



# **Agribusiness 2019**

Creating a resilient Agri-food supply chain



**Agribusiness 2019**

**Creating a resilient  
UK Agri-food supply chain**

Creating a world leading crop  
health and protection sector  
for the UK

**Fraser Black**

*Chief Executive,  
Crop Health and Protection*

 #Agribiz2019





FOUR CENTRES  
ONE VISION

THE AGRI-TECH CENTRES OF  
AGRICULTURAL INNOVATION

# AGRI-TECH CENTRES

We work with  
**Innovate UK**

AGRI-TECH CENTRES  
INSPIRING INNOVATION



## Four Centres – One Vision

Industry-led application of world class science across the agri-food system, measured through:

Excellent basic science, but:

- Too fragmented to address strategic challenges
- Mostly not addressing real industry needs
- Lacking investment in translation
- Best practice not being shared or driven





73%  
Water

27% Land

13% Habitable

<4% Arable

# The Perfect Storm?



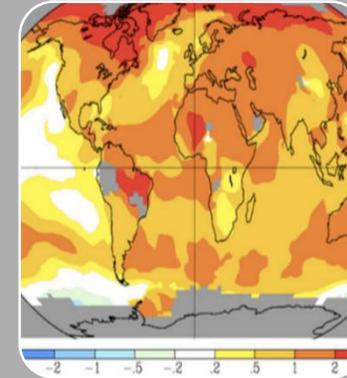
A growing population  
Every 3 days  
the global  
human  
population  
increases by  
70,000



Changing  
consumer  
preferences  
demanding a  
quality of food  
to an  
increasingly  
high social,  
environmental  
and ethical  
standard



Decreasing  
choice of pest,  
disease and  
weed control.  
40% loss of  
crops due to  
above.  
Reducing this  
loss by 1%  
could feed 25M  
more people



