



UNDERSTANDING & IMPROVING
THE SUSTAINABILITY OF AGROECOLOGICAL FARMING
SYSTEMS IN THE EU

Transitions to Agro-ecological Farming Systems

United Kingdom Case Study

UNISECO Final Conference

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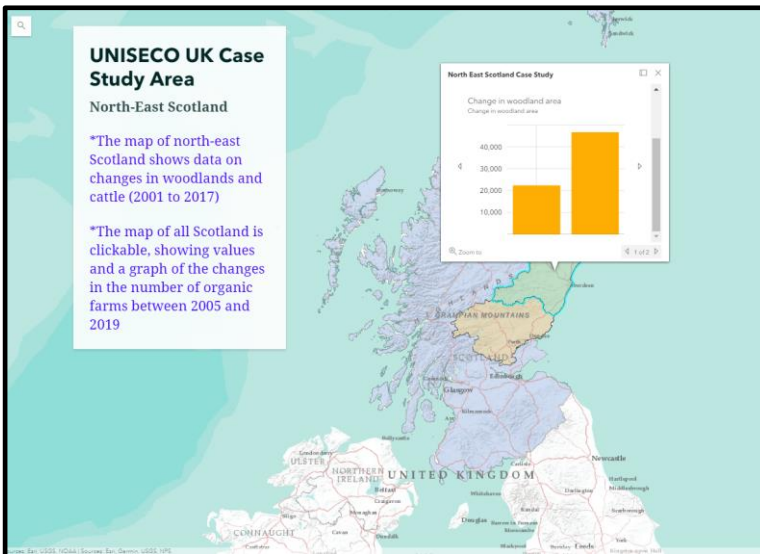


Dilemma

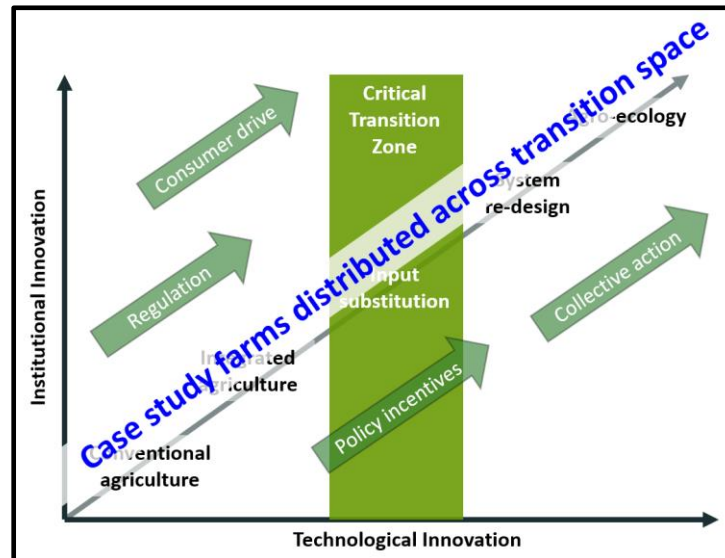
- The production of public goods whilst maintaining viable production of private goods, and securing economic and social sustainability at a farm level

