Sustainability monitoring: Dutch Experiences

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Wageningen Economic Research

INTIA: 3rd ANNUAL WORKSHOP ON FARM MANAGEMENT

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Short history of Wageningen Economic Research

Year	Institutional change
1940	LEI - Founded by Farmers Organisations
1971	Part of Government (Foundation DLO)
1996	Merging of Wageningen University & Agricultural Research Organisation (DLO)
2000	Privatisation of LEI-DLO
2016	New name of LEI -> Wageningen Economic Research

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LEI

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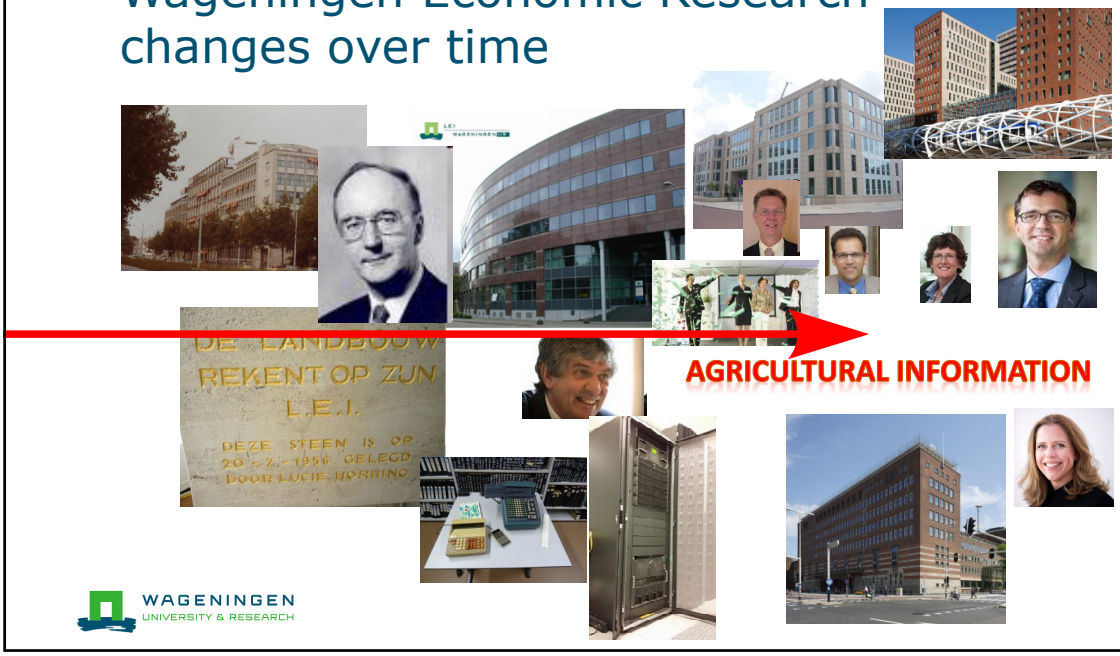
Wageningen Economic Research changes over time



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New policy objectives ask for new data

PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

- European policies are (being) adapted:
  - Common Agricultural Policy: Cross Compliance, Greening, Rural development
  - Green deal, farm to fork strategy, bio-diversity strategy
- Policy evaluation has a need for data on these topics
- Broader need for sustainability information from retail, sector initiatives, farming sector, governments, NGO's.

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Background sustainability monitoring in the Netherlands

- Societal concerns about agricultural production
- Private sector initiatives on sustainability
- Policy objectives broader than economic results
  - Minimum standards
  - Specific objectives
- National policies of Dutch Ministry: transition sustainable agriculture, policy sustainable livestock sector, vision on circular agriculture
- Integrated assessment of policy measures (environmental economic evaluations)

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Sustainability topics in Dutch Policy and FADN

- Energy use and GHG emissions
- Manure and nutrients
- Use of antibiotics
- Use of pesticides
- Water quality
- Innovation
- Nature management
- Other income sources
- Farm tourism

Changing policy priorities lead to new information needs

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Farmer protests

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Philosophy of Dutch farm monitoring

- Collect farm level data on a wide range of **sustainability issues** to provide **policy and research relevant data**
- Integrated data collection
  - As a base for different statutory tasks
  - Adaptation of data collection to new policy needs
- Principles
  - Collect once use multiple times
  - Minimize (administrative) burden of farmers
  - Use of (electronically) available data
  - Provide useful information for all stakeholders (incl. farmers)

