



## The **Dairyman Sustainability Index (DSI)** as a possibility for a complete data validation



Elsaesser, M.,  
Herrmann, K and  
T. Jilg

Investing in opportunities

**L A Z  B W**

## The view on single factors



- ▀ Is not enough in order to speak about sustainability
- ▀ We should take more data in account
  
- ▀ Such a system or procedure can be used as a tool for grazing opportunities.



Investing in opportunities

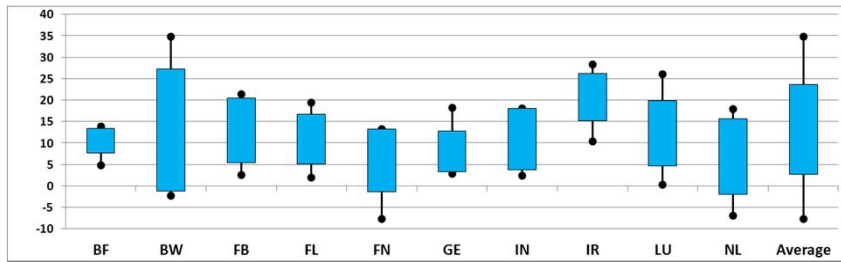
**L A Z  B W**

# 1. Income in € per 100 kg milk (FPCM)



## on dairy level

(«Income 2» minus «total interests»)



Q10 (year 2010): 2,6 €100 kg milk  
 Q90 (year 2010): 23,6 €100 kg milk  
 Weighting: max. 16 points  
 Average survey: max. 11 points



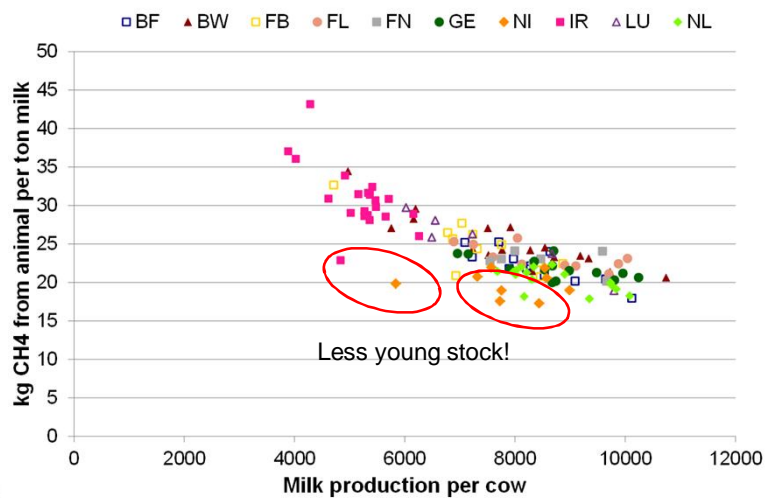
Elsaesser, Herrmann, Jilg, 2013

LAZEBW

# Pilot farms – Methane emissions



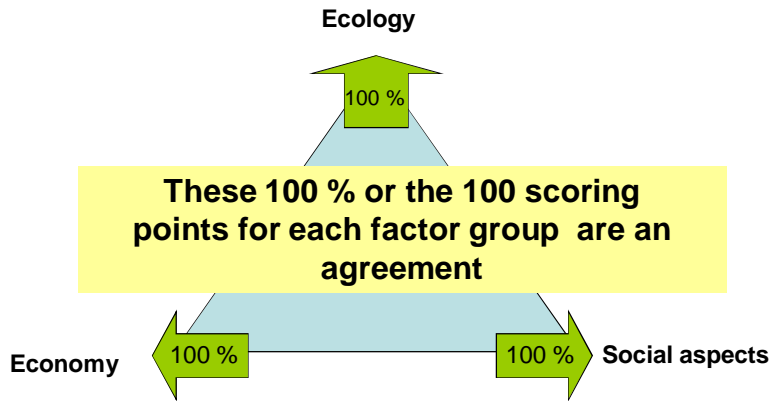
## Methane emissions in relation to the milk production per cow



4

LAZEBW

## The system approach



Elsaesser and Herrmann 2013

LAZEBW

## 3 Factor groups and 100 points each



		Maximum
Social aspects		100
Ecology		100
Economy		100

The sum is the **DSI**



Elsaesser and Herrmann 2013

LAZEBW



**The DSI-System is a tool in order to compare the Dairyman pilot farms and is not a tool for measuring the „true and real sustainability“.**

- Scoring was done after long and intensive discussions about:
- Which parameters are needed?
- Are these values in Dairyman easy to find and to measure?
- We agree that with such a procedure not all possible parameters were evaluated.