Location

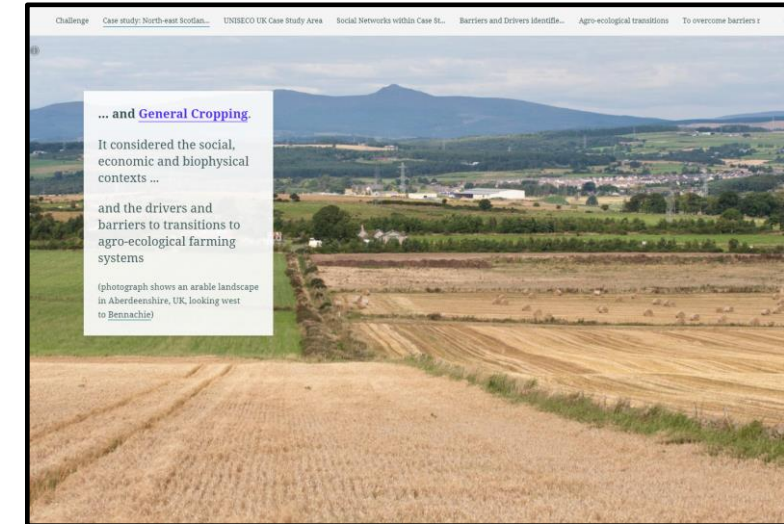
- North-east Scotland



Transitions in Case Study



Farming Systems





Members from Actor Groups



Authorities and administrations



Farmers



Agri-food value chain



NGOs, Civil society, local communities



Science, innovation, advisory services

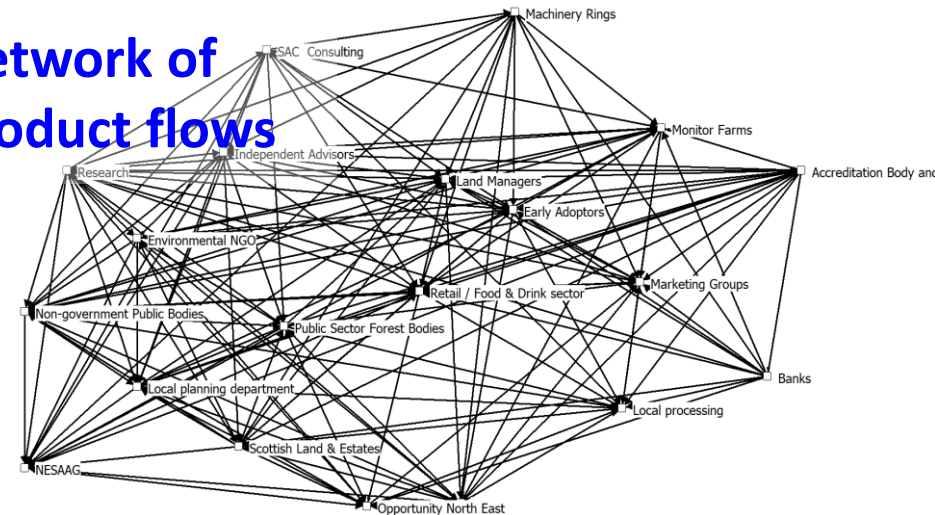


Consumers (members as individuals / families)

Providing insights to ...

- Networks, product flows, local contexts, delivery on the ground

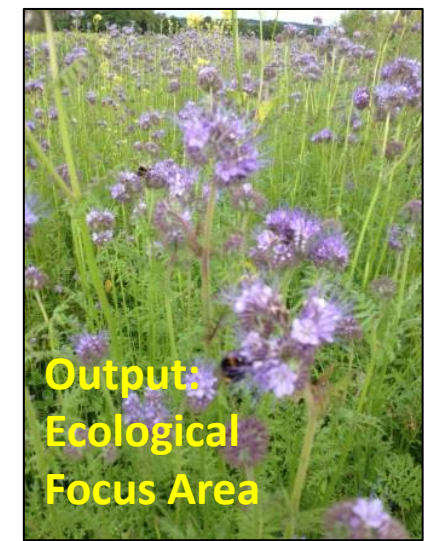
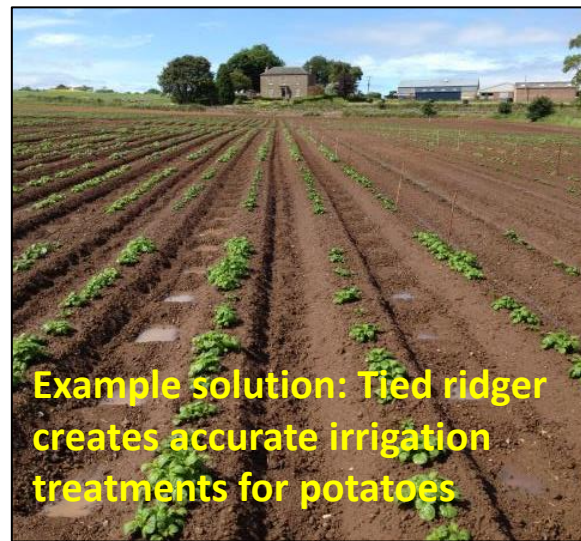
Network of Product flows



Actor significance:

- Retail/food and drink sector - influence supply and standards
- Land managers – influence delivery on the ground
- Systems vulnerable to losing local processing

