattle production was reduced to a temperature not able to block the possible risk of cross-contamination. However, food scandals in general, and BSE in particular, have led to a discussion about negative side effects of the industrialization of agriculture. The food scandals are used as evidence that industrialization of agriculture has gone too far, and has created environmental problems, animal welfare problems, and food safety problems. This is analogous with what Beck (1992) describes as negative side effects of the industrialization process. In a risk society, consumers become aware of negative side effects produced by techno-economic development and they question the development and employment of technologies (Beck, 1992: 19). This is what Beck (1992) means by the claim "modernization is becoming reflexive." The process of reflexivity may be a necessary condition for the market for organic food. The potential market for organic food will, therefore, have better conditions in countries with a high degree of industrialized agriculture and/or countries with food scandals. There is a stronger basis for a *public criticism* of domestic conventional agriculture in these countries than in countries where agriculture is not that industrialized and the problems with food-borne diseases are minimal.

When it comes to buying organic foods, Norwegian consumers are in general not modern and reflexive in Beck's meaning of the concept, they are rather a bit pre-modern. They still trust the "system" and do not see the necessity for individual solutions of problems created by the industrialization of modern agriculture. In fact, they do not see or feel the problems; they do not recognize themselves as living in a risk society when it comes to food. In spite of this, Norwegian politicians, like politicians in other European countries, have pointed out organic farming as a priority. As mentioned earlier, in a national Plan of Action for the development of organic agriculture, the goal is that 10% of the agricultural area in Norway should be used to produce organic food in the year 2010. The politicians' main argument for supporting the development of organic agriculture is that consumers should have a choice between conventionally and organically produced foods. The consumers' right to choose is an important consumer privilege in itself, but there may also be other reasons for the priority of organic agriculture.

One reason may be that supporting organic farming is a more salable way to legitimate the subsidies from government budgets to the agriculture sector. Preventing import of organically produced foods may be another reason. But it may also be the case that Norwegian politicians see organic consumption as a trend, as the future in the agriculture of the Western world. They often make reference to other European countries, where consumption of organic foods has increased a lot during the last years. Why are we not as good as other countries? In other words, Norwegian politicians use patterns of consumption from other countries as an argument for developing a market for organic food in Norway. But as we know from other areas of society, phenomena work differently in different contexts. Politicians think that Norwegian consumers are more modern and reflexive than they are. As shown in this empirical study, only a minority of Norwegian consumers are what we can describe as reflexive consumers in Beck's terms.

#### Notes

- Domestic production of organic food is low in the UK. In 1997, there were only 870 organic farms in the UK, and imported organic food accounted for some 70% of the market for organic food (Morgan and Murdoch, 2000).
- 2. Consumer prices for organic beef are nearly 50% above the conventional products (Schmid and Richter, 2000).
- 3. Debio is the control and approval organization for production, refining and import of organic food. Debio approves the use of the Ø-label (Ø for organic/økologisk) and the combination of the Ø-label and the Demeter-label (Demeter for bio-dynamically grown products). The Ølabel is the consumer's guarantee for approved organic products (http://www.debio.no (retrieved 6 April 2001)).
- 4. Debio: http://www.debio.no/prod/debprpr.htm (retrieved 4 February 2002).
- 5. For further readings see Irwin (2001), MacNaghten and Urry (1998), and Dickens (1996).
- 6. 16% eat organic food 1–2 times per month, 44% a few times a year, while 34% never eat organic food.
- 7. Debio is the control and approval organ of organic farming in Norway.
- 8. The production register includes all Norwegian farms with a minimum of production.
- 9. "On the whole, Norwegian agriculture is environmentally friendly," "Agricultural use of chemicals will after some time cause serious environmental damage," "The environmental criticism directed towards Norwegian agriculture is just," "Genetic engineering may solve future environmental problems in agriculture," "There has to be a fundamental adjustment in production methods to bring agriculture and the nature into balance," "Agriculture does not damage the environment as much as industry does," "Existing husbandry is satisfactory for animal welfare," "All animals should have the possibility to be outdoors," "Free-range animals are happier than animals in pens."
- 10. The different claims were evaluated on Likert scales with the categories 1: totally agree, 2: agree, 3: both and 4: disagree, and 5: totally disagree. These scales are developed for the purpose of measuring attitudes. Such scales are evaluated by respondents to be proportional, which means that we can employ statistical tests at this level.
- 11. Test of homogeneity of variance (Levene statistic) indicated that the variance is different within the groups. By so, Anova tests can give misleading results. Therefore, we have chosen to use the non-parametric Kruskal–Wallis Test, which showed that there were statistically significant differences between the groups for the clams (for all P >0.001).
- 12. "On the whole, Norwegian agriculture is environmentally friendly," "Agricultural use of chemicals will after some time cause serious environmental damage," "The environmental criticism directed towards Norwegian agriculture is just," "There has to be a fundamental adjustment in production methods to bring agriculture and the nature into balance," and "Agriculture does not damage the environment as much as industry does."
- "Genetic engineering may solve future environmental problems in agriculture."

