

The Promised Land? Potential implications of cultivated proteins for Norwegian agriculture

Protein 2.0 Final Conference

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Introduction

AIM: To examine how future environments and rural landscapes are represented in the promissory narratives of cellular agriculture articulated within news and industry media, how these promissory narratives are contested, and the narrative silences.

These silences represent the under- and un-explored questions, uncertainties, contingencies, and eventualities of these potential developments.



The promised land? Exploring the future visions and narrative silences of cellular agriculture in news and industry media

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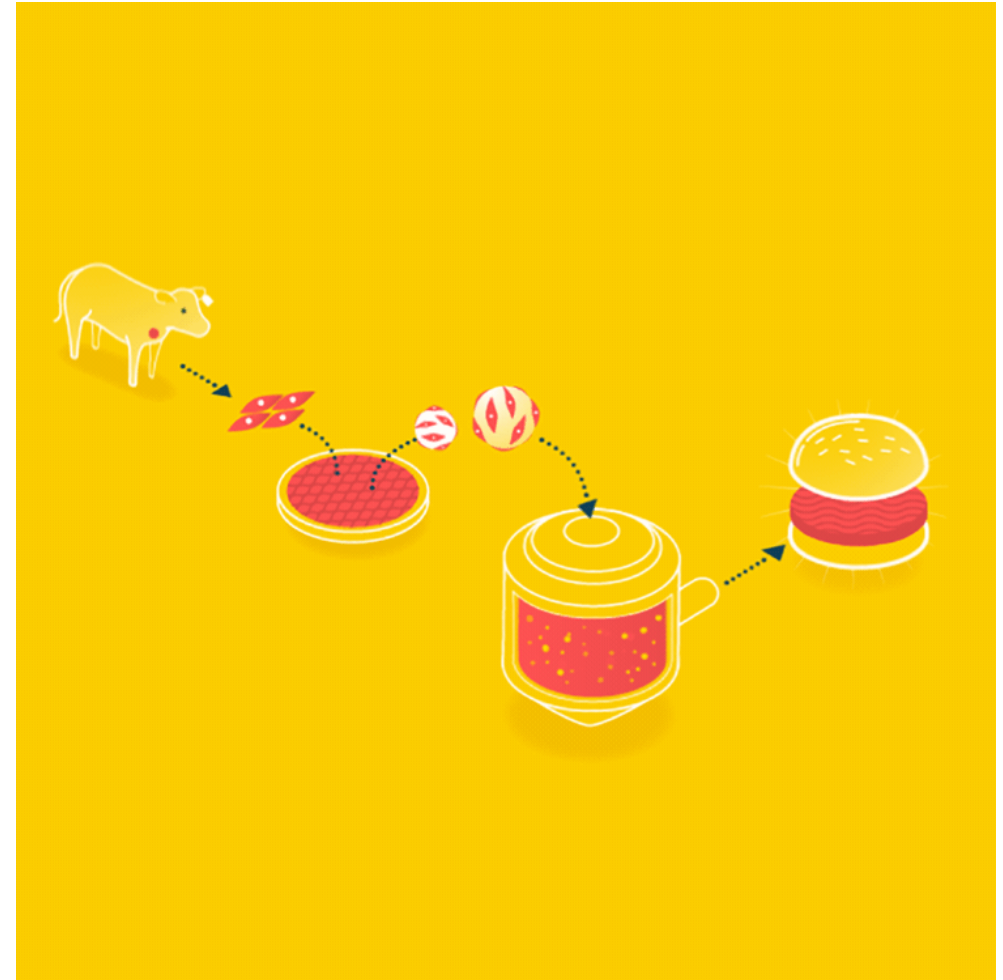
Attention to these silences is important because, as noted by Jönsson (2016) the dominant promissory discourse is silent on **how these technologies could remake the world.**

Promissory Expectations

Before an innovation has emerged and become embedded within society future expectations about an emerging technology have 'real' implications.