Challenges and Example New Practices



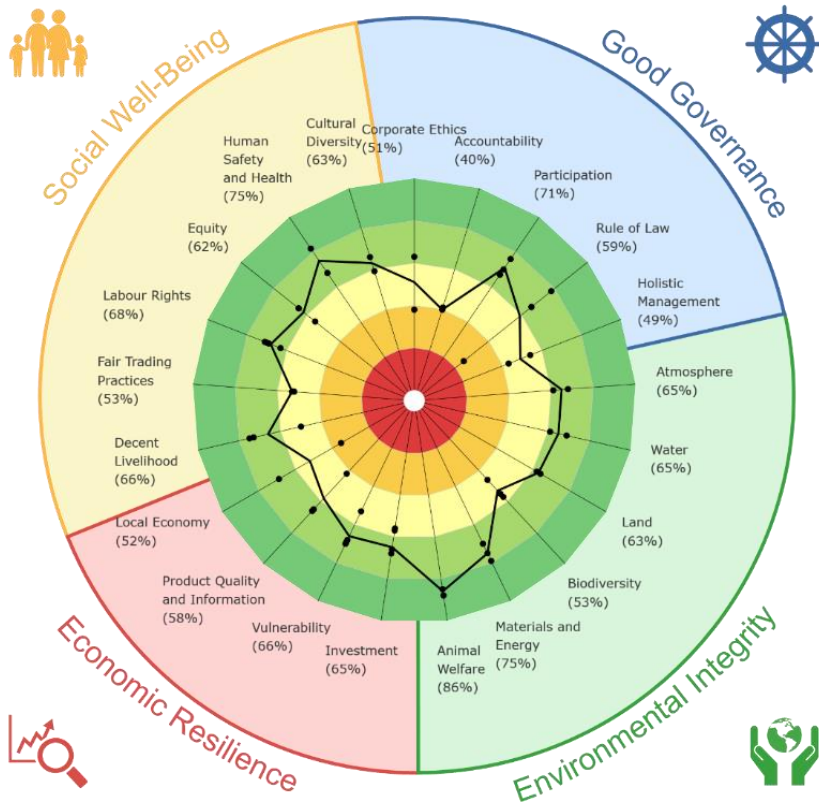
Photographs: James Hutton Institute

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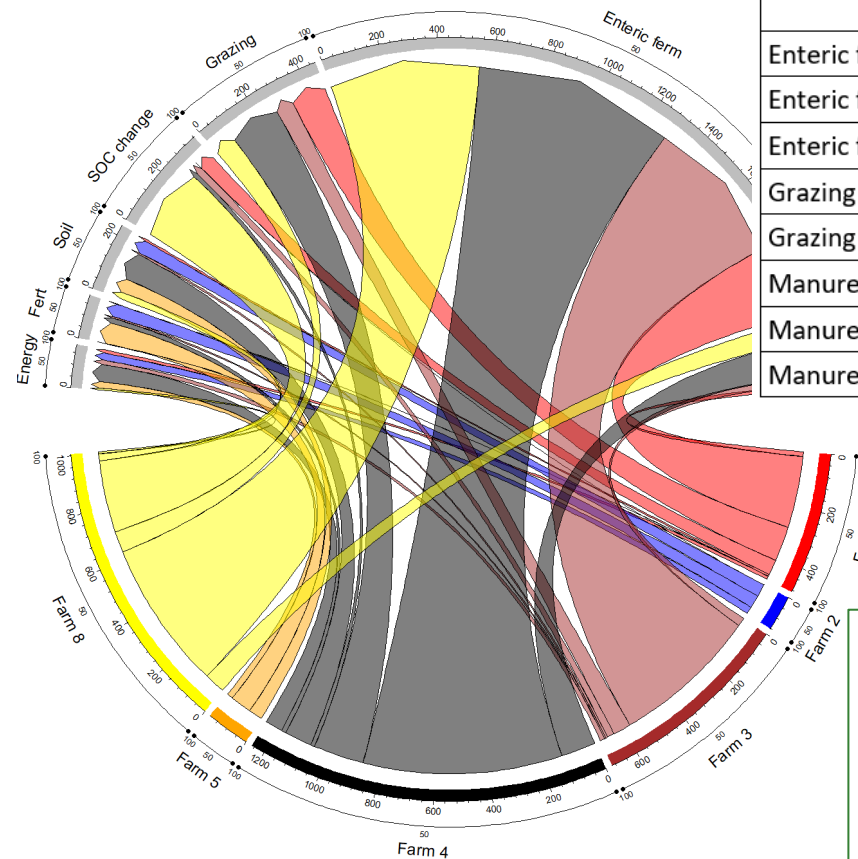
18th/ 19th March 2021