Geopolitical  
instability  
around  
shortages of  
land, water and  
energy

# What's the big deal with Sustainable Agricultural Productivity?



## SUSTAINABLE AGRICULTURE...



SATISFIES HUMAN  
NEEDS



ENHANCES  
ENVIRONMENTAL  
QUALITY



SUSTAINS THE  
ECONOMIC  
VITALITY OF  
AGRICULTURE



IMPROVES THE  
LIVES OF  
PRODUCERS &  
SOCIETY AS A  
WHOLE

2018 global agricultural productivity report

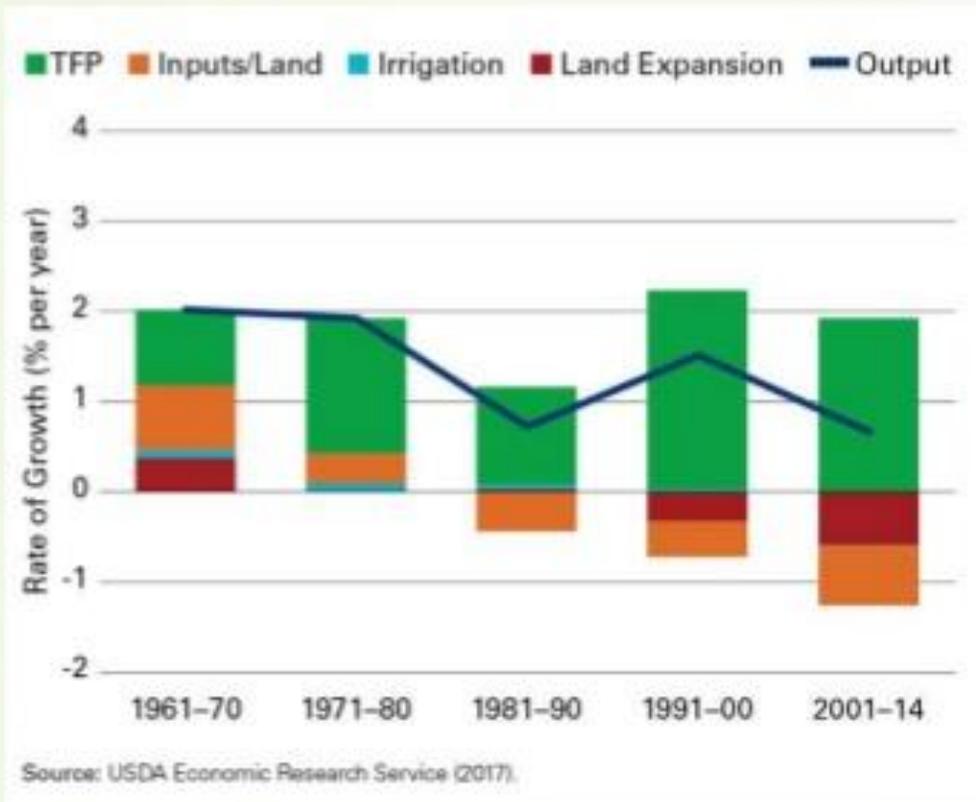


# How can we improve productivity ?



## HIGH-INCOME COUNTRIES

### SOURCES OF GROWTH IN AG OUTPUT



# UK Productivity lagging

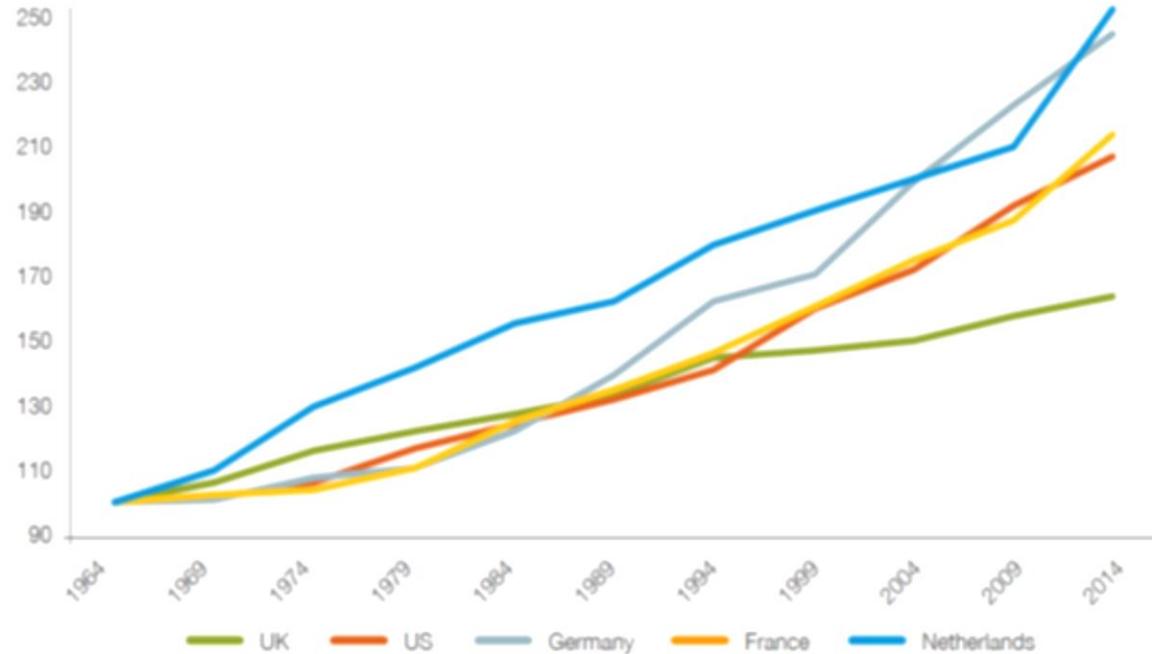


Figure 1. Total factor productivity (TFP) annual growth 1964–2014

UK Productivity shows marginal increase BUT comparatively losing ground on key EU countries and US.