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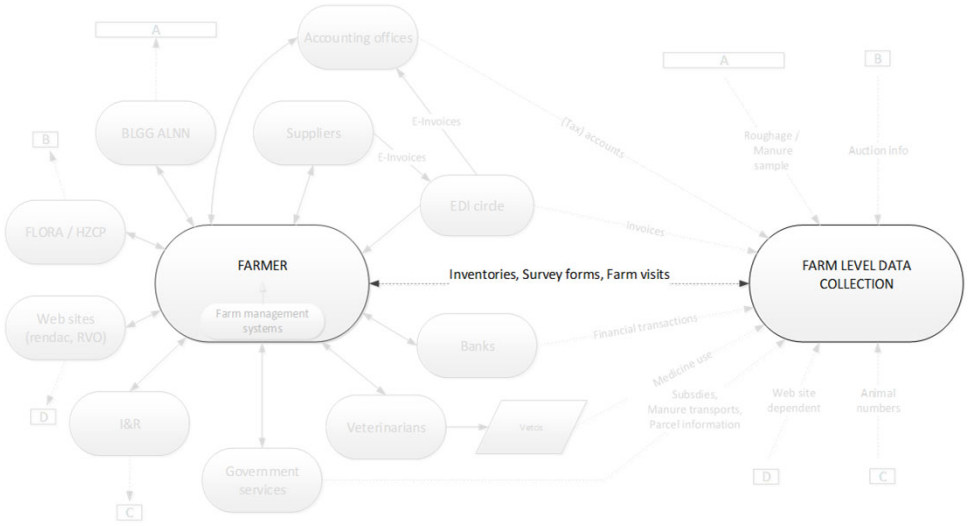
Data collection – the traditional way



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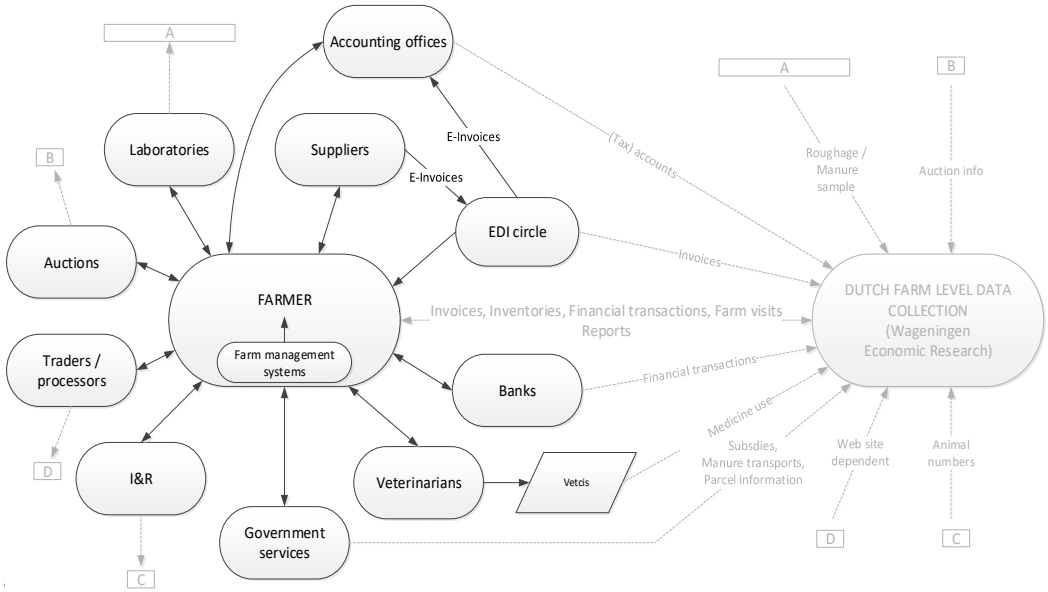
Farmer in a network of information flows