Elsaesser and Herrmann 2013



## DSI parameters and scoring



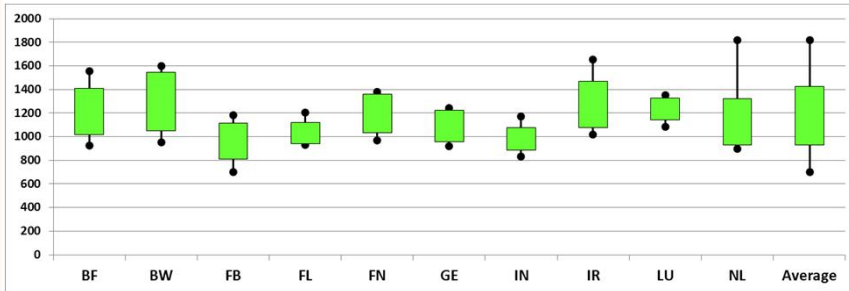
Economy	Ecology	Social aspects
Income/kg milk	16% N balance/ha	15% Education
		22% Working conditions
Income/fLU	34% N balance/kg milk	11% Continuity of farm
Total farm income	22% N efficiency %	16% Social role/image
Dependency on subsidies	10% P balance/ha	
Exposure to price fluctuations	18% P balance/kg milk	
	P efficiency %	
	Agri-env. pay./farm	
	GHG emissions	
	100%	100%



Elsaesser and Herrmann 2013



## Example: Greenhouse gas emissions in 1000 kg CO<sub>2</sub>-eq per t milk on dairy level



Q10 (year 2010): 932 kg CO<sub>2</sub>-eq/1000 kg milk  
 Q90 (year 2010): 1427 kg CO<sub>2</sub>-eq/1000 kg milk  
 Weighting: max. 22 points  
 Average survey: max. 15 points



Elsaesser, Herrmann, Jilg, 2013

LAZ BW

	Indicator	Dimension	Farm value	Scoring	Points /farm	max. points
Economy	Income /kg milk	€/100 kg Milch	9.5	0.32	5.2	16
	Income /fLU	€/Familien-AK	123038.4	1.00	34.0	34
	Total farm income	€/Betrieb	174537.1	1.00	22.0	22
	Dependency of subsidies	%	0.4	0.85	8.5	10
	Exposure to price fluctuations	%	0.7	0.58	10.4	18
	Total economy				0.80	80.1
Ecology	N-Balance per ha	kg/ha	146.0	0.66	9.8	15
	N-Balance per kg milk	kg/t milk	20.1	0.55	6.0	11
	N-efficiency	%	22.6	0.13	1.7	13
	P-balance per ha	kg/ha	20.0	0.01	0.4	11
	P-Balance per kg milk	kg/t milk	3.0	0.00	0.0	8
	P-Efficiency	%	25.8	0.00	0.0	10
	agri-envir. Payment /farm	€/ha	74.4	0.61	6.1	10
	greenhousegas emissions	CO <sub>2</sub> -eq/t Milch	973.1	0.92	20.2	22
Total ecology				0.44	43.9	100
Social asp.	Education	none		0.75	15.0	20
	working conditions	none		0.67	26.3	39
	Continuity of farm	none		1.00	14.0	14
	social role and image	none		0.63	11.3	18
	employment	none		0.60	5.4	9
	Total Social aspects				0.72	71.9