Immediate and urgent need to improve UK productivity

# Mission and Objectives



Industry & research in partnership to pull innovations from lab to farm and through the supply chain



Target sustainable intensification – produce more with less input and negative impact



Help develop, adopt and exploit new agri-technologies, practices and services **FASTER**



Facilitate collaboration in UK research base with an emphasis on translational research that has impact

**Sustainable  
Agricultural  
Productivity**

# How we work in partnership

Independent facilitator between industry and UK R&D

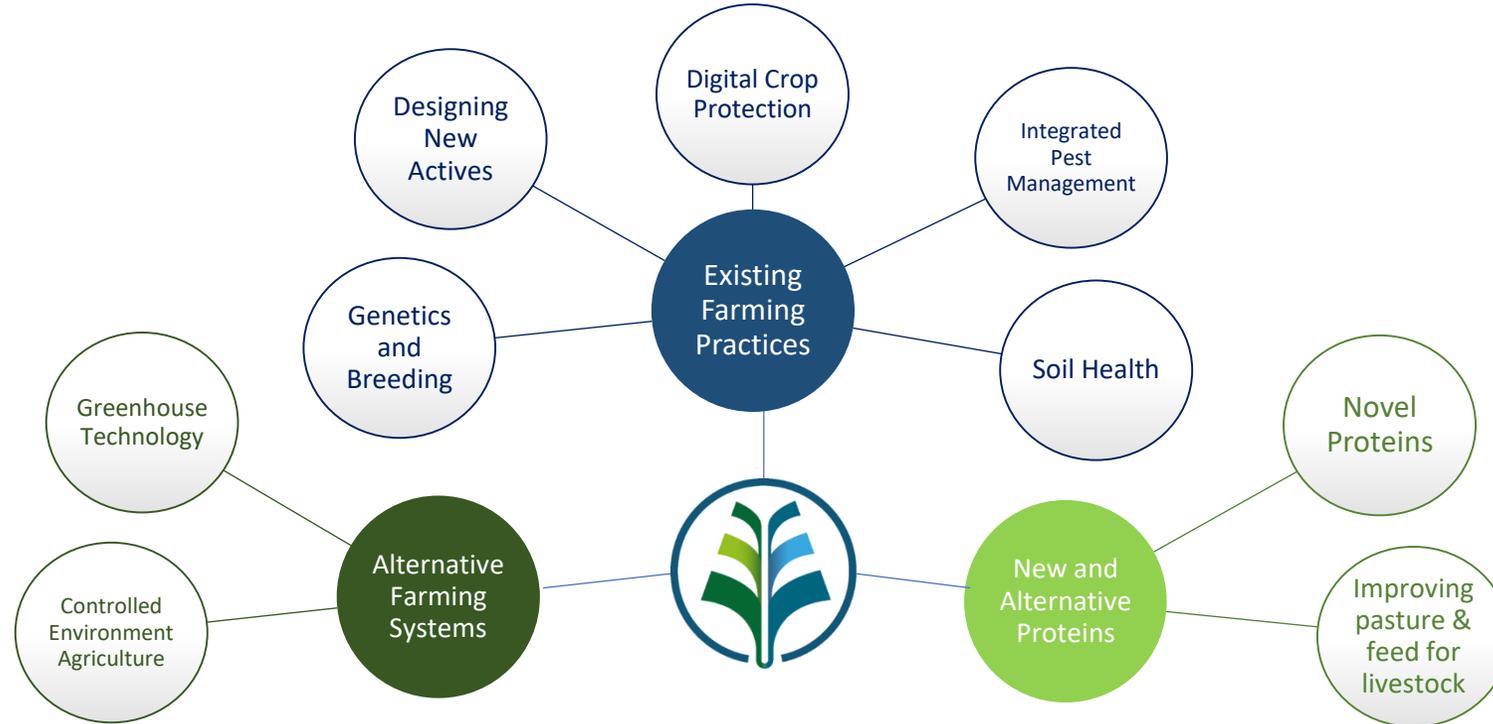
Invest, on behalf of government, in infrastructure to support delivery of translational research for adoption

