CanTogether

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Mixed farming and the sustainability of beef production systems in Wales, UK.

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Cantogether project

- Objective: to design innovative sustainable mixed farming systems
  - Look at the environmental, economic and social viability of the systems developed
- 27 academic and SME partners from 10 countries
- Network of 24 experimental and commercial mixed farms including Celtic Pride in Wales, UK

Introduction

- Celtic Pride and IBERS/UNIZAR - joint project to develop a method for evaluating the sustainability of farming businesses.
- Objectives are to:
  - Help farmers to identify the strengths and weakness of their own systems (financial, environmental and social performance)
  - Compare mixed vs specialised farming
  - Identify where support to farmers is best targeted to improve overall sustainability
  - Build closer relationships with farmers supplying Celtic Pride

Case: Celtic Pride

Geographical Context:

Area: Wales, UK

Climate: Cloudy, wet and windy but mild

Terrain/Soil: Mix of upland, hill and lowland

Demography: Predominantly rural

- Quality beef brand
- supplied by approximately 50 mixed and specialised farmers.
- assurance standards of husbandry and welfare.
- Recognised branded beef (PGI status) and premium price paid for their livestock.

Aim

- To assess the sustainability of a group of Welsh case study farms by means of farm typologies and to explore the relationship between farms sustainability and types of mixed farming systems.

