



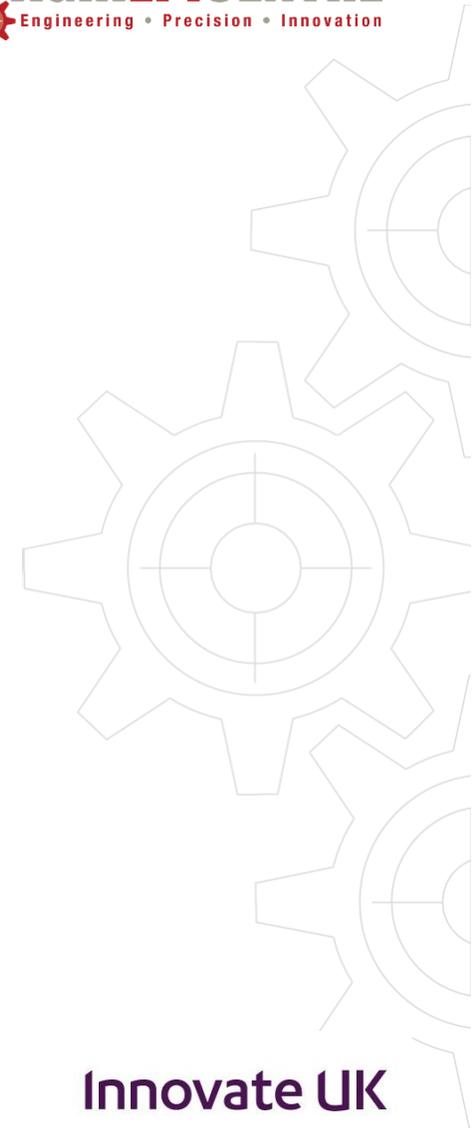
The modernisation of Iraqi agriculture

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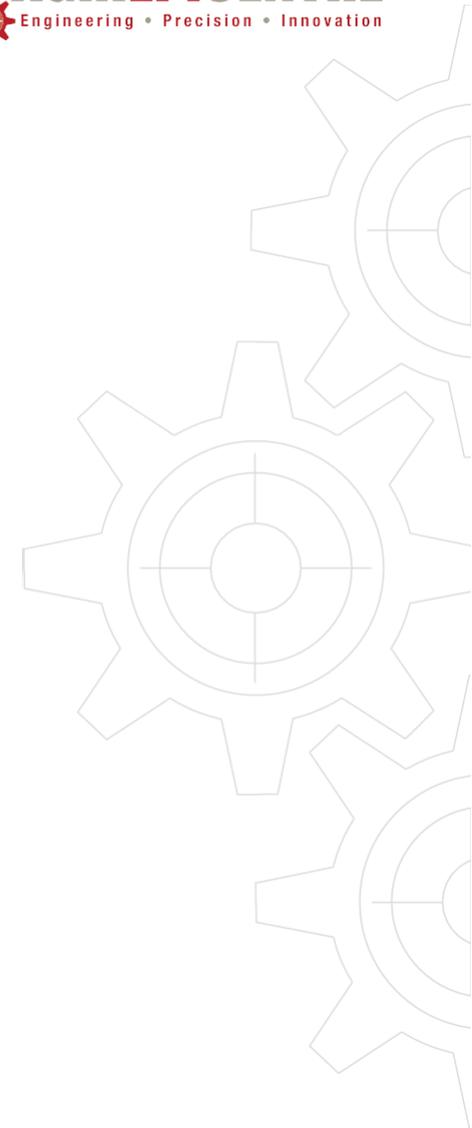
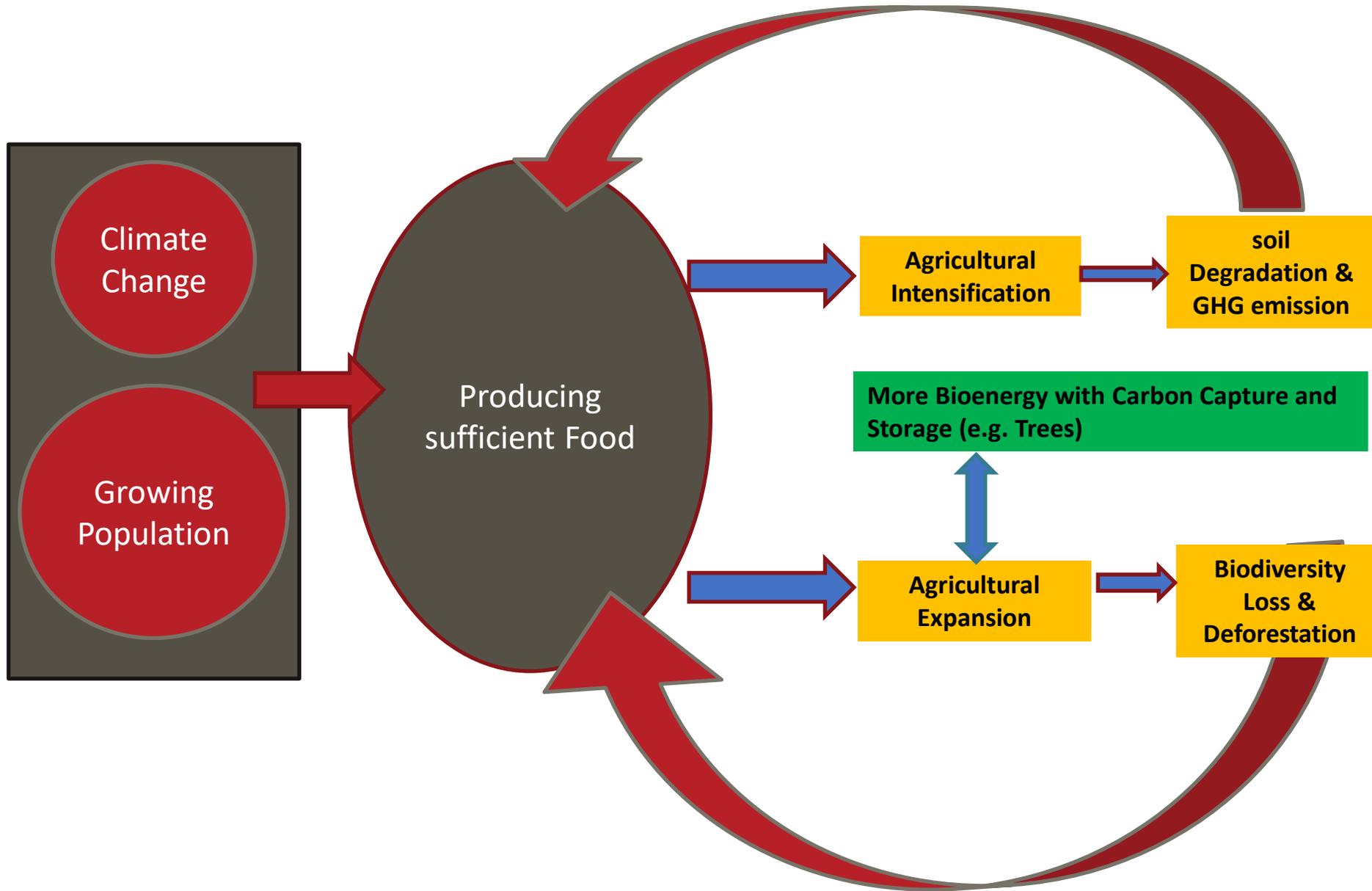