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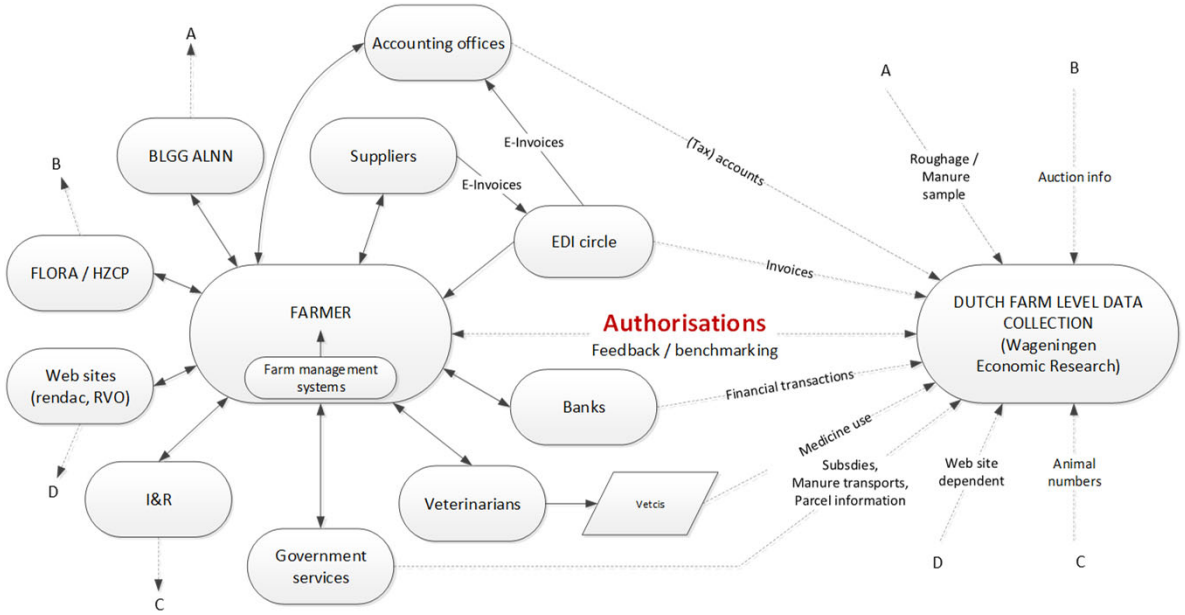
Adopting to new information flows



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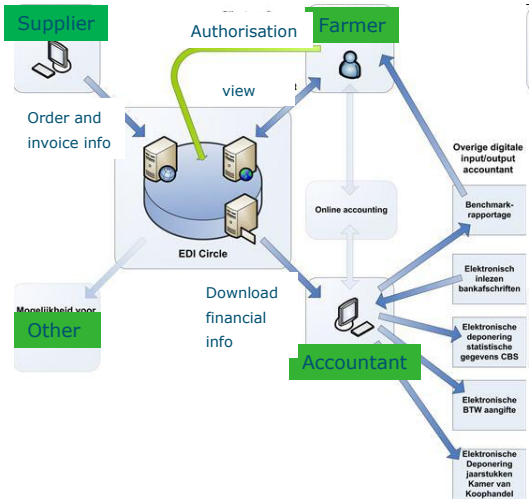
Edi-circle / Joindata



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Administrative data from RVO (Ministry Agency)

- Parcel registration
  - Crop, size, soil type, rent / ownership
- Derogation
  - Ha grassland, Ha arable land, P status, derogation
- Subsidy payments
  - Greening entitlements
- Manure transports

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Collecting sustainability data on Dutch FADN farms

- Advantages:
  - Efficiency advantages in data collection
  - Allows quality checks
  - Allows integrated analysis
  - Allows better policy design
- Shows diversity of performance
  - Enables analysing differences in performance
  - Benchmarking and options for improvements

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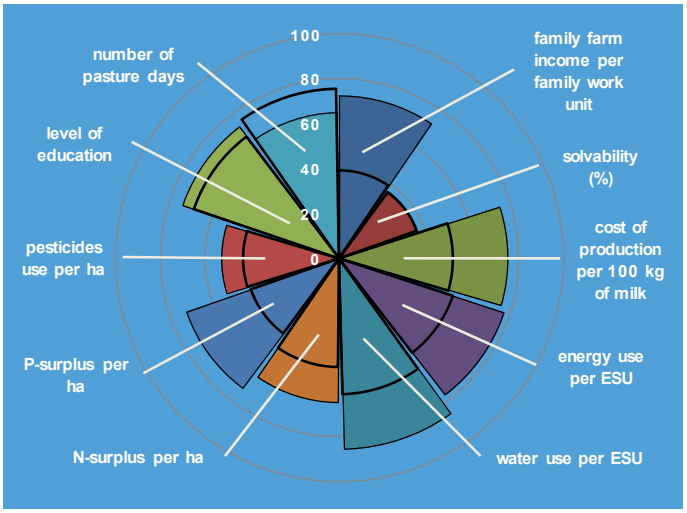
Comparison of the scores of the most sustainable farms with the average farm



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Sustainability report for farmers

Feedback report with development over years:

- Make discussion of sustainability more specific
- Increases understanding of sustainability performance

Benchmark report with comparison of sustainability performance with a group of similar farms

- Makes differences explicit
- Helps to discuss and find ways to improve sustainability performance

	Green house gasses	group average	farm nr
	Emission (x 1.000 kg CO2-equivalents)	**991**	
Type	Methane (%)	51	
Type	NOx (%)	14	
Type	CO2 (%)	35	
Source	Manure (methane and NOx)	14	
Source	SOIL (Nox direct and indirect)	12	
Source	Energy use (CO2)	8	
Source	contract work and other (CO2)	1	
Source	Bought feeding stuff (CO2)	21	
Source	Bought artificial fertilizer (CO2 en NOx)	5	
Source	Other (CO2)	1	
Source	Intestine Fermentation	28	
	Emission per cow (kg CO2-equivalents)	11,982	