Secure public & private research funding, bid writing and developing innovation network consortia

Provide professional project management of all contract research engagements

Seek out research to develop into new technologies, services, practices & systems

# Priority Focus Areas



## E-Flows Mesocosm

- Advanced testing facility to help commercial companies accelerate the process of bringing safer and more effective plant-protection products to market



# E-Flows Mesocosm



# Smart Farming Technologies

- Real-time data on pest and disease risks in season
- Helping farmers make accurate crop-treatment decisions
- Reducing waste and costs while improving yields

CropMonitor™ 



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CropMonitor™ 

Daily infection risk for Septoria tritici on a moderately susceptible cultivar of wheat (resistance rating)

Map data ©2018 GeoBasis-DE/BKG (©2009), Google, Inst. Geogr. Nacional, Terms of Use

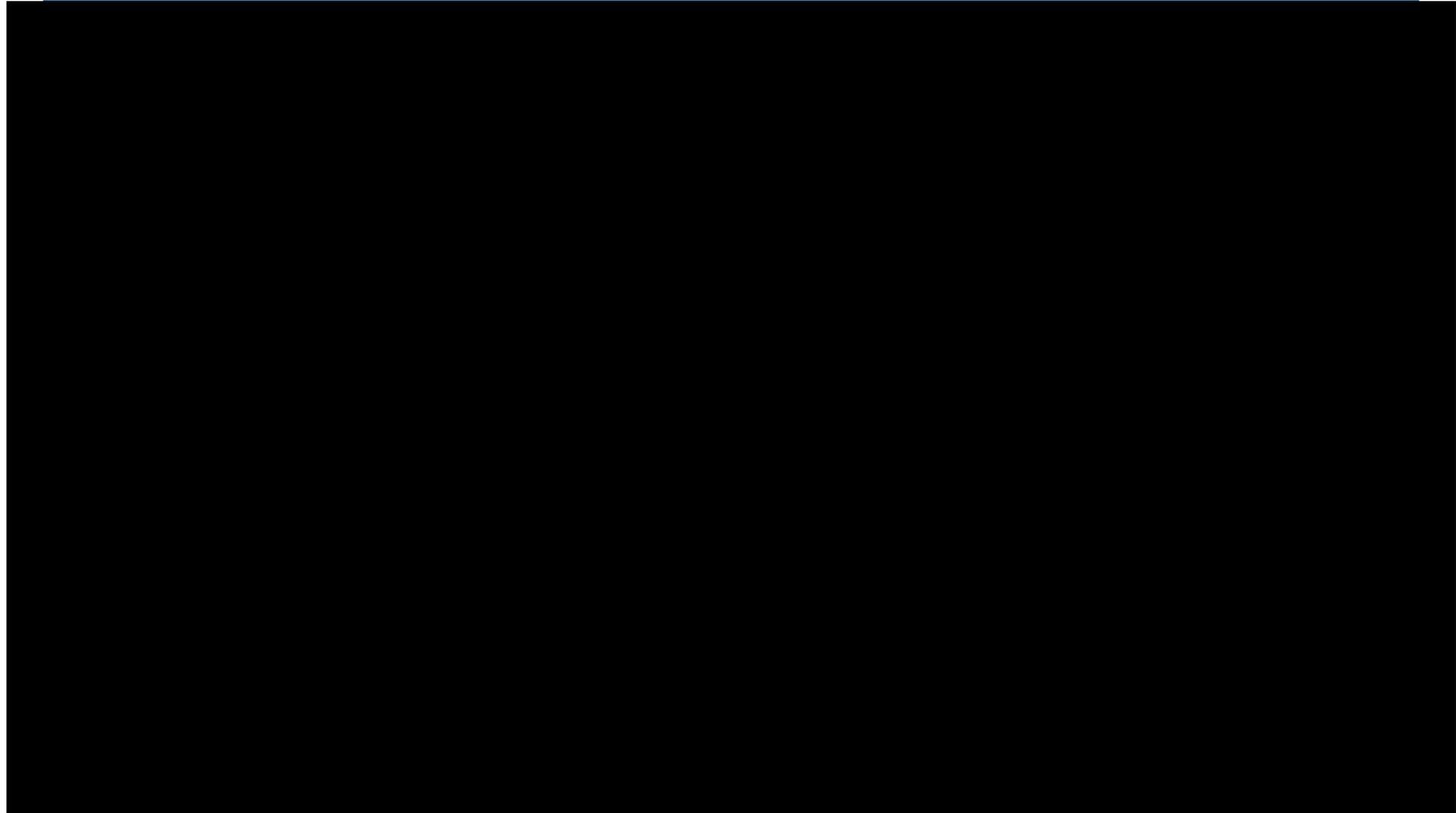
fera Original thinking... applied

We Work With INNOVATE UK  
Advancing sustainable solutions for  
crop health and protection

CHAP  
CROP HEALTH & PROTECTION  
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# Smart Farming Technologies



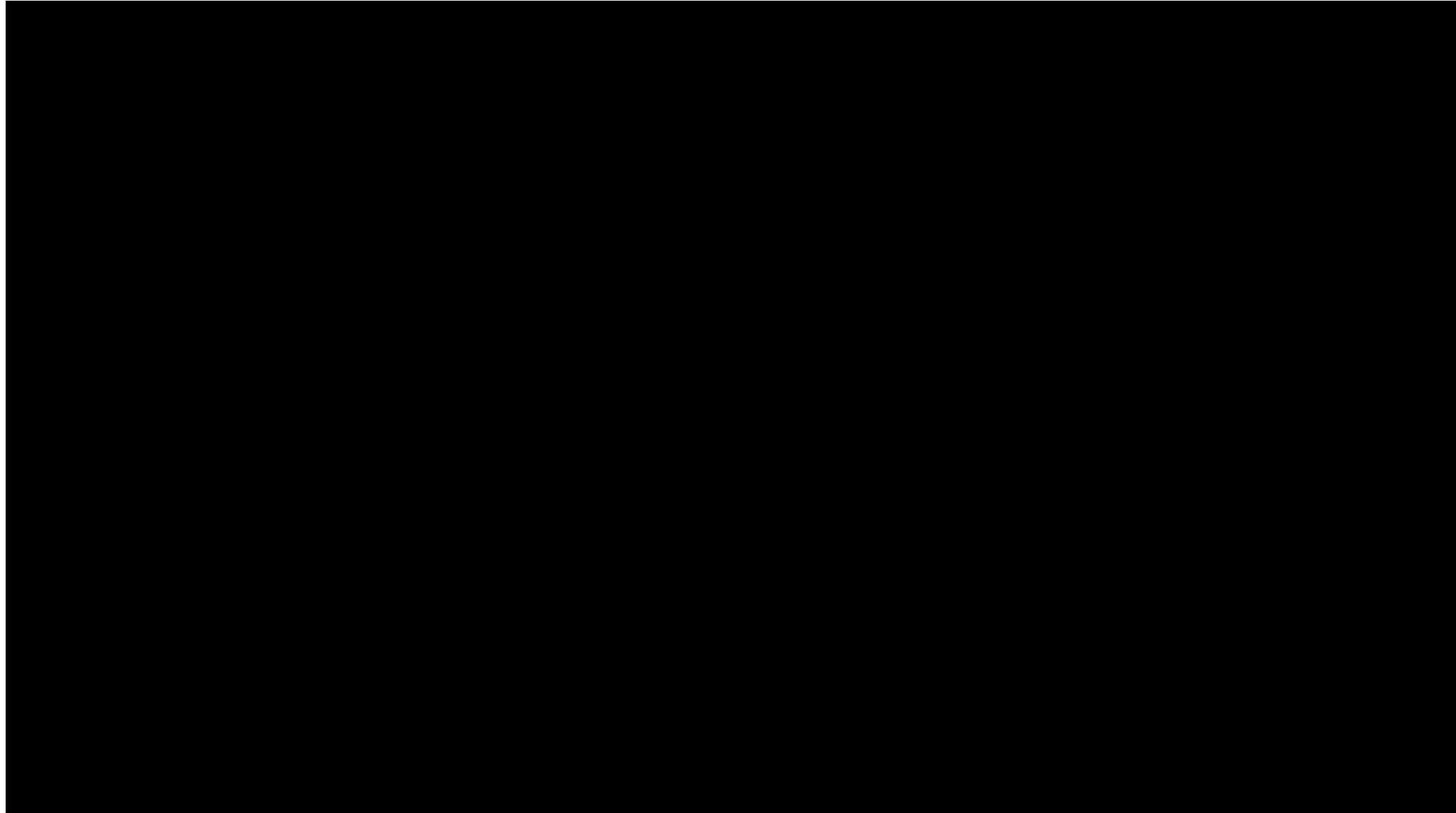
- Cutting-edge imaging technology to automate the detection of crop pests and diseases, to assess their impact on plant performance, and to determine the effectiveness of control strategies.
- Molecular diagnostics development investigate how insects, weeds and pathogen pests of commercially important crops develop resistance to pesticides