Department for
Business, Energy
& Industrial Strategy

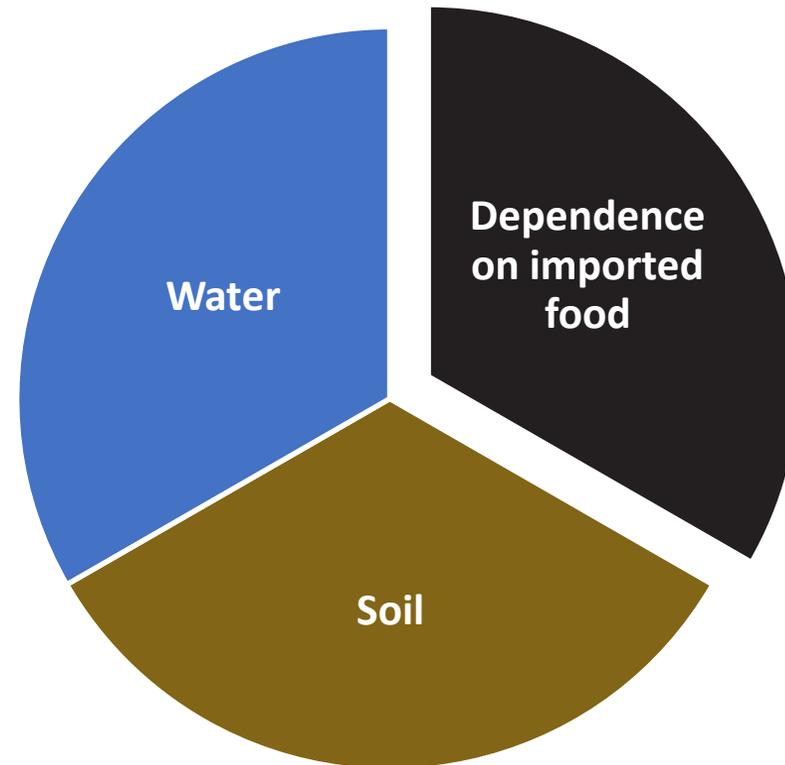


Innovate UK

Empowering world leading precision agricultural technology

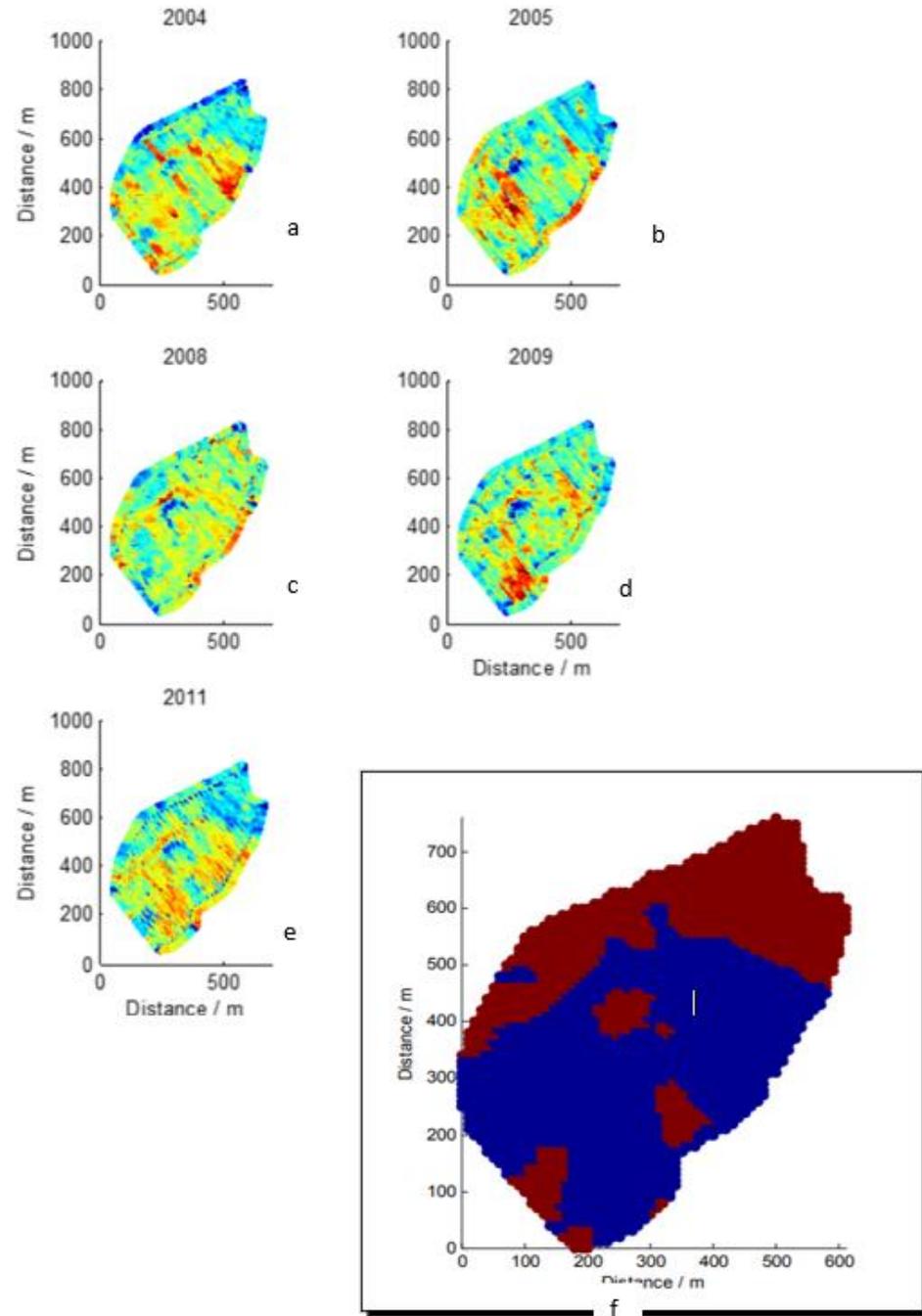


Food security in Middle East



Scarcity of water supply and limited availability of arable land with good soil quality. The region is highly vulnerable to fluctuations in international commodity markets because of heavy dependence on imported grains and food items.

Yield Maps



- Yield data needs to be ‘cleaned’ and errors removed.