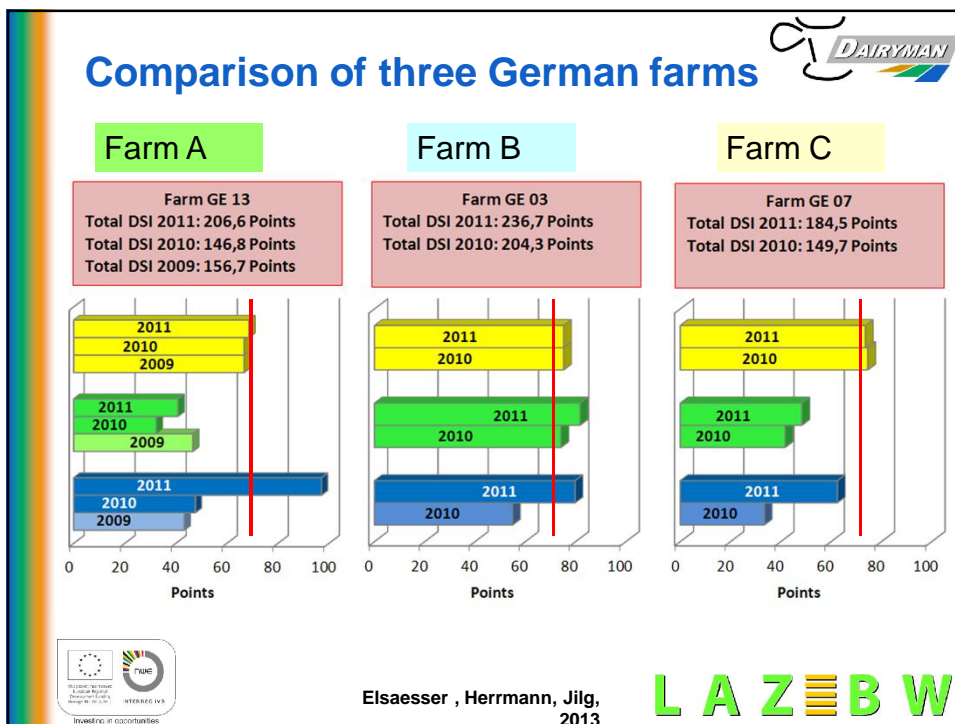
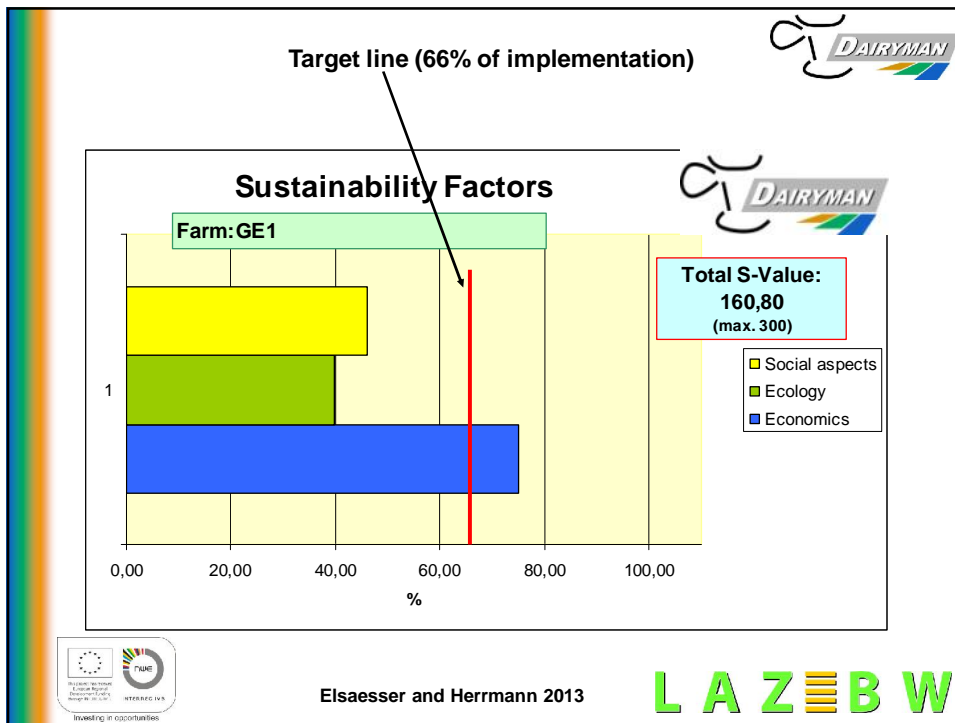


Aggregation of single parameters

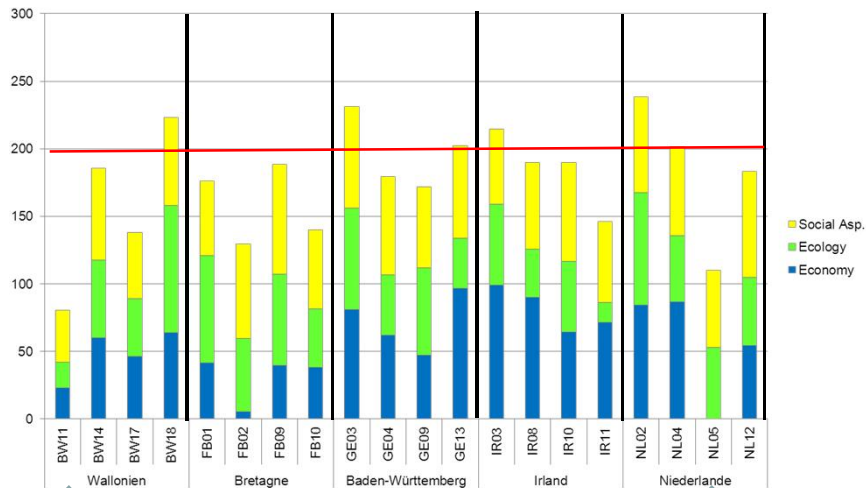


Elsaesser and Herrmann 2013

LAZ BW



## Examples of DSI in pilot-farms



Elsaesser and Herrmann 2013

LAZEW

## Conclusions



- The Dairyman Sustainability Index gives a better view on the farm situation than each single factor
- The **DSI** allows to look deeper into the farm specific situation if using the single factors
- The **DSI** gives the possibility to compare farms in and between regions easily
- The **DSI** gives the possibility to compare dairy production systems



Elsaesser and Herrmann 2013

LAZEW

More informations are to find on:



- Elsaesser, M., Herrmann. K., Jilg, T., 2013: The DAIRYMAN-Sustainability-Index (DSI) as a possible tool for the evaluation of sustainability of dairy farms in Northwest-Europe. Dairyman – Report, Nr. 3.



LAZEBW