



HandsFree Hectare

An Innovate UK funded collaborative feasibility study between:

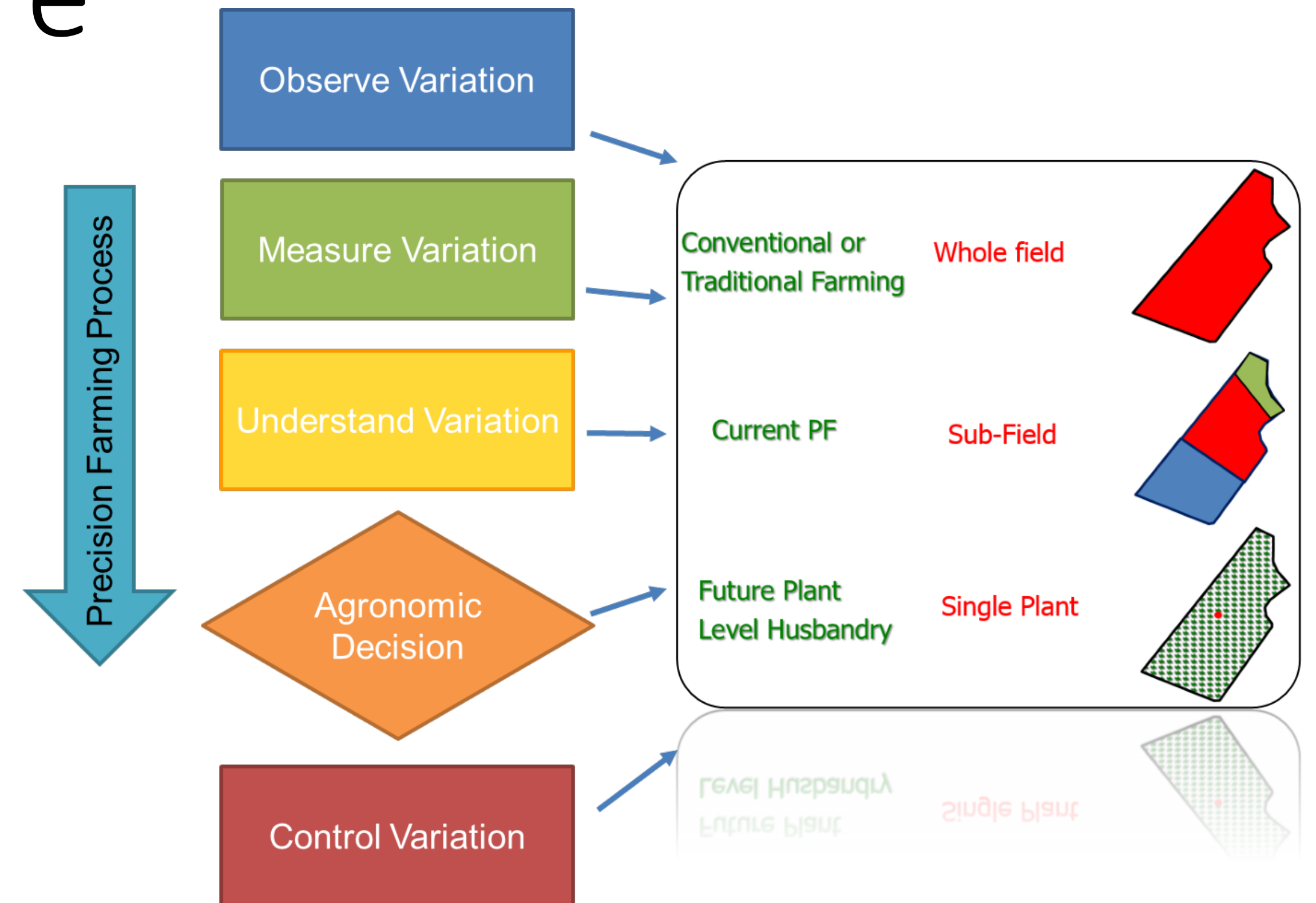
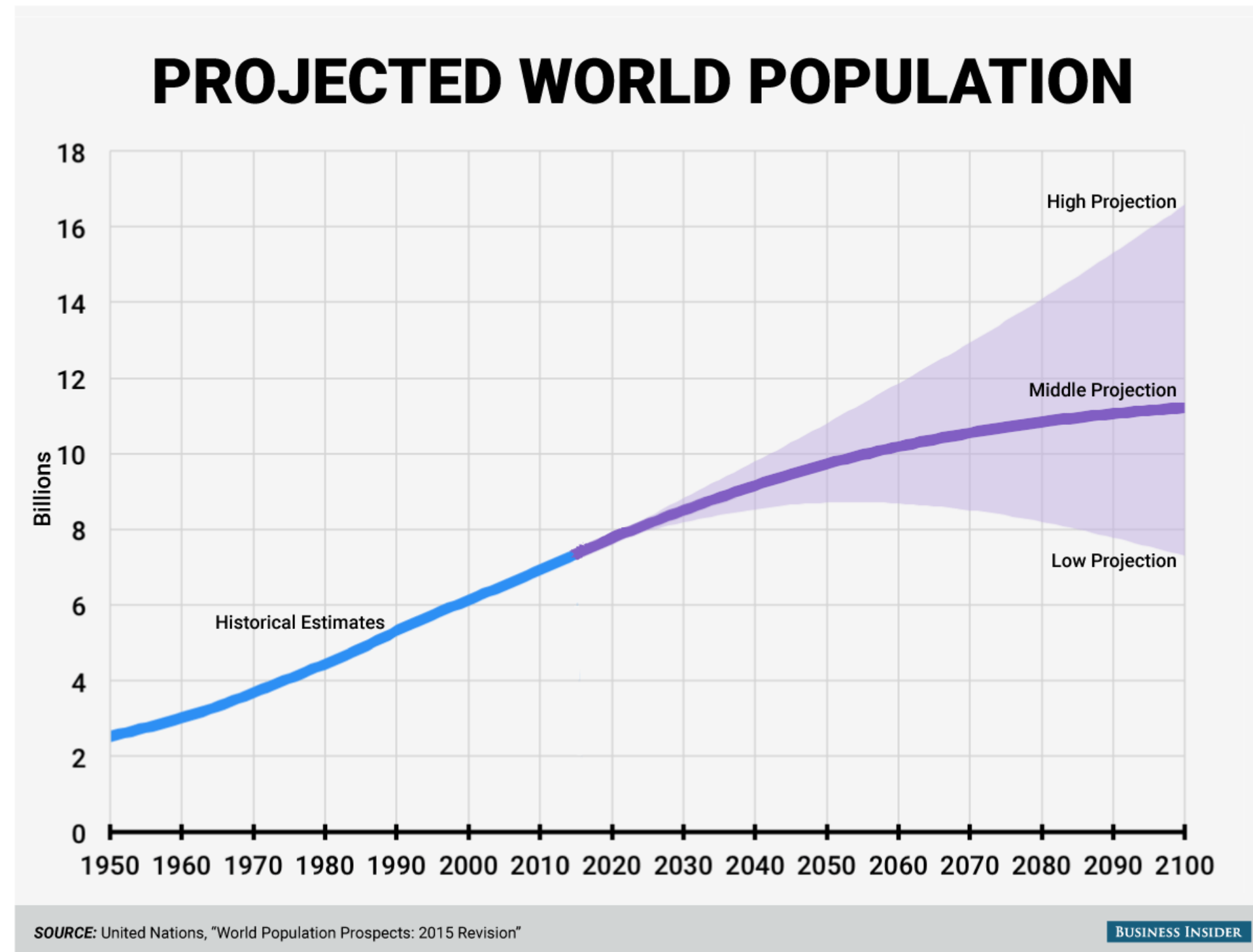