- Only using yield data for crops that can provide a coherent map, such as winter wheat, oats and barley, rather than oilseeds or peas and beans. The latter produce a low-quality yield map due to inconsistency in the flow.
- Cluster analysis and zoning of the field to help farmers identify those parts that vary from one another across seasons.
- Using several recent maps (e.g. over last five years) to provide a better understanding of the overall field conditions

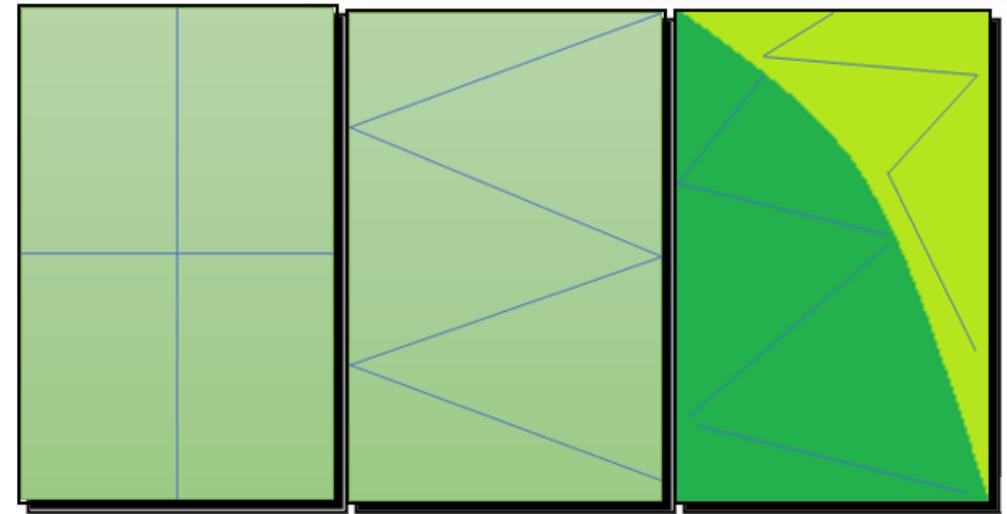
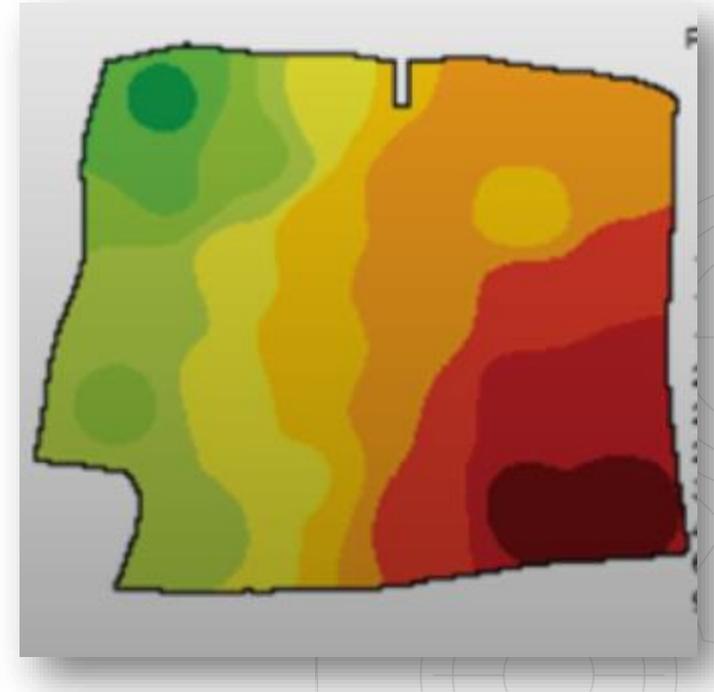
Soil management zoning and site-specific management