They legitimize certain innovation trajectories over others, inform decision making, and attract/direct research resources and focus.

Subsequently, although one cannot know the future, examining future visions is central to understanding the social, material, and political significance of nascent science and technology, and developing regulatory responses.



Method

- Public media is an important realm of discourse in which a politics of the future plays out. Different individuals, organisations and companies use news media as a forum through which to promote their problem framings, socio-technical visions, and convince others (consumers, policymakers, investors etc.) to mobilise support for their promoted solution(s). Cellular agriculture has been no different.
- This article is based on three main sources of data: (a) websites of synthetic animal protein start-up companies, (b) traditional and sectoral news media outlets' articles discussing synthetic animal proteins, and (c) audio-visual media of interviews with synthetic protein company CEOs.



Replacing inefficient animal bodies – unlocking environmental benefits



A key environmental implication is that cellular agriculture might offer an opportunity for a restoration of nature and biodiversity. Vast tracts of land are potentially no longer needed to support animal grazing or feed production and many species of fish and oceanic ecosystems could be freed from commercial fishing pressure.

‘Handing back to nature’ becoming possible because livestock production systems are in economic and spatial retreat.



Current meat consumption is causing devastating damage to our planet.

Producing meat takes up 80% of all agricultural land, and contributes to around a fifth of all human-produced greenhouse gases.



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Efficient production is significant for further reasons - it will enable us to feed the future whilst limiting the environmental toll of doing so.

Meeting this demand through conventional means is positioned as unsustainably increasing pressure on already scarce land, water, and energy resources.

But by meeting this anticipated future demand with cellular technologies this environmental toll will be averted and food needs will be met. The vision of substituting animal agriculture softens considerably in this narrative.





What happens to rural communities?



“Who will take care of pasture land and mountain territories? ... How will we prevent rural exodus? The bright new world promised by in vitro promoters might not be the one expected by consumers.” Copa-Cogeca spokesperson reported in euractiv.com (Foote, 2020)



Norway's *ødegård* abandoned farms



Texola, Oklahoma, Former cotton production.
(Pop. 94% decline since 1930s)



Sutera, Italy, – 1500 down from 5,000 in 1970s.



Who cares for the countryside?



Many cultural landscapes important to regional identities and heritage are produced through livestock farming but are already experiencing problems maintaining their populations (Burton, 2018).

If these systems of production are lost how will it effect biodiversity?

Tuomisto (2019) observes that “a complete elimination of all livestock production [due to cellular agriculture] is not reasonable from the perspective of biodiversity conservation.”





What happens to the animals?



Cellular agriculture could continue and **exacerbate the ongoing extinction of agricultural breeds or see the revival of currently marginal breeds** as livestock farming moves to recapture values of local distinctness and cultural heritage to distinguish its products.

Opportunities for local food system renewal.



Norwegian Red cattle breed



Creating new monocultures?



What feedstock production chains will be needed to support cellular agriculture? Little is mentioned about the specific resource needs of these technologies but sugar is likely to be a core constituent for fermentation and cultured meat.

For Norway this likely means continued importation of feedstocks similar to current animal and fish feed demands.





Creating new environmental problems?





The prospective energy demand of cellular agriculture is one of the few areas where the environmental promises are explicitly contested.

“The energy issue is indeed a big question over the cultured meat industry, ... the power costs of running a cultured meat facility could make the industry quite environmentally damaging in terms of greenhouse gases, possibly even more so than conventional agriculture” Dr Michael Dent of IDTechX interviewed in Food Navigator (Askew, 2019)

Norway with its renewable energy resources could be a attractive space for production.



Conclusions



Conclusions

If successful cellular agriculture is likely to have disruptive and uneven consequences over time and place as promises are fulfilled and different destructive and creative silences are realised.

Cellular agriculture will create its own production systems and value chains which will have varied consequences for environments and landscapes.

The embeddedness of livestock and fishing in broader rural economies, environmental and biodiversity conservation, *and* environmental damage and loss.

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