Precision
Decisions



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University

Current aims of agriculture



- To feed a growing global population with reducing resources
- Improve sustainability: reduced waste & increase efficiency
- Adopt Precision Farming management methods: **4x Rights**

Agricultural problems

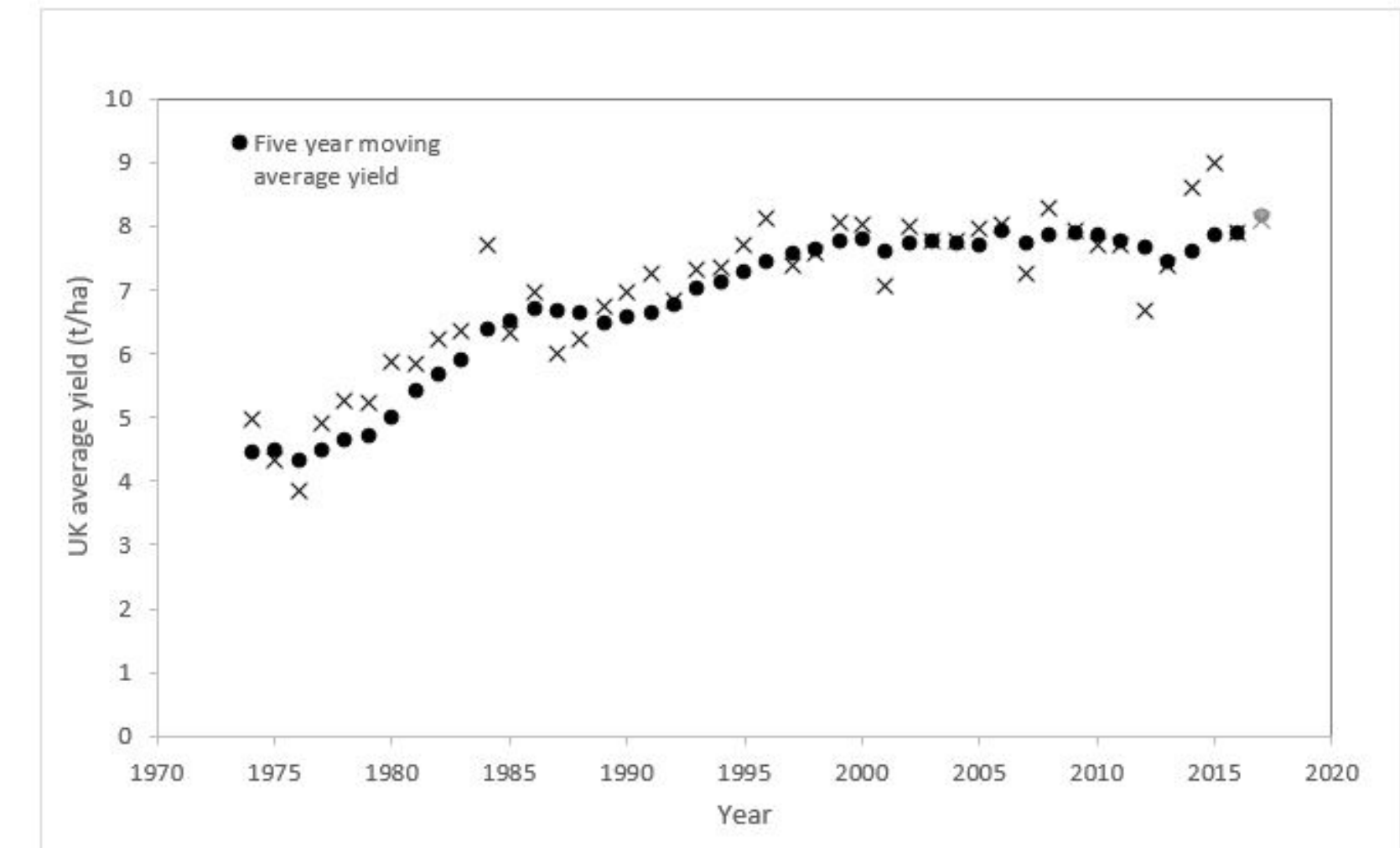
Reduced rural labour = ever larger machines

Limited time windows = ever larger machines

One-upmanship = ever larger machines

Lack of resolution for PF **cause** large machines

Compaction limiting yield **cause** large machines



A small robotic future

Increased resolution = improved PF = margin gain?

Reduced compaction (tackle cause) = increase yield?