Identifying soil variation is the first step in site-specific management.

The second step is to quantify the variation.

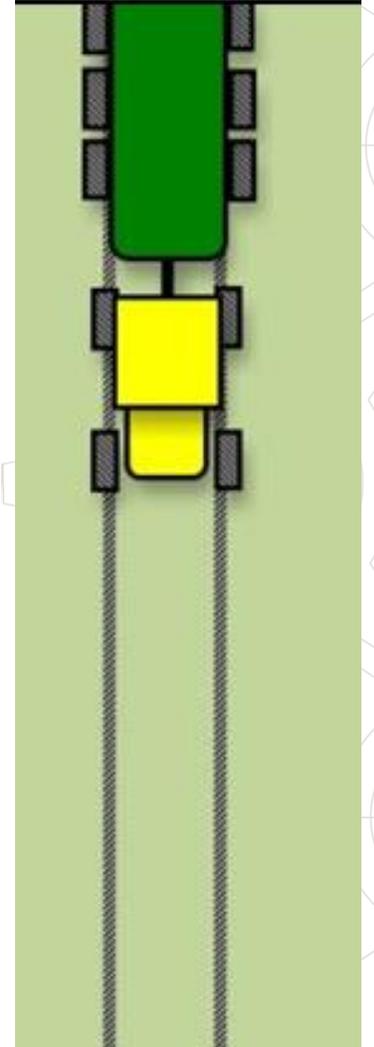
Then we can manage these variabilities

→ Soil brightness (EO), EC and soil analysis



Auto-steering systems

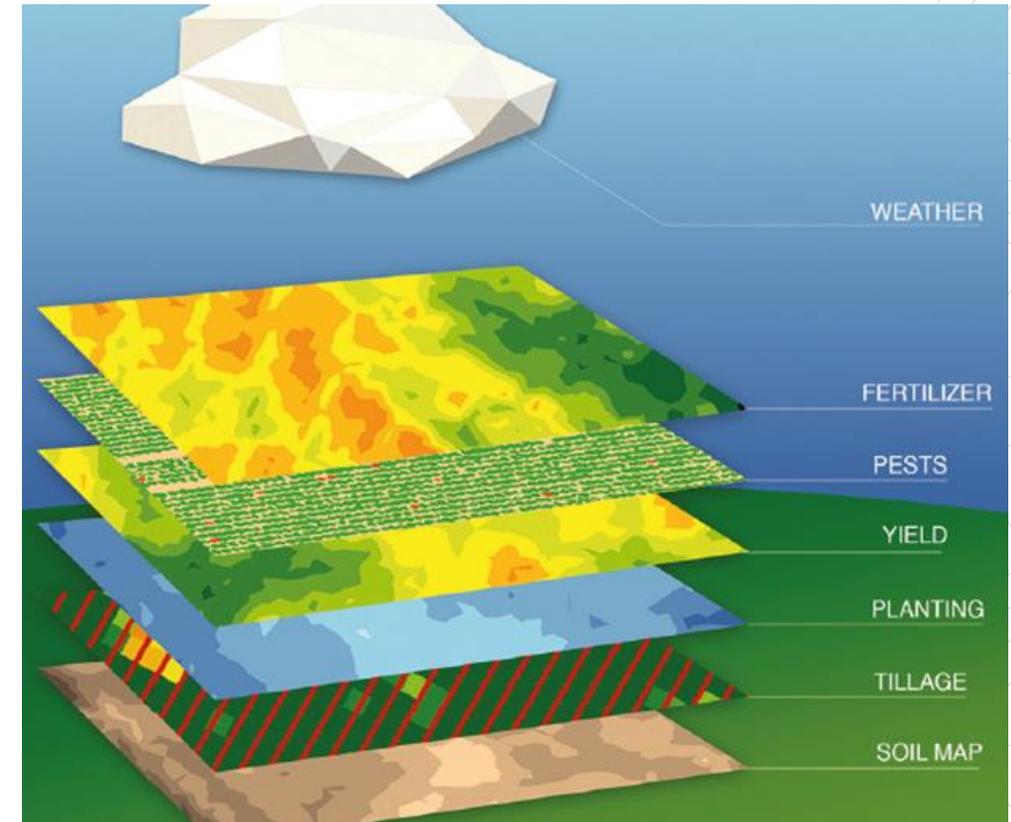
- Auto-steering makes it possible to reduce overlap during input applications or cultivation, which minimises the cost of inputs and fuels.
- There is significant cost associated with investing in these systems, such as the guidance system and an accurate GPS system using RTK.
- However, the benefits from overlap reduction will more than match the cost of the system, especially for farms with more than 300ha of land (Knight et al, 2009).