Example Findings: Farm Level Assessments

- Overall assessment of the farms in UK case study (SMART Tool)



- Environmental impact of greenhouse gas emissions (Cool Farm Tool)



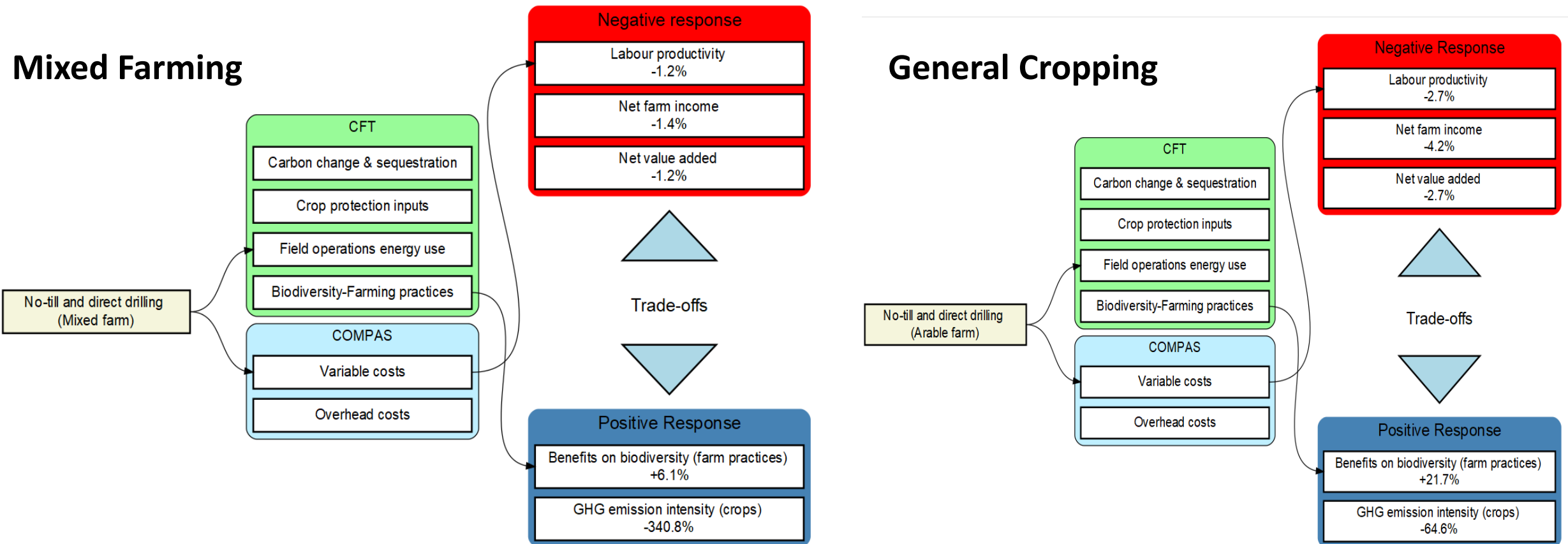
Category of GHG Emissions	t CO _{2eq} / year	Ranking of GHG Source
Enteric fermentation breeding beef	1,489.8	1 st
Enteric fermentation finishing beef	314.2	
Enteric fermentation other livestock	302.8	2 nd
Grazing of breeding beef	402.4	
Grazing of finishing beef	62.6	3 rd
Manure management in breeding beef	42.9	
Manure management in finishing beef	210.7	
Manure management in other livestock	3.5	

Six farms assessed using Cool Farm Tool

- 2 organic mixed farms
- 2 conventional cropping farms
- 2 conventional mixed farms

