Europe's Green Deal and Disruptive Rethinking of Food and Agriculture – who is ready?

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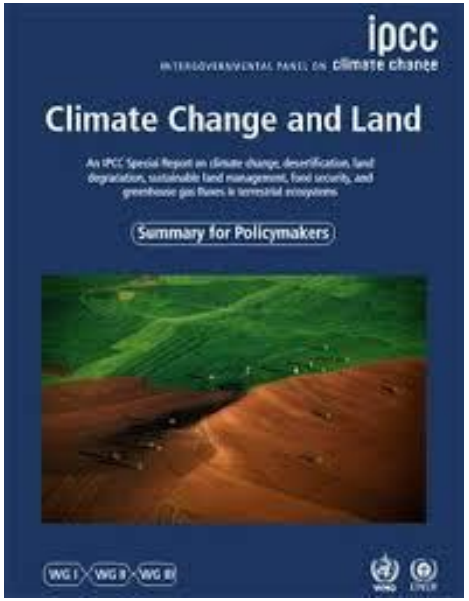
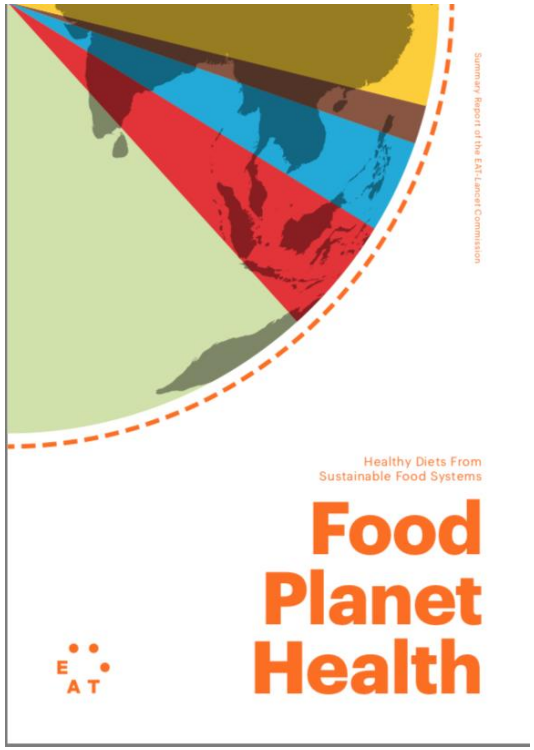
2020

A new, sustainable green revolution is coming…

Global Food Security
Sustainable, healthy food for all

The UK cross-government programme on food security research



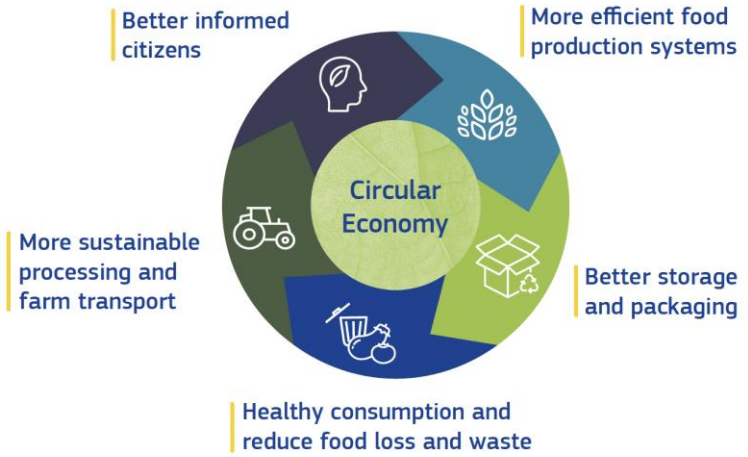


The EU will be **climate neutral in 2050**.
The Commission will propose a European Climate Law turning the political commitment into a legal obligation and a trigger for investment.

Reaching this target will require action by all sectors of our economy:

European food must remain safe, nutritious and of high quality. It must be produced with minimum impact on nature.

Farm to Fork will contribute to achieving a circular economy – from production to consumption:



UK
Agriculture Bill:

Public money for public goods

INDUSTRIAL STRATEGY

Transforming Food Production – the next phase

Challenge Director: Katrina Hayter

UK Research and Innovation

We will see more of all these – except perhaps cattle – but the implication is for fast, but incremental change

RethinkX

Disruption, Implications, and Choices

Rethinking Food and Agriculture 2020-2030

The Second Domestication of Plants and Animals, the Disruption of the Cow, and the Collapse of Industrial Livestock Farming

Part One

The Second Domestication of Plants and Animals

Figure 2. Millennia to Domesticate Macro-organisms, Decades to Domesticate Micro-organisms