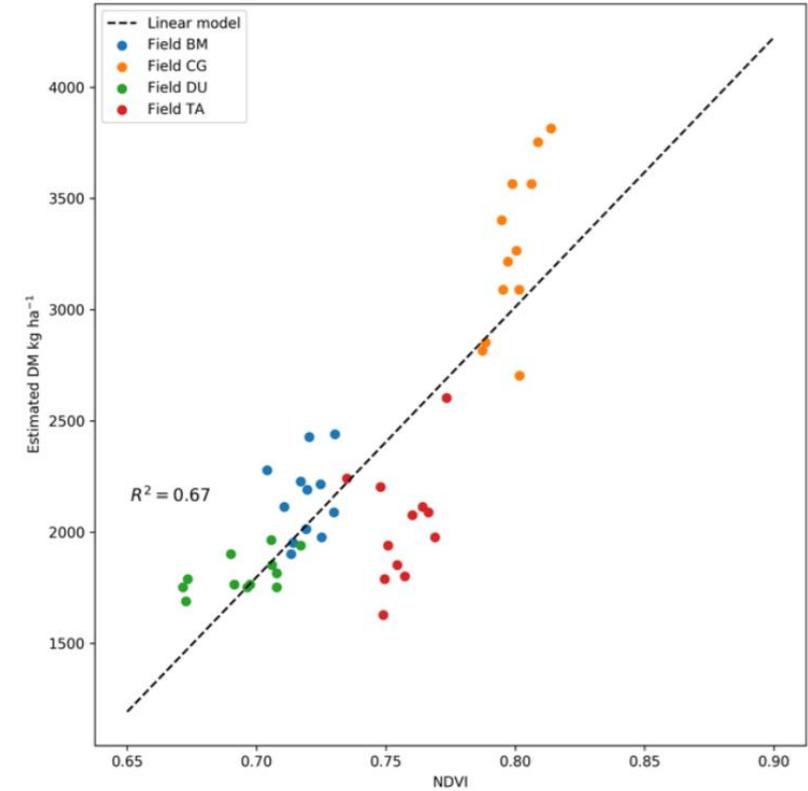
Earth Observation data

in the past decade the number of satellite platforms and the resolution of the data collected has increased substantially, and at significantly reduced cost.

There are satellite platforms (publicly owned) providing data with reasonable spatial resolution (10 metres) free of charge.



UAV – crop biomass estimation (e.g. grass)