Example Trade-Offs: With No-till and Direct Drilling

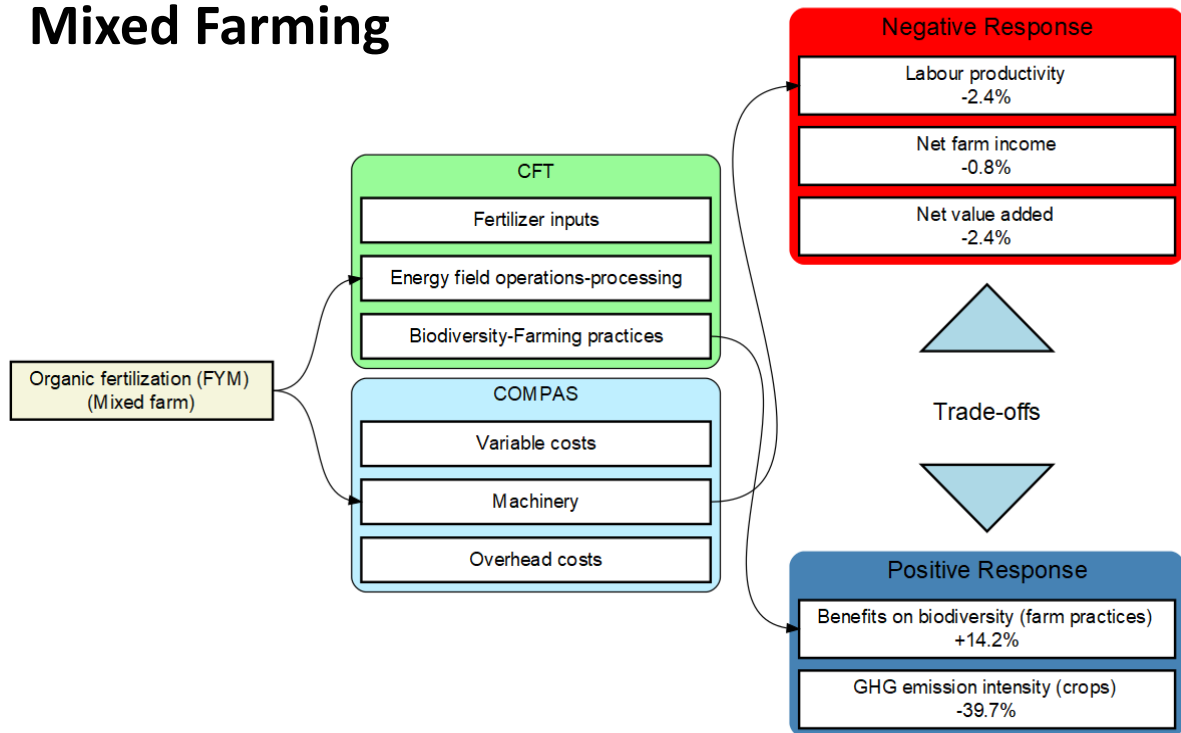
- Removal of soil tillage contributed to abating GHG emissions in arable and mixed farms
- No-tillage and direct drilling triggered weak trade-offs between environmental and economic indicators
- Negative economic trade-offs were generated by contractor costs for direct soil drilling and rolling practices



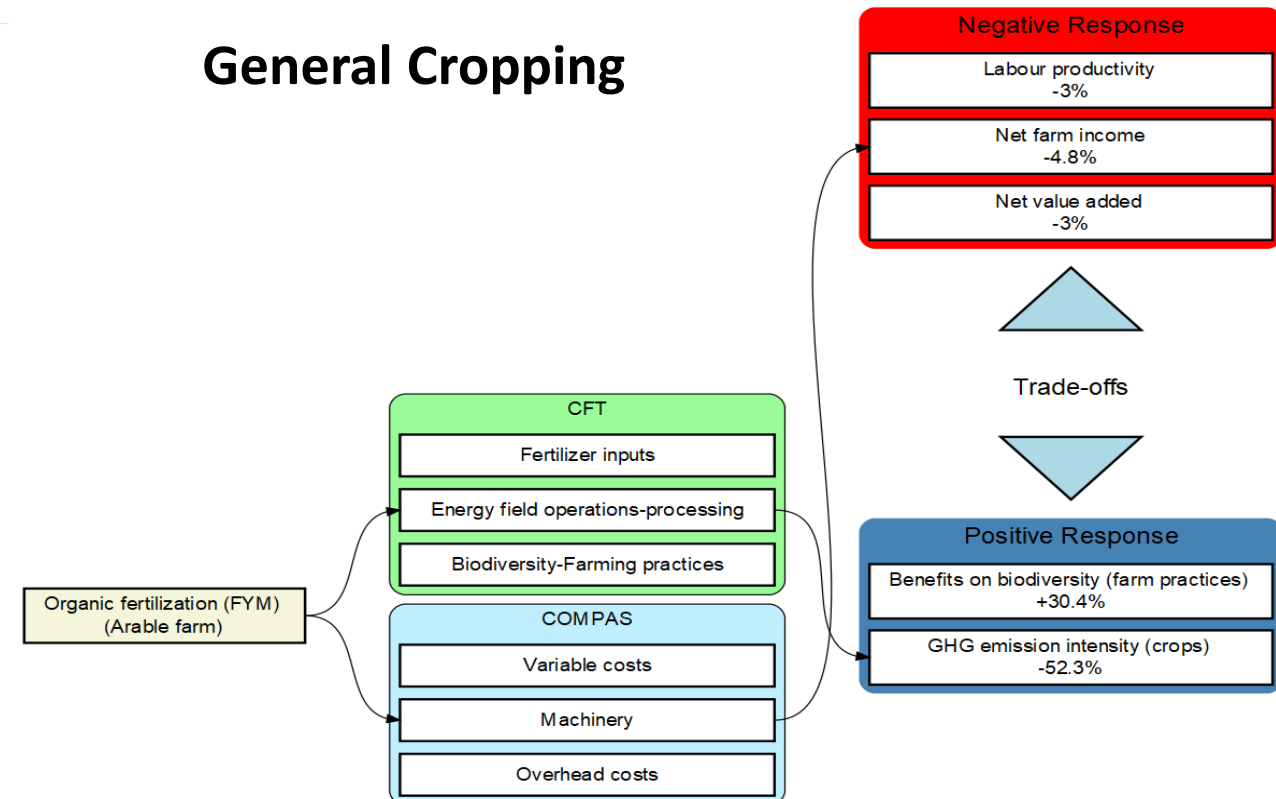
Example Trade-Offs: Organic Fertilisation