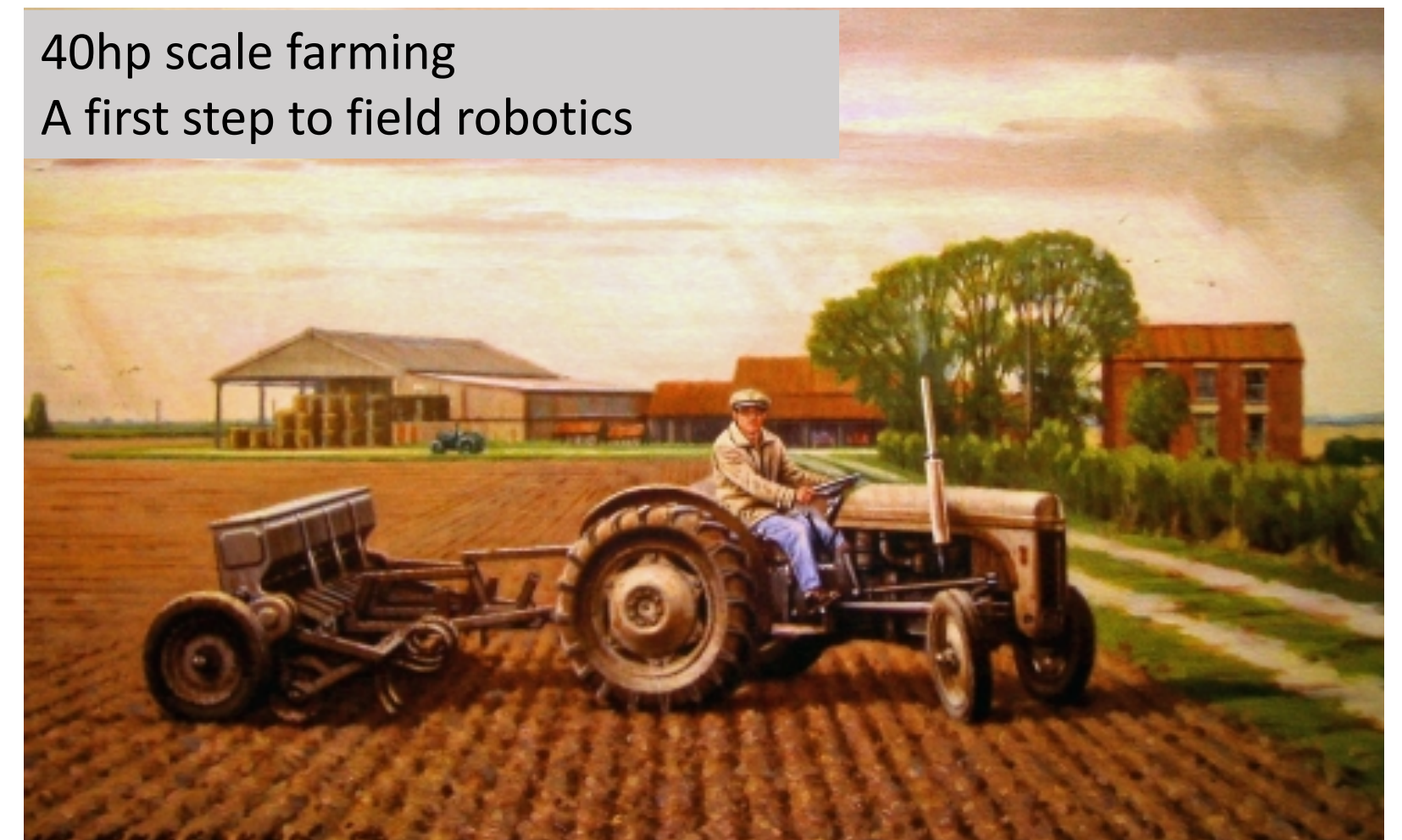
Robots operate in “swarms” = same area covered