ROTHAMSTED  
RESEARCH



# Pesticide Resistance Diagnostics Lab



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# Reference Collection of Crop Biotic Threats

- A combined central reference collection of crop pests and diseases to advance scientific discovery and sustainable pesticide development



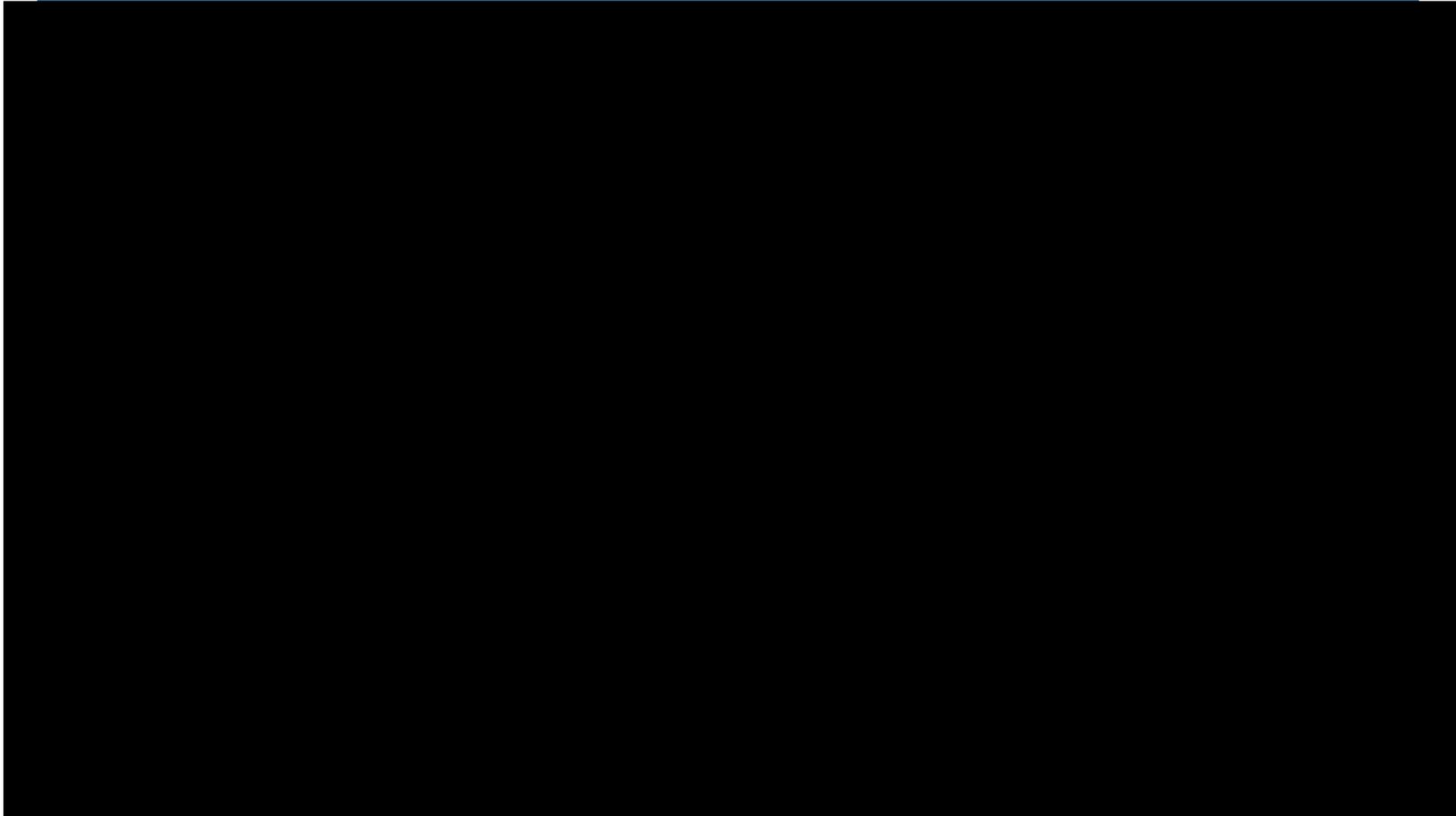
# Soil Health and Plant Phenotyping Centre