- Organic fertilization positively influenced environmental performance of arable and mixed farms
- Conventional arable farms showed more significant reductions of GHG emissions than in mixed farms
- Organic fertilization showed moderate negative economic responses for both farm types

Mixed Farming






























General Cropping

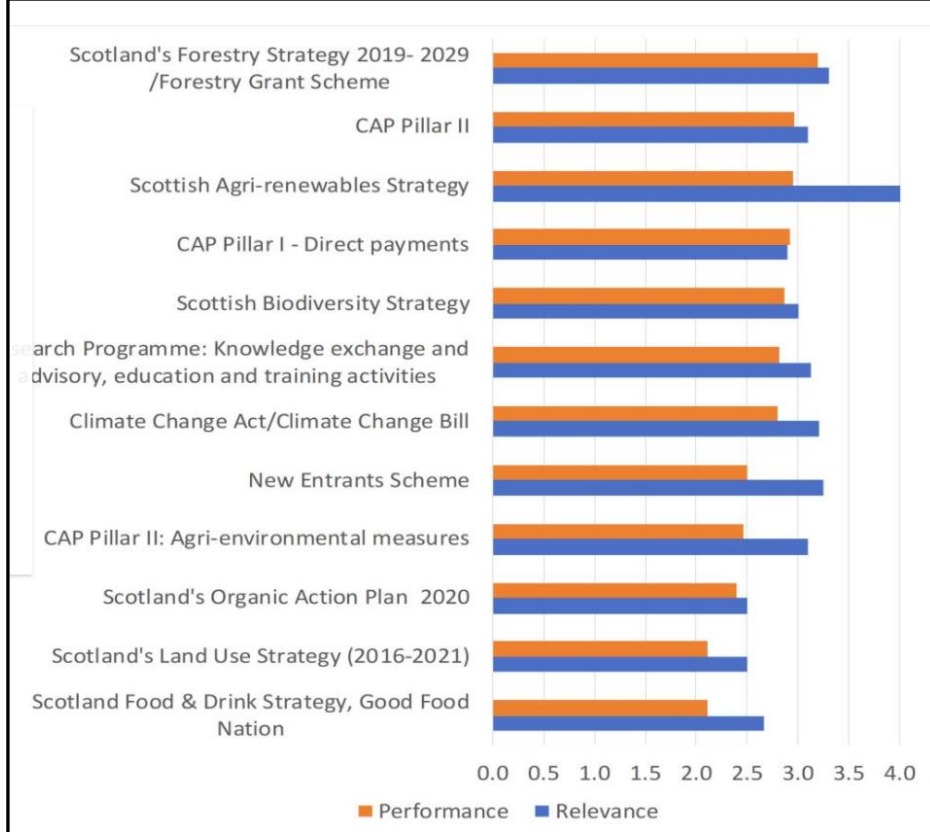


Barriers and Drivers identified by Multi-Actor Platform

- 6 key barriers, 5 key drivers
 - Institutional (law) and regulation (policy)
 - Infrastructure (e.g. local processing)
 - Human capital (e.g. skills)
- Climate change – restricts options, leads to new opportunities
- Culture/Mindset – Inhibits uptake and leads to innovation