Swarm requires management = job retained

Small vehicles are intrinsically safer



Future plant scale robotic management

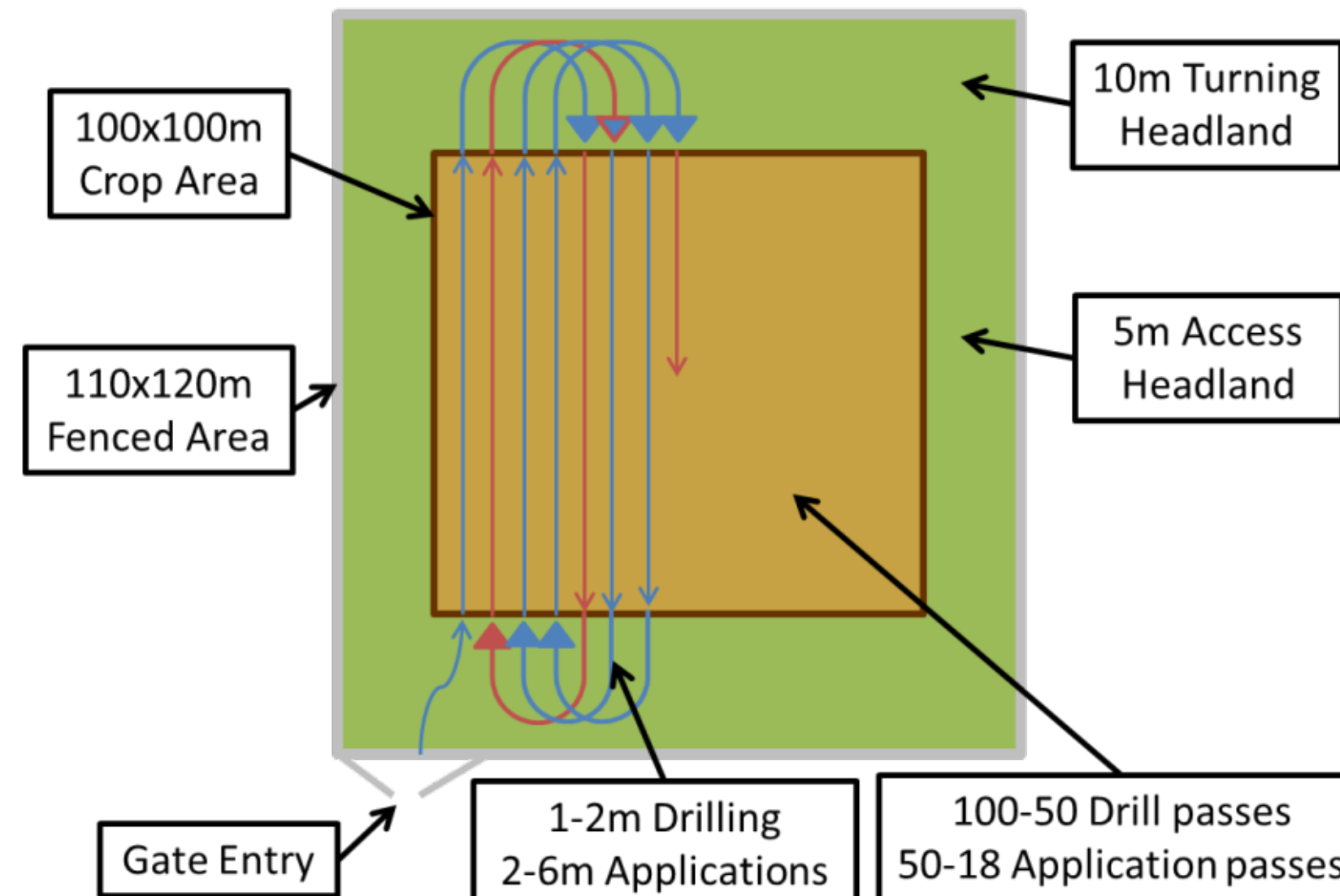


40hp scale farming
A first step to field robotics