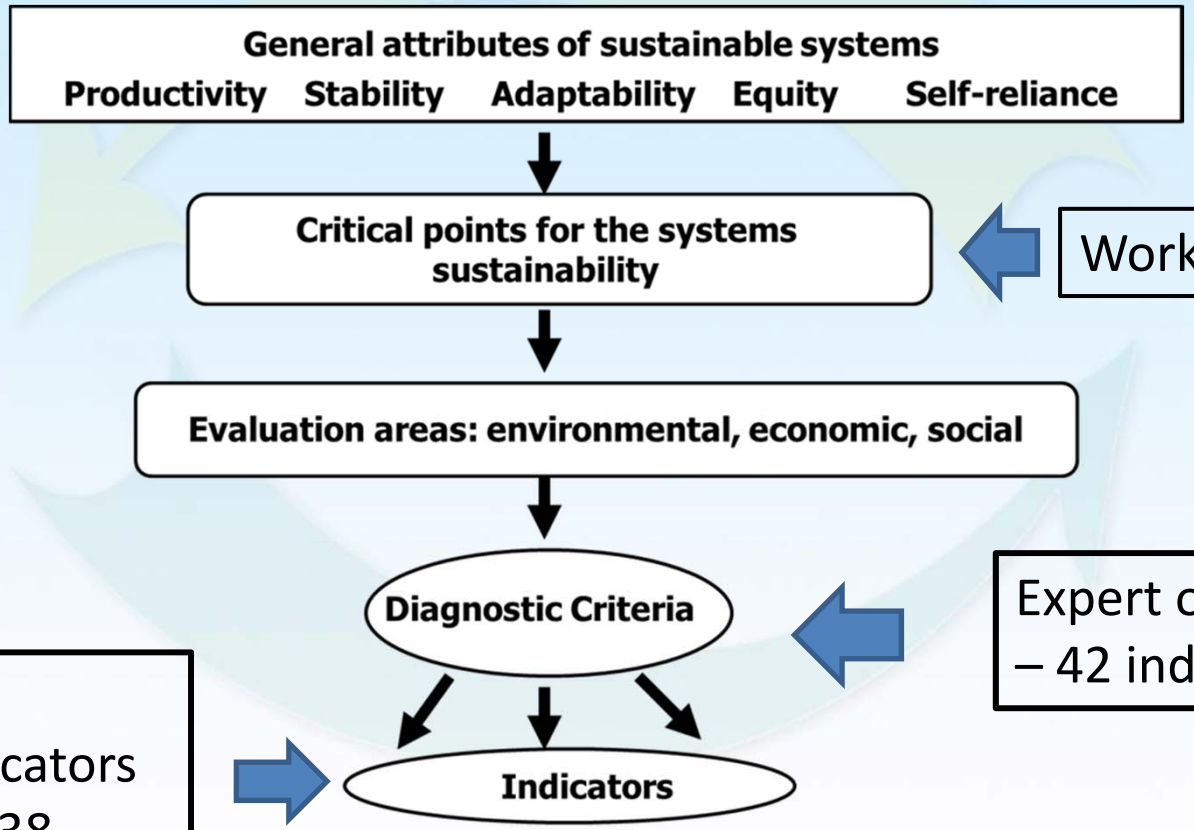
Sustainability assessment

- A wide diversity of tools/frameworks has been developed to evaluate sustainability.
- Binder *et al*., (2010) highlight sustainability shortcomings:
  - multi-functionality in agriculture has been poorly addressed
  - ecological aspect favoured instead balance between the three dimensions of sustainability
  - neglected the step towards utilisation and implementation of this knowledge

MESMIS

- Organised around sustainability attributes (productivity; stability, reliability and resilience; adaptability; equity and self-sufficiency
- Bottom up, participatory and interdisciplinary process - sustainability expressed in comparative terms between two or more systems or between different stages of the same system after improvements have been implemented

MESMIS method



Method continued

- Indicators were weighted to by experts to reflect the different relative importance they have in explaining the sustainability of the system.
- Values were transformed into a scale from 0 to 100, corresponding to the worst (0) and the best (100) indicator value.
- These indicator values and their weight were used for calculating sustainability attributes of farms studied.

Farm typology based on sustainability

- Group 1 (n=10). *Highest equity.* This group obtained the highest mean score for equity (51.6%) adaptability and stability. They also showed a high value for self-sufficiency attribute (79.5% on average).
- Group 2 (n=10). *Best productivity*. This group scored the best for productivity (72.8%) on average (but not significant). Regarding the stability and adaptability attributes they presented intermediate values. However, these farms showed a low value for equity (37%).
- Group 3 (n=8). *Least self-sufficient*. The average value for self-sufficiency of this group was the lowest (56.8%). Besides for the stability and adaptability attributes presented comparatively low values. Contrarily they obtained a high productivity (71.7%).
- Group 4 (n= 8). *Least stability and adaptability.* These farms obtained the worst mean score for stability (18.6%), adaptability (23%) and equity (31.2%). In contrast they had a high degree of self-sufficiency (74.6%).

Sustainability performance

- Groups 1 and 2 more sustainable than the farms of Groups 3 and 4.
- Group 1 ”*Highest equity*” and Group 2 *“Best productivity*” scored higher for economic and environmental sustainability than Groups 3 “*Least self-sufficient*” and 4 “*Least stability and adaptability”*.
- Groups 3 and 4 showed on average a lower social sustainability. In contrast the most socially sustainable were the farms of Group 1.

Mixed farming and sustainability

- Most Celtic Pride case study farms had mixed livestock (cattle and sheep) but only 44% of farms could be considered as mixed beef farming systems (i.e. crops and livestock).
- Types of beef farming systems were established according to the definition of mixed farming systems proposed in Cantogether
- 1. Specialised grassland beef farming systems (7 farms).
- 2. Fodder cropping beef farming systems (13 farms).
- 3. Mixed beef farming systems (16 farms).

Distribution of types of mixed beef farms in sustainability groups

	Group 1		Group 2		Group 3		Group 4		Total	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
1. Specialised grassland beef farming systems	0	0	3	42.9	0	0.0	4	57.1	7	19.4
2. Fodder cropping beef farming systems	1	7.7	3	23.1	7	53.8	2	15.4	13	36.1
3. Mixed beef farming systems	9	56.3	4	25	1	6.3	2	12.5	16	44.4
Total	10	27.8	10	27.8	8	22.2	8	22.2	36	100

Chi-square: 23.261, df: 6, p=0.001.

Conclusions

- Mixed beef farms could obtain the highest equity and high productivity – highest sustainability.
- Specialised grassland beef farming systems could also obtain the highest productivity but could also be less stable and adaptable.
- Sustainability performance closely linked to land quality – mixed beef systems tend to be on lowland, less LFA. Specialised grassland high proportion of LFA with limited options to change the system.

Thank you for listening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