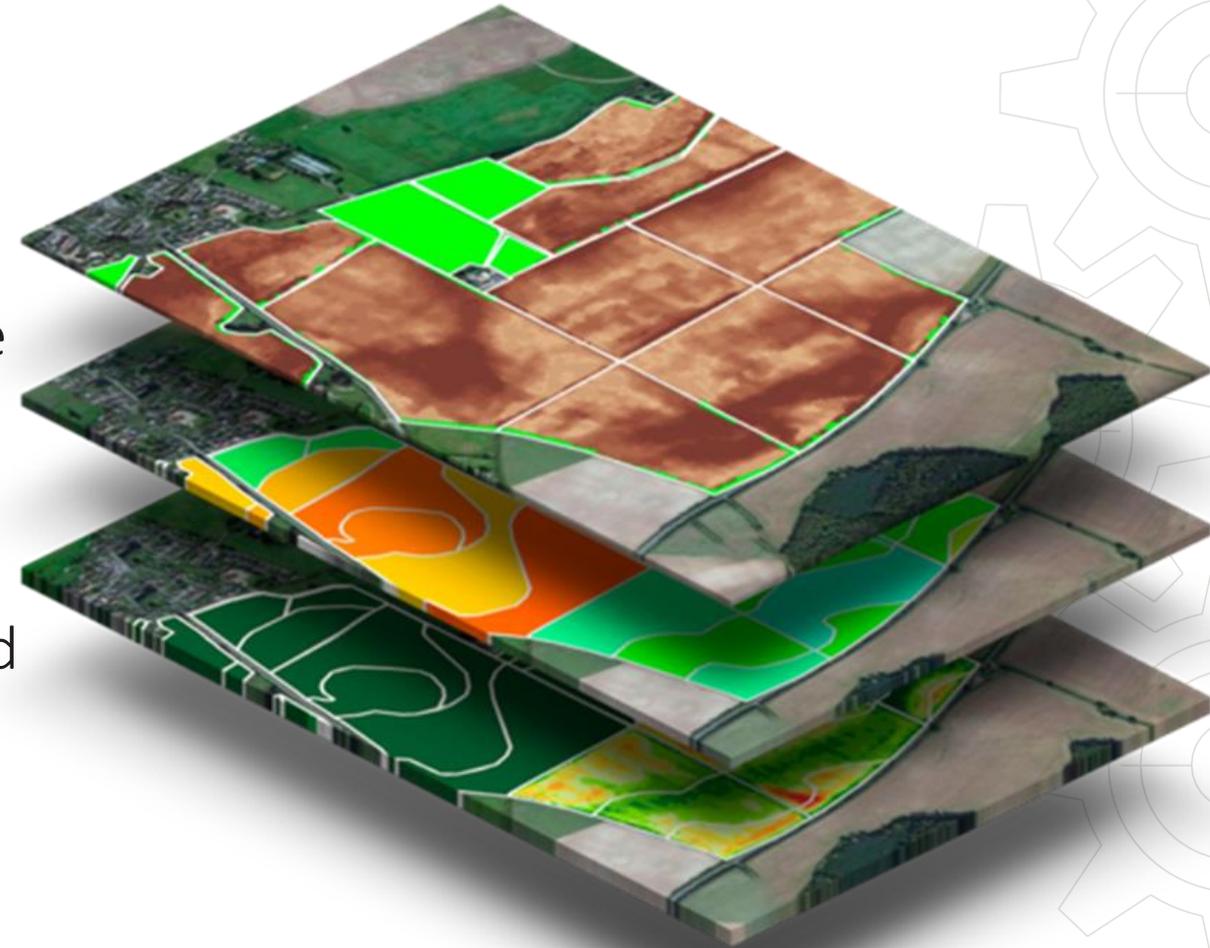
Robotics and Autonomous Systems

The concept of Agriculture 4.0 is a fundamental transformation towards a greener industry, which is driven by the advancement in science and technology, that can provide integrated solutions to food supply chains



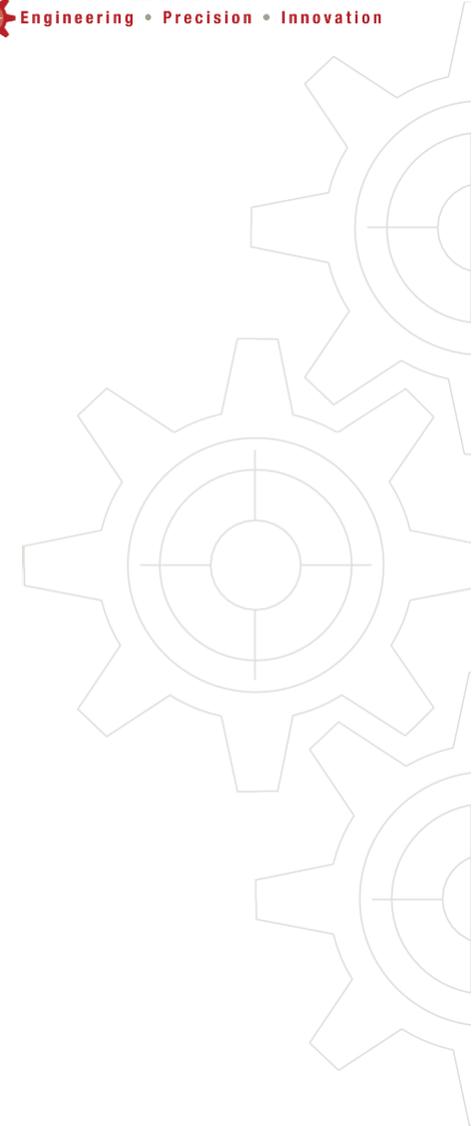
Digital technologies

- The agriculture industry is capturing more data than ever
- Data storage capacity has increased, storage cost has plummeted, and computational power has grown.
- Meanwhile, both predictive data science and prescriptive optimization techniques have matured and gained visibility.