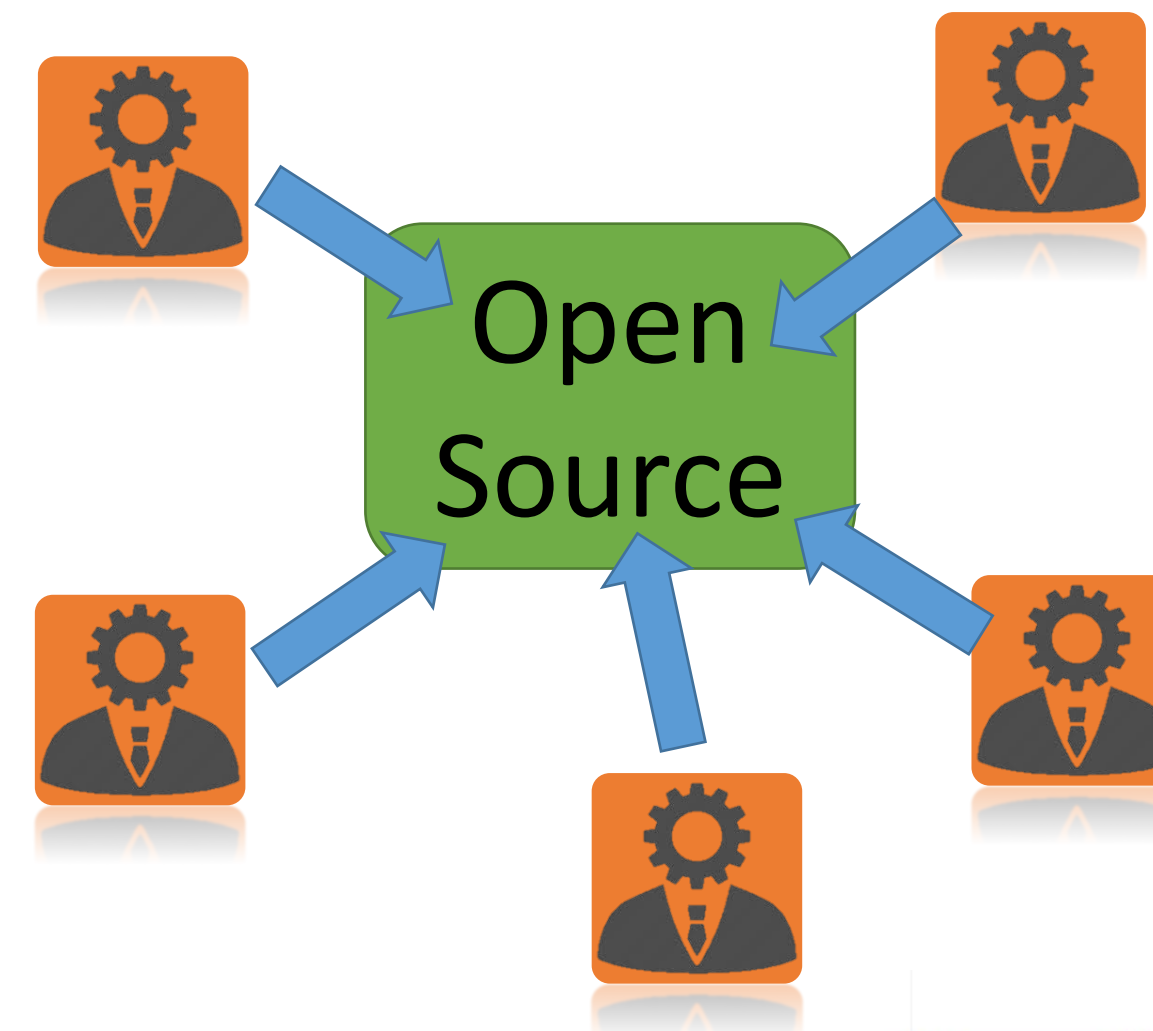
Hands Free Hectare

“Automated machines growing the first arable crop remotely, without operators in the driving seats or agronomists on the ground”