- Enhancing understanding of soil management to improve the effectiveness of control measures used to tackle pests, pathogens and weeds



*Cranfield*  
UNIVERSITY

# Soil Health and Plant Phenotyping Centre



# Advanced Glasshouse Facility

- New plant protection products and integrated crop protection programmes can be robustly assessed in field, glasshouse and hydroponic systems.



# Precision till, sow and spray cultivators

- Trial and test strip tillage approaches that benefit crop and soil health.
- Precision spraying equipment for high-specificity application, to optimise plant health with minimal product use.



# Controlled Environment Technology

- State of the art climatic control storage facilities for optimizing agri-product storage and pest control



- Advanced plant growth facility with 24/7 light, humidity and temperature control to pilot Vertical Farming.



# Mobile Labs

- Taking mobile laboratories onto the farm to deliver the tools, technology and training that farmers need to combat pests and diseases using the latest techniques



# International Plant Clinics

- Improving the resilience of the food supply chain by providing on-the-ground training and support in pest and disease control direct to overseas farmers



**Our doors are open....**



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# Original Founder Partners



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## Further Information

**Contact CHAP at:**

[www.chap-solutions.co.uk](http://www.chap-solutions.co.uk)

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End Slide

Questions



# Business Model

- Independent facilitator between industry and UK R&D
  - R&D objectives determined by industry
  - Coordinate collaboration across the UK research base to address the challenges set by industry
- Invest, on behalf of government, in infrastructure to support delivery of research for adoption
- Secure public & private research funding
- Fund/ co-fund individual projects or 'pump-prime' large scale projects to address major crop production challenges
- Seek out research to develop into new technologies, services, practices & systems to improve farming productivity



- Experimental area 1.2 Hectares, total area 2.7 Hectares
- Borehole to provide clean water to circulate round the mesocosm
- Access road from main site for tree felling, construction traffic and maintenance
- Lagoons to hold and normalise borehole water before entering mesocosm
- Mesocosm: 30 x 30 metre long rushes to be populated with aquatic biota prior to experimental dosing
- Water treatment centre – activated carbon filters remove any residual chemicals prior to discharge
- Trees felled to prevent overshadowing – new pools created to hold biota for the next experiments