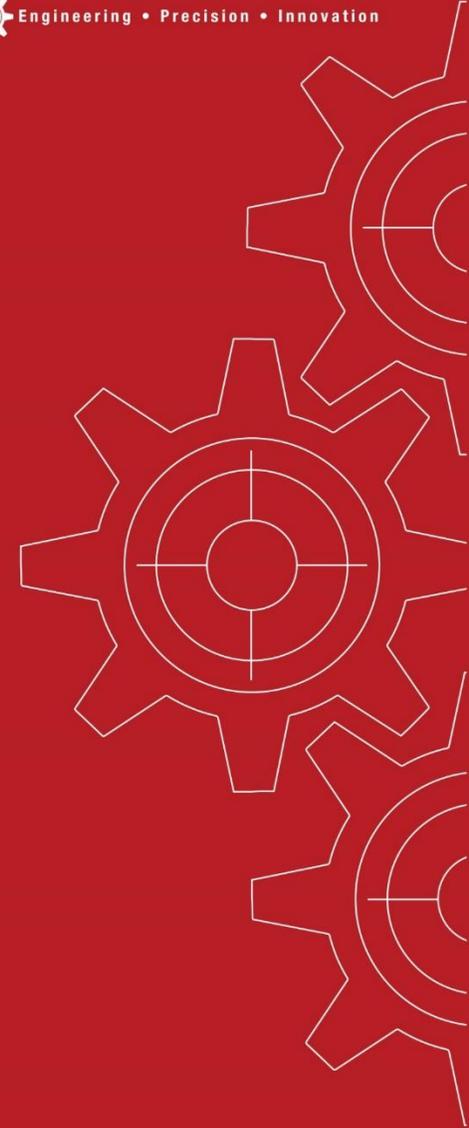


Digital technologies impacts on agriculture

- Increase system efficiency – Decrease waste
- Increasing resilience of food production systems
- A true cost of food production (Natural and economic cost)
- Diversify agriculture system (circular system e.g. mixed farms)
- Landscape approach (multi-functional landscapes)
- Creating space for BECCS by increasing efficiency and diversity
- Increasing monitoring and decision-making power

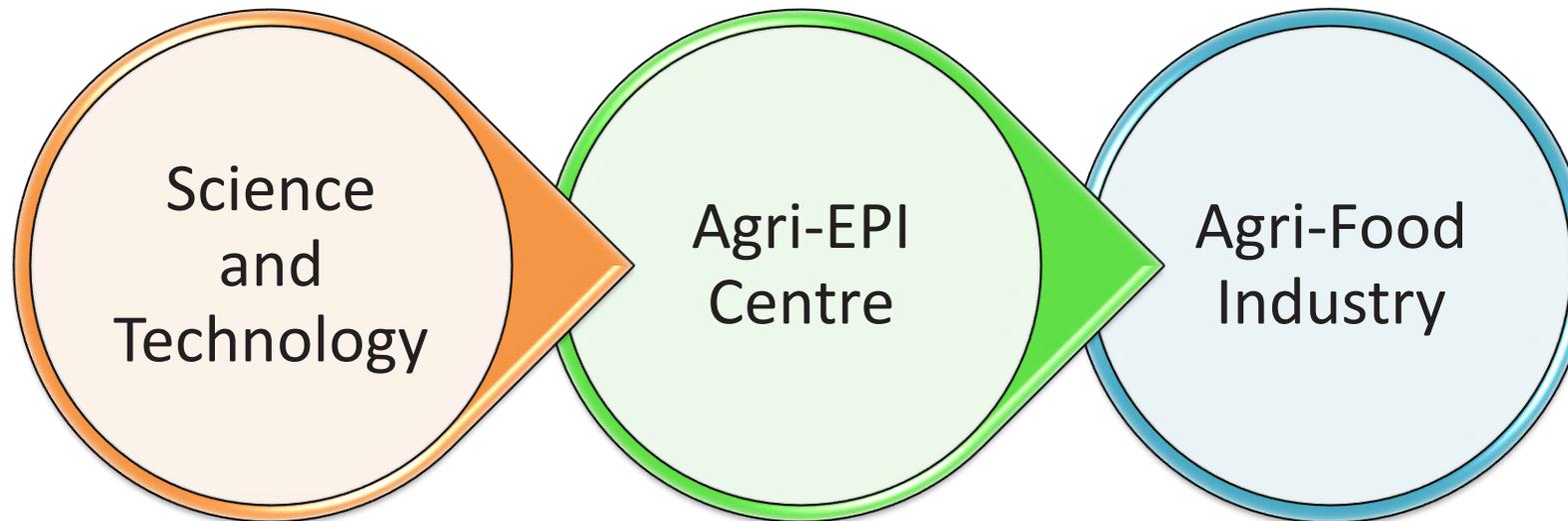


Agri-EPI Centre



Our purpose

To enable technological innovation and digital transformation in agriculture
to improve food security and environmental sustainability



Innovate UK



Our UK Satellite Farm Network

- Incubating & demonstrating emerging technology in the agri-tech sector
- Farm focussed research
- Working in partnership / collaboration
- Identifying and breaking down barriers to productivity
- Best practice
- KE – internal & external