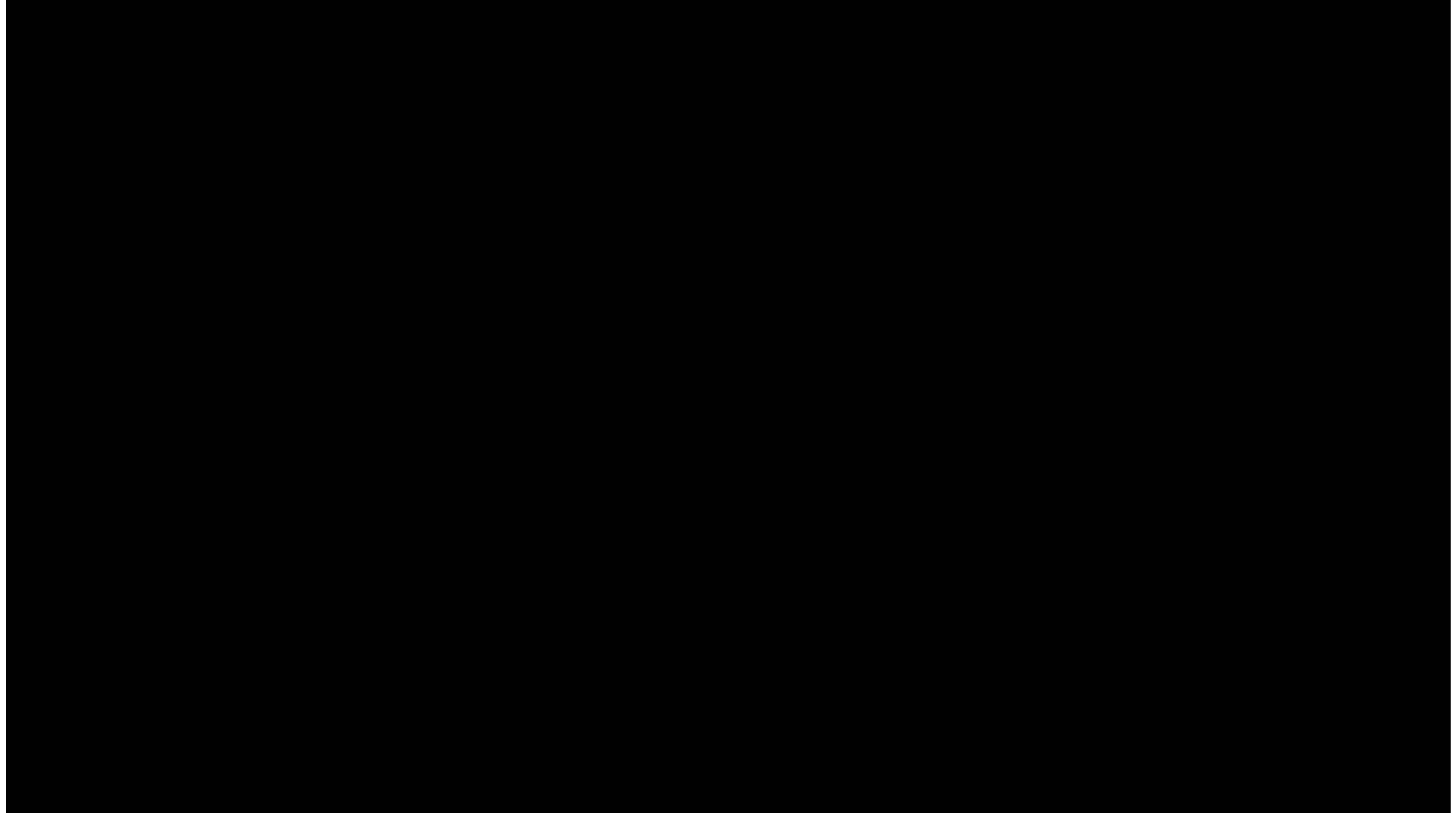


Project objectives

1. World first automated field growing cycle
2. Challenge perception and inspire through real-time coverage
3. Utilising existing machinery and technologies



Hands free hectare - video



Implication – “good” publicity

- **Twitter**

1479 Followers

Permanent Secretary of Defra

- **Facebook**

1059 Followers

Posts reaching 40,000

- **YouTube**

266 Subscribers

58,000 Views



550+ world wide publications across **65+** Countries



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Implication – Cheaper precision farming tech



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Implication – A new industry sector



How long to commercialisation?



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Implication – Technology requirements... jobs

- Skilled fleet managers
- Agronomists – remote sensing
- Programmers
- Agricultural Roboticists
- Communication infrastructure development



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Implication – small team & budget innovation

- Collaboration
- “Skunkworks” model – SMEs & Corporates
- Utilising technologies from other industry
- “Youthquake” – for industry developments



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What's next for HFH

Second consecutive season:

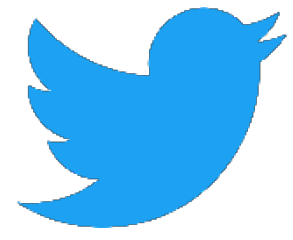
- Winter wheat
- Crop sensing = better agronomy
- Remote Start
- Rolling Team – unload on the move
- Increase comparative yield



Hands Free Farm?



For future updates and developments



@freehectare & @AgEngResearch



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www.handsfreehectare.com



worms.drones.hours



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