Issue	Energy efficiency	Efficiency increase	Input substitution	System re-design
Climate Change	 			
Culture and Mindset		 	 	 
Policy and Regulation				
Technology and Innovation				
Business and System Resilience				
Local Processing				
Retail and Producer Standards				
Institutions				
Shortage of Skilled Labour				
Access to Land				

... assessment for Relevance and Performance



Market Policy Instruments

1. **CAP II PILLAR 2014-2020**
2. Climate Change (Scotland) Act 2009
3. Scotland's Forestry Strategy 2019- 2029
4. Forestry Grant Scheme
5. Agri-Environment Climate Scheme
6. **Farm Advisory Service**
7. **CAP I PILLAR - Rural payments**

POTENTIAL LINK TO AEFS TRANSITION

High and positive
Highest influence

Market Policy Instruments

1. **Supermarket**
2. **The Land Reform (Scotland) Acts**
3. Agricultural flood bank Repair Grant Scheme

POTENTIAL LINK TO AEFS TRANSITION

No effect
Lowest influence

Actors and instruments ...

- Retailers are key actors in setting standards
- ... their schemes are not significant instruments

Networks of knowledge and product flows ...

- Very highly connected
- Systems are vulnerable to loss of local processing

Overcoming barriers to transitions requires ...

- Changes in institutional arrangements
- Investment in knowledge and demonstration
- Macro- and micro-level incentives

Multi-Actor Platforms ...