Dairy Development Centre

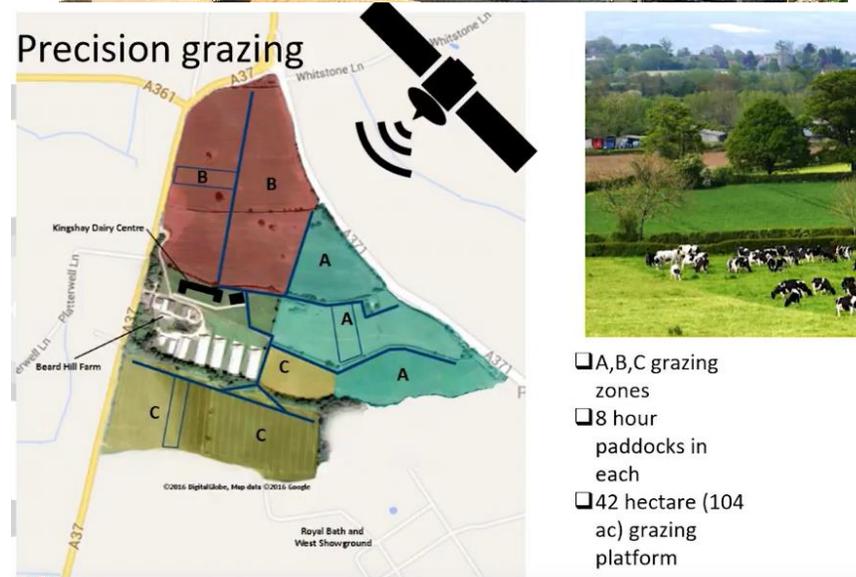
3 milking robots



Feed kitchen



Automated separation



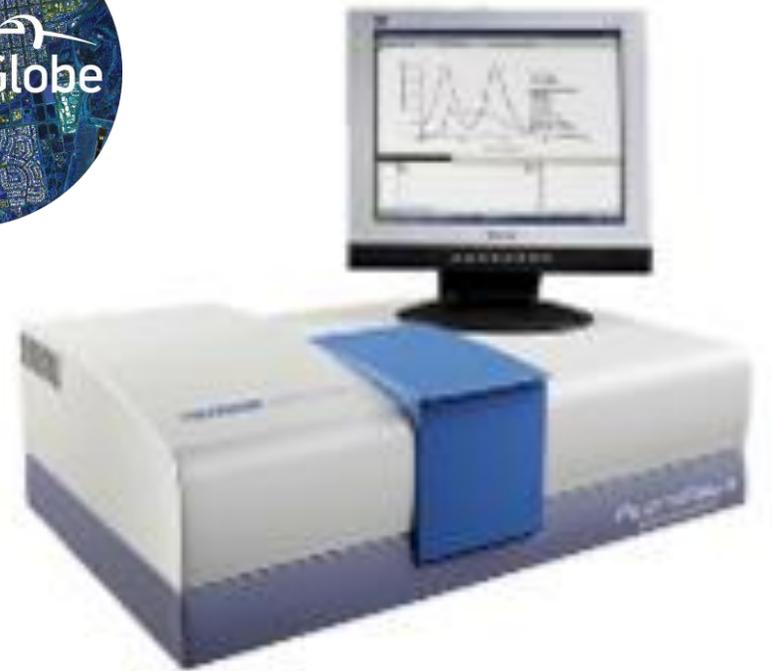
- Autonomous 180 cow dairy unit
- All cows housed together
- Fabric building

Fed 15 times daily



Agri-EPI Hub – Cranfield





Agri-EPI - International SmartFarms

China

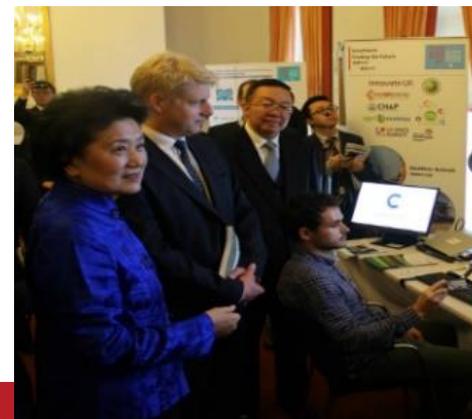
- Pioneering a new, holistic SMARTFARM concept.
- Central part of the UK and China Governments Flagship Challenge.

New Zealand

Exploring big data approaches to precision recording

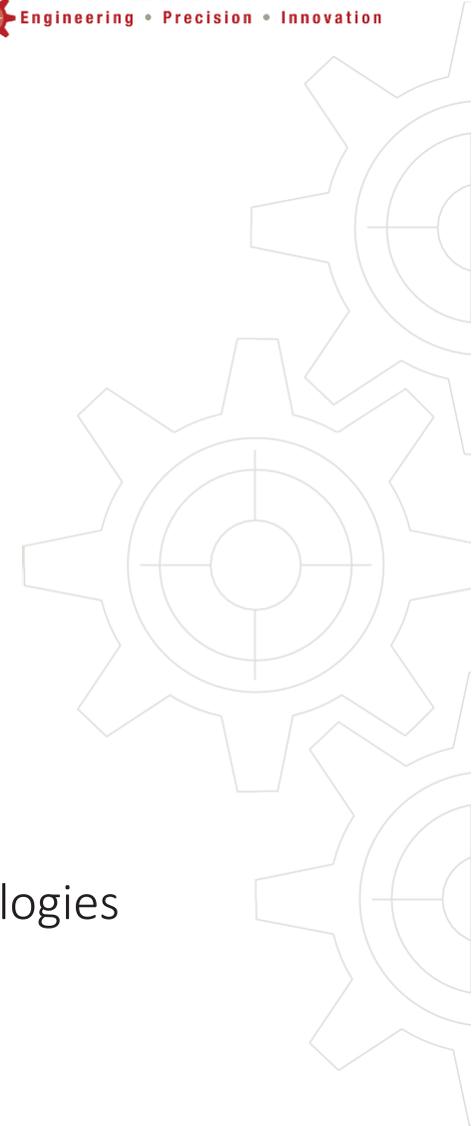
Paraguay

- New deployment in Paraguay
- Why Paraguay? Favourable trading laws across Mercosur for UK exporters.
- Untapped potential with large agri-food output growth planned



Potential area for collaboration Iraq-UK

- Digital soil mapping
- Varieties and breeding (drought tolerance varieties to maximise water use efficiency)
- Postharvest storage
- Training, education and research
- A farmers' cooperative (public and private partnership)
- SmartFarm Iraq-UK collaboration to develop and demonstrate the value of the technologies



Thank you

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