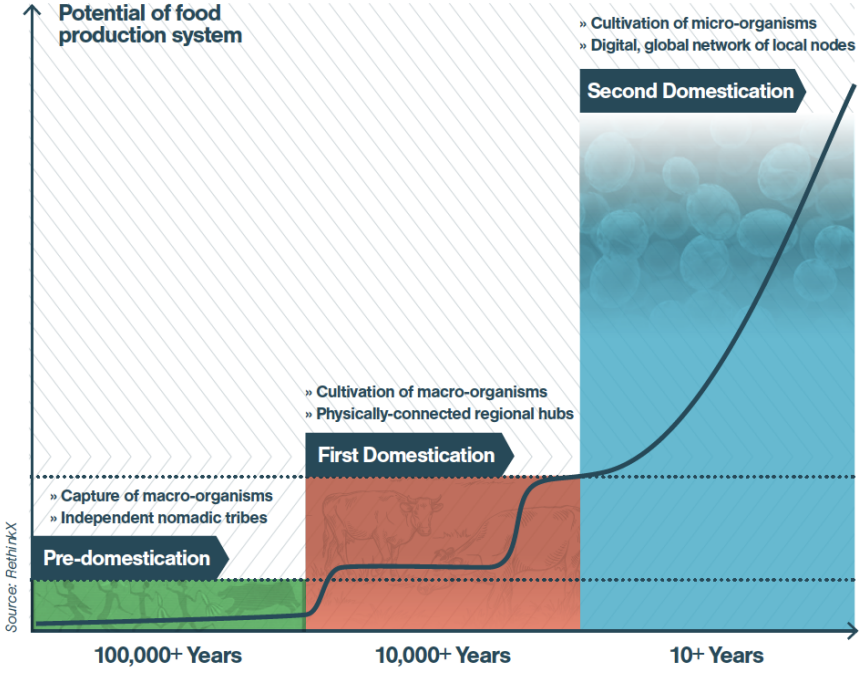
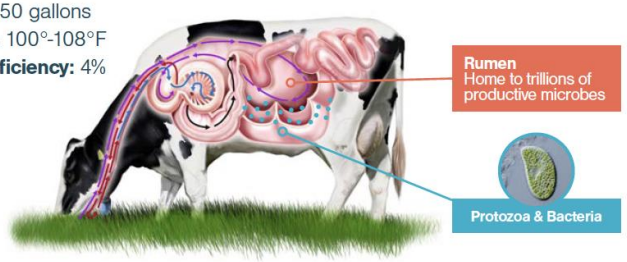


Figure 3. Precision Fermentation: Protein Production Unplugged

Cow Protein Production

Cow Rumen – the production of protein is the work of many microbes inhabiting the rumen of the cow.

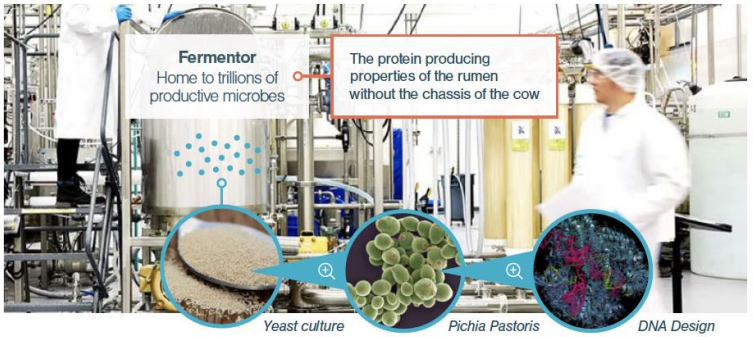
Capacity: 40-50 gallons
Temperature: 100°-108°F
Feedstock Efficiency: 4%



Precision Fermentation Protein Production

The production of protein is also the work of microbes, designed to manufacture desired proteins in tightly-controlled environments.

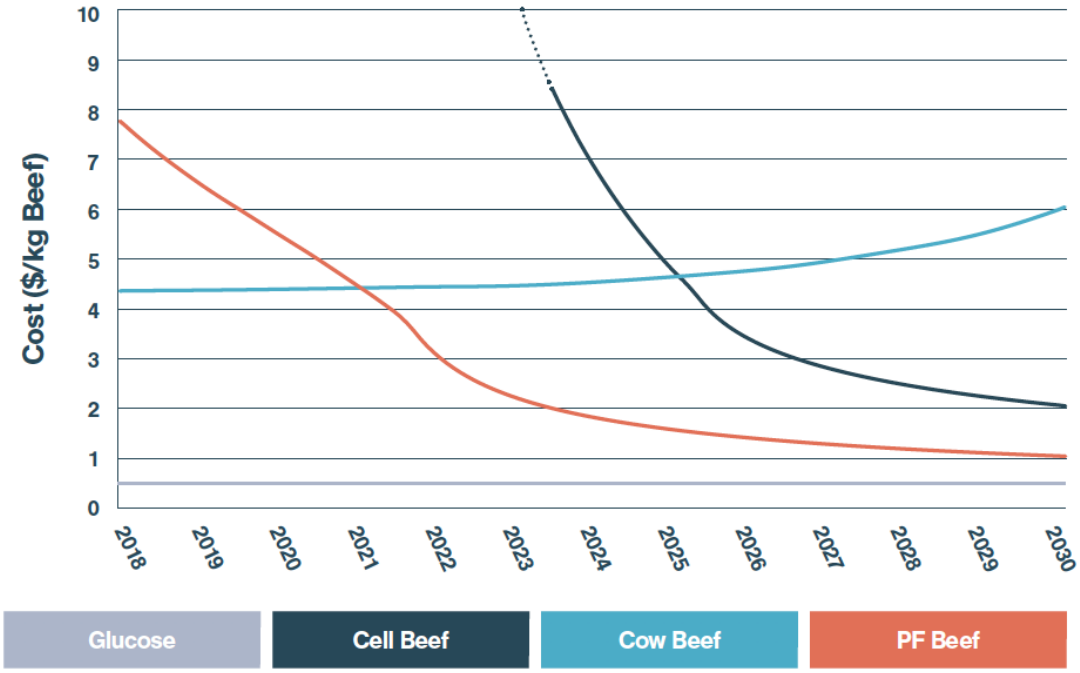
Capacity: 50-10,000 gallons
Temperature: Optimized
Feedstock Efficiency: 40%-80%