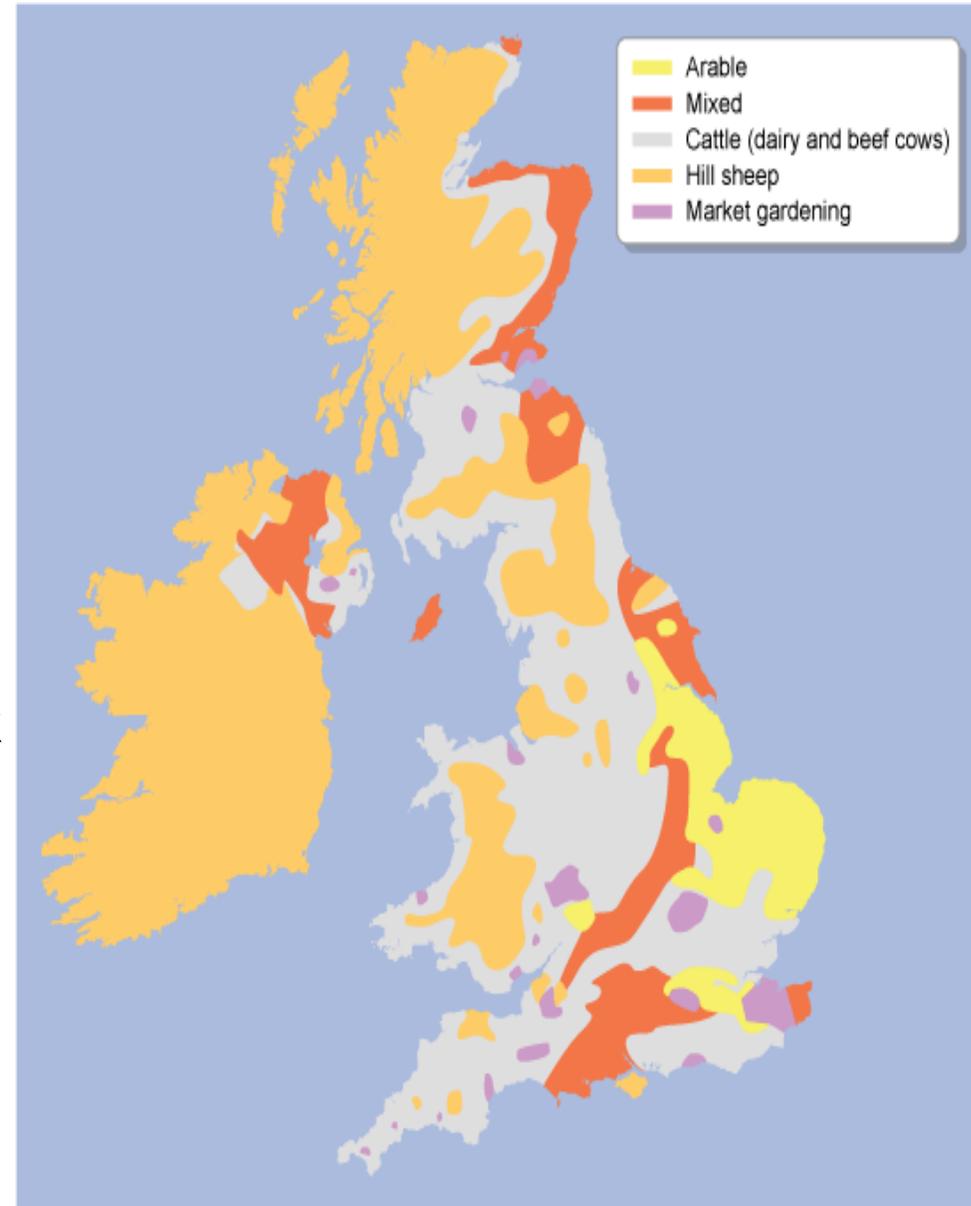


## Opportunities:

A gateway for innovation enabling partners to revolutionise how farming deals with crop threats like pests, pathogens and weeds

There are three ways in which you can work with CHAP:

- Buying a service from CHAP's range
- Commissioning research work directly
- Participating in collaborative research projects





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## Thanks to our sponsors

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