- 14. "Existing husbandry is satisfactory for animal welfare," "All animals should have the possibility to be outdoors," and "Free-range animals are happier than animals in pens."
- 15. In regression analysis where we use several attitude variables, multicollinearity might be a problem. Usually it is not interesting to differ between two seemingly equal attitudes. Values near 0 indicate a problem of multicollinearity. We have checked for possible multicollinearity between our three attitude variables in our two models. The tolerance values of the variables in the consumer model were: *environment* (0.83), *animal welfare* (0.84), *and genetic engineering* (0.92). The tolerance values for the variables in the producer model were: *environment* (0.82), *animal welfare* (0.83), *animal welfare* (0.83), *animal welfare* (0.84), *animal welfare* (0.84), *animal welfare* (0.84), *animal welfare* (0.84), *animal welfare*
- 16. The symbolic meaning of organic food is more important for people with a university/college education than for people with lower education (Bjørkhaug and Storstad, 2001). There is reason to believe that getting a positive response from friends (symbolic meaning) for consuming organically produced food is also a motivation for organic consumption, and this may explain some of the differences in consumption between people with different educational levels.
- 17. Research has been done on differences between female and male farmers. Different theories give varying explanations. Some theories will state that women have a more complete and resource conserving attitude while men are more concerned about economic profit (Braidotti et al., 1994). In an article on female farmers in Norway, Haugen and Brandth (1994) show that young female farmers have adopted the male way of farming, while older female farmers stand for a less intensive way of farming. More research is needed on this question, also to explain why the proportion of women is higher among organic farmers than among conventional farmers.

#### References

- Allen, P. and M. Kovach (2000). "The capitalist composition of organic: The potential of markets in fulfilling the promise of organic agriculture." *Agriculture and Human Values* 17(3): 221–232.
- Anon (1999). Organic Farms 1999. Plant Directorate. Copenhagen: Ministry of Foodstuffs, Agriculture and Fisheries.
- Beck, U. (1992). *Risk Society. Towards a New Modernity*. London: Sage Publications.
- Bjørkhaug, H. and B. E. Flø (1999a). "Production and distribution of organic food in norway- from the farmer's point of view." Paper no. 5/99. Trondheim: Centre for Rural Research.
- Bjørkhaug, H. and B. E. Flø (1999b). Mat og miljø. Frekvensrapport fra en undersøkelse gårdbrukere. [Food and Environment. Report of Frequencies from a Farmer Survey.] Report no. 14/99. Trondheim: Centre for Rural Research.
- Bjørkhaug, H. and O. Storstad (2001). En komparativ studie av økologisk forbruk i Norge og Danmark. [A Comparative

Study of Organic Consumption in Norway and Denmark.] Report no. 2/01, Trondheim: Centre for Rural Research.

- Braidotti, R., E. Charkiewicz, S. Häusler, and S. Wieringa (1994). Women, the Environment and Sustainable Development: Towards a Theoretical Synthesis. London: Zed Books in association with INSTRAW.
- Brandth, B. and A. Bolsø (1992). "Men, women and biotechnology: a feminist 'care' ethic in agricultural science?" In S. Whatmore, T. Marsden, and P. Lowe (eds.), *Gender and Rurality*. Critical Perspectives on Rural Change Series VI, London: David Fulton.
- Bredahl, L. (2000). "Determinants of consumer attitudes and purchase intentions with regard to genetically modified foods – results of a cross-national survey." MAPP Working paper no. 69/2000. Aarhus, Denmark: The Aarhus School of Business.
- Brekke, O. A. (1995). Differensiering og integrasjon. Debatten om bioteknologi og etikk i Norge. [Differentiation and Integration. The Debate about Biotechnology and Ethics in Norway.] Bergen: The LOS-Centre.
- Buck, D. C., C. Getz, and J. Guthman (1997). "From farm to table: The organic vegetable commodity chain of northern California." *Sociologia Ruralis* 37(1): 3–20.
- Dalen, E. (2000). "Nordmenns holdninger til norskproduserte landbruksvarer." ["Norwegians' attitudes towards domestically produced food."] *Kjøttets tilstand 2000.*
- Dickens, P. (1996). Reconstructing Nature. Alienation, Emancipation and the Division of Labour. London: Routledge.
- DuPuis, E. M. (2000). "Not in my Body: rBGH and the rise of organic milk." *Agriculture and Human Values* 17(3): 285– 295.
- EU Commission (2000). Report on the Assessment of the Geographical BSE-Risk (GBR) of Norway.
- Fairweather, J. R. (1999). "Understanding how farmers choose between organic and conventional production: Results from New Zealand and policy implications." *Agriculture and Human Values* 16(1): 51–63.
- Flø, B. E. (2000). "Organic farming in marginalized areas: A study from Norway." In R. A. Caulfield and M. Kojima (eds.), *Northern Communities and the Global Economy*. Proceedings of the fifth CASS field course, Alaska 2000.
- Flø, B. E. and H. Bjørkhaug (1999). "Økologisk produksjon – rusk i forgassaren eller lågt dreiemoment?" ["Organic production – Problems and barriers."] Note no. 7/99, Trondheim: Centre for Rural Research.
- Hall, A. and V. Mogyorody (2001). "Organic farmers in Ontario: An examination of the conventionalization argument." *Sociologia Ruralis* 41(4): 399–422.
- Haugen, M. and B. Brandth (1994). "Gender differences in modern agriculture: The case of female farmers in Norway." *Gender & Society* 8(2): 206–229.
- Heggem, R. (2000). "Risiko, nyttevurdering og haldning til genmodifisert mat." ["Risk, benefit assessment and attitudes towards genetically modified food."] *Landbruksøkonomisk Forum* 4: 5–15.
- Infood (1997). *Forbrukernotat* [Note on the Consumer], August 1997.
- Innbjør, H. (1983). Økologisk jordbruk. [Organic Agriculture.] Oslo: Landbruksforlaget.