Source: RethinkX, Impossible Foods

By 2030, we expect a 70% reduction in the market for animal-derived ground beef in the U.S.

Figure 11. Cost Curves for Beef



Source: RethinkX

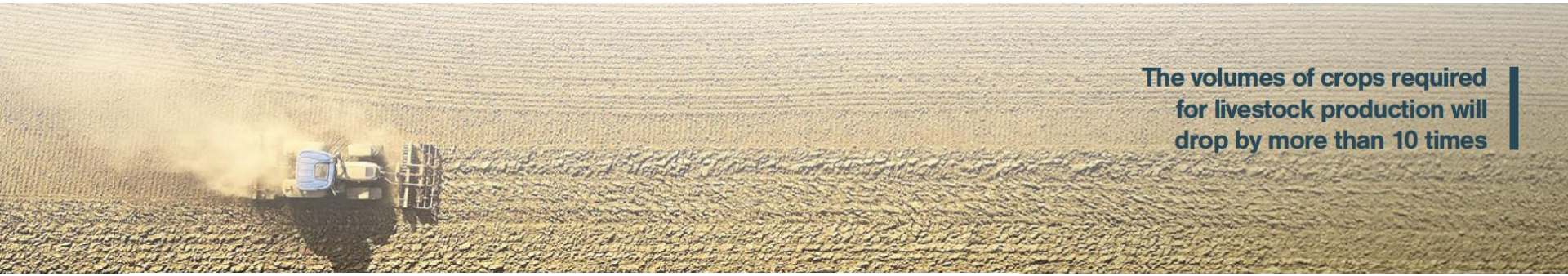
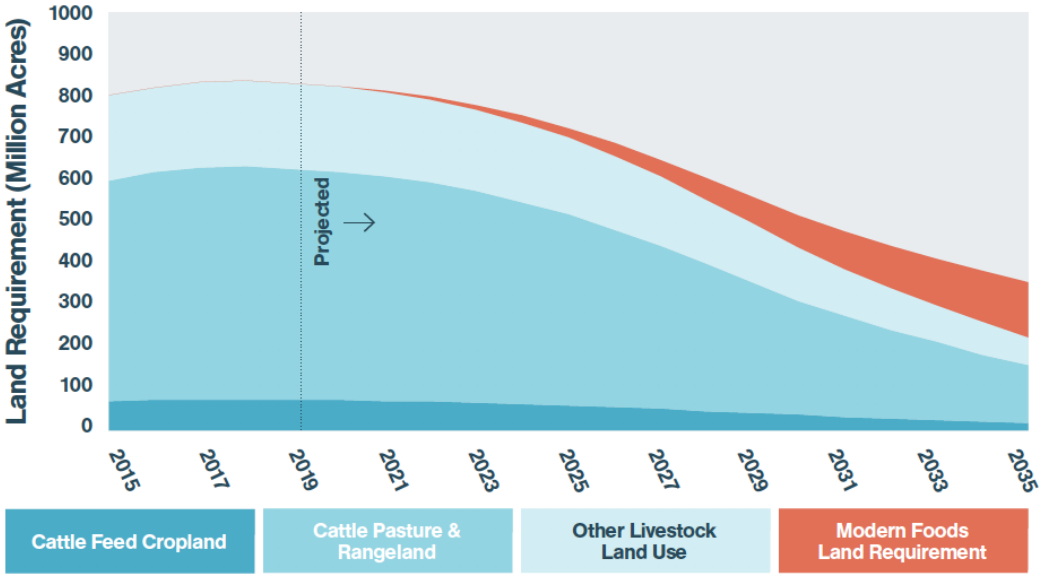


Figure 22. Estimated Change in U.S. Land Requirements Over Time



Source: RethinkX

85% of the UK's total land footprint is associated with meat and dairy production

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There are sectors which may benefit

What of rural economies?

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What of rural economies?

Many issues related to the disruption need careful ethical consideration
Synthetic food products are often made palatable with fats, salt and sugars - cheap foods need scrutiny

Horticulture adds value, colour, flavour, vitamins…

Opportunities abound post disruption.

Horticulture is less likely to face similar disruption because it is so variable…

…but growing techniques need to change rapidly