Individual data hidden because of confidentiality

People			
Percentage cows in the meadow	▼	22	
Health costs	▼	110	
Labour input per 1000 kg milk	▲	5	
Planet			
Pesticide use, kg active substance	▼	1	
Pesticides environmental pressure points	▼	0	
N surplus from farming, kg per ha	▲	204	
F surplus from farming, kg per ha	▼	25	
N surplus at soil (including mineralisation, kg per ha)	▬	183	
Energy use (MJ per cow)	▲	5,080	
Use of water (tap) (m3 per cow)	▼	24	

Individual data hidden because of confidentiality

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Advantages of an Integrated data set

- Measurement of different sustainability indicators on the same set of farms
- Allows the analysis of the full chain from: Policy objective -> policy measure -> impact on farm -> farm management decisions -> up to: sustainability performance of farms
- Trade-off and jointness of performance on different sustainability measures as a consequence of policy measures
  - (for example is the economic performance at the expense of environmental performance, sustainability performance of large farms, most cost effective ways to reduce emissions etc.)

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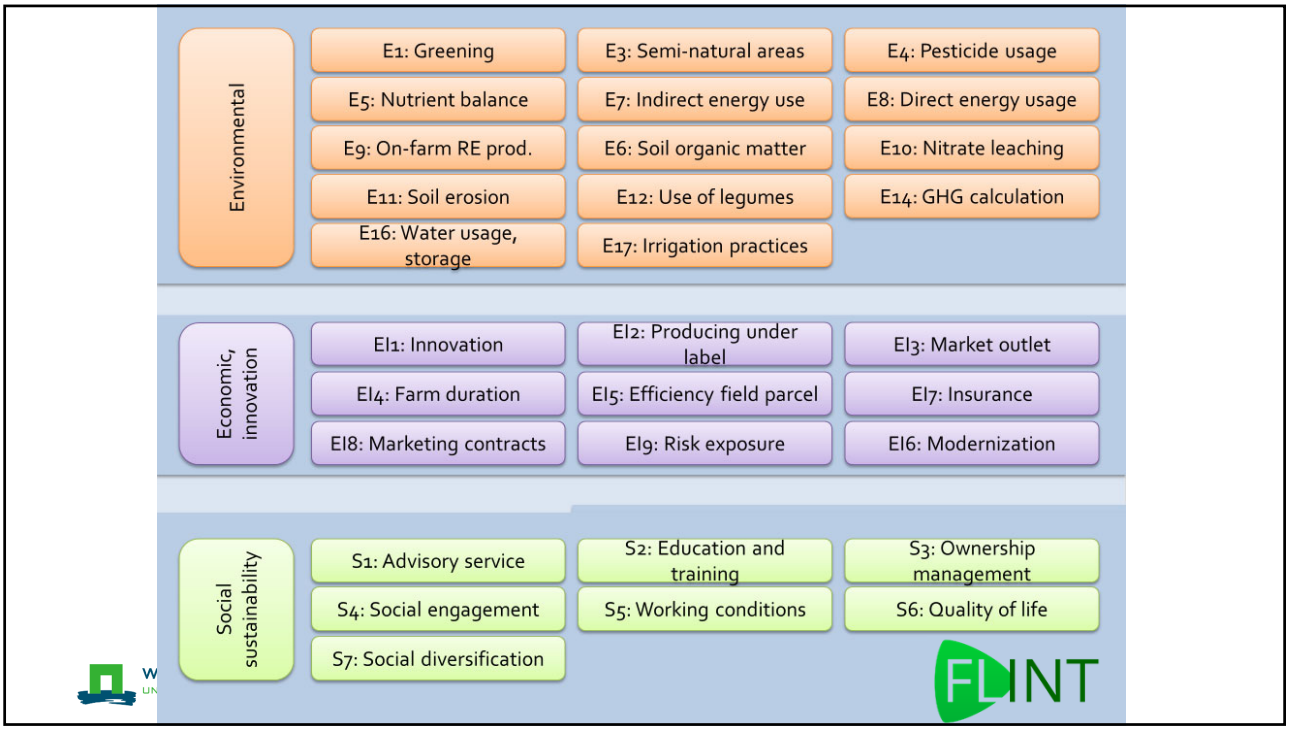

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Conclusions and discussion

- Continuous need for fact-based policy-making at national and international level
- Increasing need for farm level data on the sustainability performance of farms
- Adaptation to new policy needs to maintain relevance for farmers and policy makers
- Integrated data collection provides advantages for data collection and use
- Interest of farmers should be taken into account

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Discussion

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