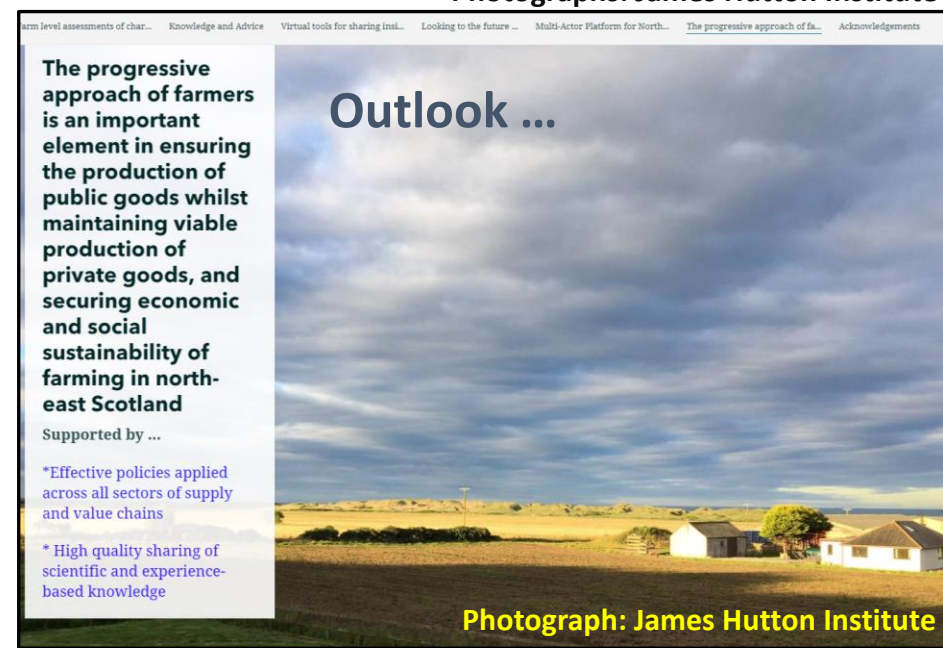
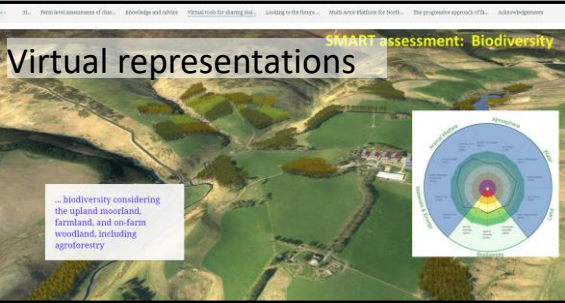
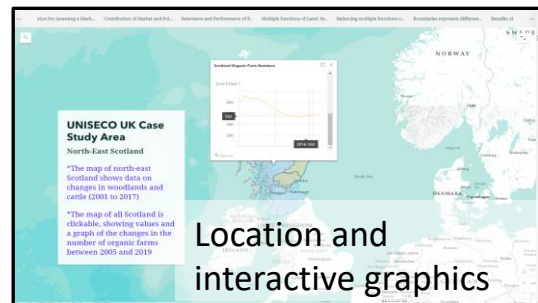
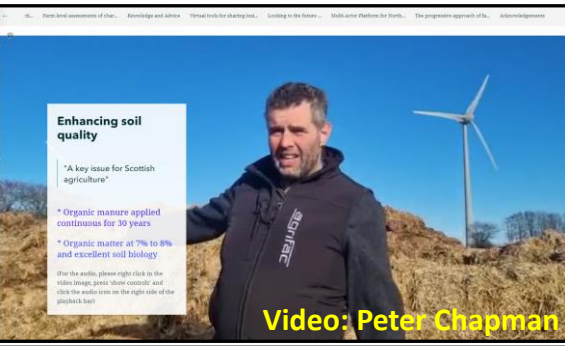
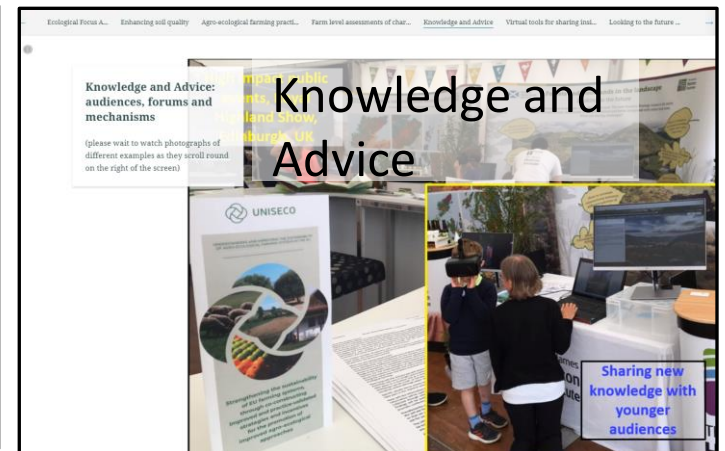
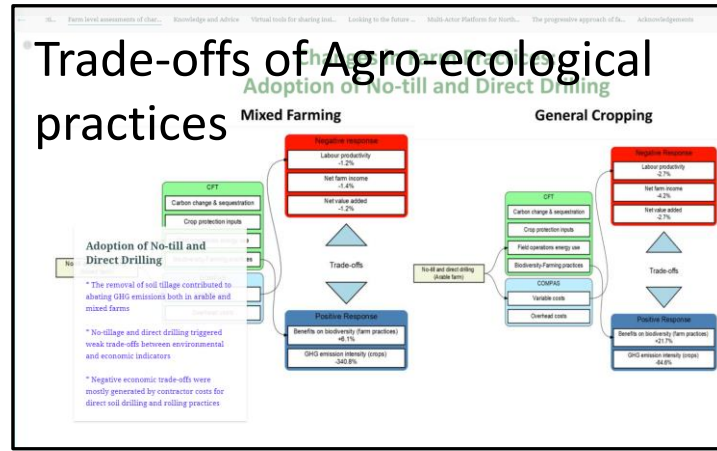
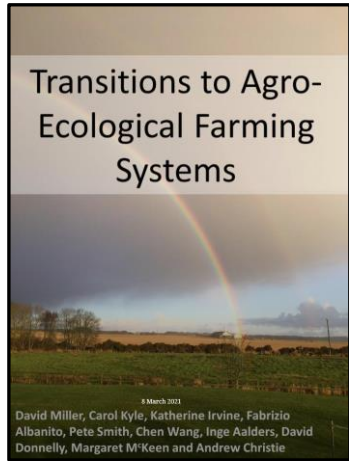
- Provide key insights to components, weaknesses and strengths of farming systems, policies and instruments, knowledge and advice



Knowledge and Advice

"Knowledge exchange, monitor and strategic farms a great way to get the message across. Farmers need to see ecologically focussed farms working in the flesh. Farmer to farmer learning most powerful tool in my book." [UK24]

(For the audio, please right click in the video image, press 'show controls' and click the audio icon on the right side of the playback bar)



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