- Irwin, A. (2001). Sociology and the Environment. Cambridge: Polity Press.
- Liven, E. (2001). "Norsk dyrehelse verdens beste?" ["Animal health in Norway the best in the world?"] *Meieriposten* 2: 39–41.
- Lockeretz, W. (1997). "Diversity of personal and farm characteristics among organic growers in the northeastern United States." *Biolocicalo Agriculture and Horticulture* 14(1): 13– 24.
- MacNaghten, P. and J. Urry (1998). *Contested Natures*. London: Sage Publications.
- Michelsen, J. (2001). "Recent development and political acceptance of organic farming in Europe." Sociologia Ruralis 41(1): 3–20.
- Morgan, K. and J. Murdoch (2000). "Organic vs. conventional agriculture: Knowledge, power and innovation in the food chain." *Geoforum* 31: 159–173.
- Murdoch, J. and T. Marsden (1994). *Reconstructing Rurality*. London: London Press.
- Murdoch, J. and M. Miele (1999). "'Back to Nature': Changing 'Worlds of production' in the Food Sector." *Sociologia Ruralis* 39(4): 465–483.
- Nygård, B. and R. Almås (1996). "Consumer acceptance of genetically engineered foods perceived and real risks." Paper no. 6/96, Trondheim: Centre for Rural Research.
- Nygård, B. and O. Storstad (1998). "De-globalization of food markets? consumer perceptions of safe food: The case of Norway." *Sociologia Ruralis* 38(1): 35–53.
- Padel, S. (2001). "Conversion to organic farming: A typical example of the diffusion of an innovation." *Soiologica Ruralis* 41(1): 40–61.
- Schmid, O. and T. Richter (2000). Marketing Measures for Selling Organic Food in European Retail Chains – Key Factors of Success (pp. 519–522). Proceedings of the 13th International IFOAM Scientific Conference, Basel. Zürich: Hochschulverlag.

- Seippel, Ø. (1995). Fra natur til handling: en empirisk analyse av forholdet mellom natursyn, forbruk og politisk atferd.
  [From Nature to Action: An Empirical Analysis of the Relations between Attitudes towards Nature, Consumption and Political Attitudes.] Report no. 3: 95. Oslo: Prosjekt alternativ framtid.
- Statistics Norway (2000). *Statistics of Norway 2000*. Oslo: Statistisk sentralbyrå.
- Statistics Norway (2002). http://www.ssb.no/emner/10/04/10/ jt1999/tab-2001-04-03-01.html (retrieved 15 May 2002).
- Storstad, O. (2000). "Økoforbrukeren spiser for naturens beste." ["The organic consumer eats for the good of nature"]. Landbruksøkonomisk Forum 4: 17–30.
- Storstad, O. (2001). "The impact of consumer trust in the norwegian food market." In H. Tovey and M. Blanc (eds.), *Food, Nature and Society. Rural Life in Late Modernity.* Aldershot, UK: Ashgate.
- Storstad, O. and A. Haukenes (2000). Forbrukeroppfatninger om mat og risiko. Resultater fra en spørreundersøkelse. [Consumer Opinion about Food and Risk. Results from a Survey.] Report 10/00, Trondheim: Centre for Rural Research.
- Tovey, H. (1997). "Food, environmentalism and rural sociology: On the organic farming movement in Ireland." *Sociologia Ruralis* 37(1): 22–37.
- Vartdal, B. (1993). Motivasjon og mestring av omlegging til økologisk jordbruk. [Motivation for Organic Agriculture]. Report 3/1993. Trondheim: Centre for Rural Research.
- Vos, T. (2000). "Visions of the middle landscape: Organic farming and the politics of nature." *Agriculture and Human Values* 17(3): 245–256.

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