SOLID | Sustainable Organic and Low Input Dairying

Sustainable Organic and Low Input Dairying (SOLID)

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SEVENTH FRAMEWORK PROGRAMME

SOLID

- Total budget ~ 6 million euros
- 5 years (April 2011 to March 2016)
- 24 partners, 9 SMEs
- 10 countries

Context

- Knowledge based, competitive, profitable, environmentally sustainable and energy efficient farming systems (SCAR, 2008)
- Multi-functional potential of farm systems important
- Productivity, environmental, animal welfare, nutritional and profitability functions of low-input and organic farming increasingly recognised
- Constraints of these systems which limit potential

Known constraints

- **Farm**
  - availability and use of appropriate adapted breeds
  - availability and use of appropriate feeds (health and milk quality/quantity)
  - health and welfare challenges
  - financial and environmental efficiency
- **Sector**
  - volatile markets/price differentials
  - poor supply chain relationships/fragmentation
  - lack of appropriate decision support tools
- **Policy**
  - uncertain future policy support
  - methodologies for recognising multifunctionality potential of systems

SOLID

- To support developments and innovations in organic and low input dairy systems to optimise competitiveness while:
  - Maximising potential of these systems to deliver environmental goods and biodiversity
  - Optimising economic, agronomic and nutritional advantages for the development of innovative and sustainable organic and low input dairy systems and supply chains

Role of SOLID

- **Actively involve stakeholders** (organic and low input dairy farmers, farmer groups, advisors, processors) in a co-ordinated approach – a participatory approach
- **Quantify advantages of genotypes** “adapted to organic and low input dairy production systems”
- **Novel and sustainable feed** resources and **decision support model** to optimise management of on-farm feed
- **A knowledge platform** to access **environmental sustainability**

Role of SOLID

- **Identify** the broad range of **expectations** of low-input and organic dairy farming and food systems
- **Evaluate** the **competitiveness** of existing organic and low input dairy farms and novel strategies developed
- **Disseminate knowledge to key stakeholders** through a participatory framework

Structure

- **WP1** – Innovation through stakeholder engagement and participatory research (Susanne Padel)
- **WP2** – Adapted breeds (Werner Zollitsch)
- **WP3** – Novel feeds and decision support models (Marketta Rinne)
- **WP4** – Environmental assessment (John Hermansen)
- **WP5** – Supply chain and consumer analysis (Raffale Zanoli)
- **WP6** – Socio-economic evaluation (Ludwig Lauwers)
- **WP7** – Knowledge exchange, training and innovation (Niels Halberg and Cled Thomas)

Participatory projects – for example biodiversity in Austria

Typical landscape of farm location

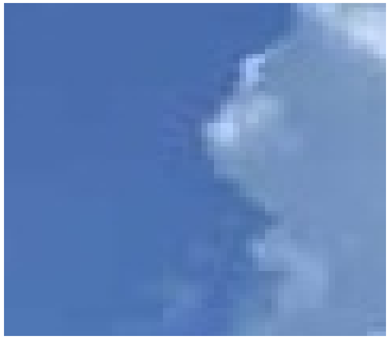
Dr. Walter Dietl, Farmers' field lab- plant biodiversity

Economic impact

- Organic is clearly defined, low-input not
  - This makes comparative analysis more difficult
- Organic and low-input dairy farming across the EU is very diverse
- Such farms appear more resilient to input price increases and volatile market prices

Environmental impacts of milk ?

Global warming



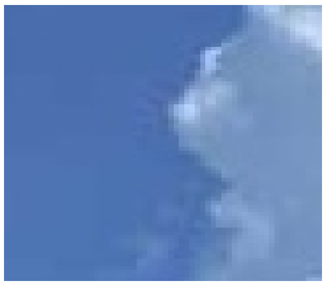
Nutrient enrichment

Carbon sequestration / soil fertility

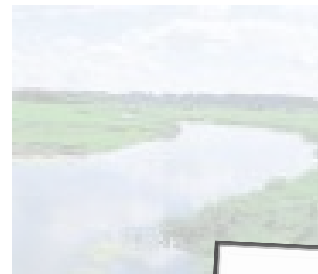
Biodiversity

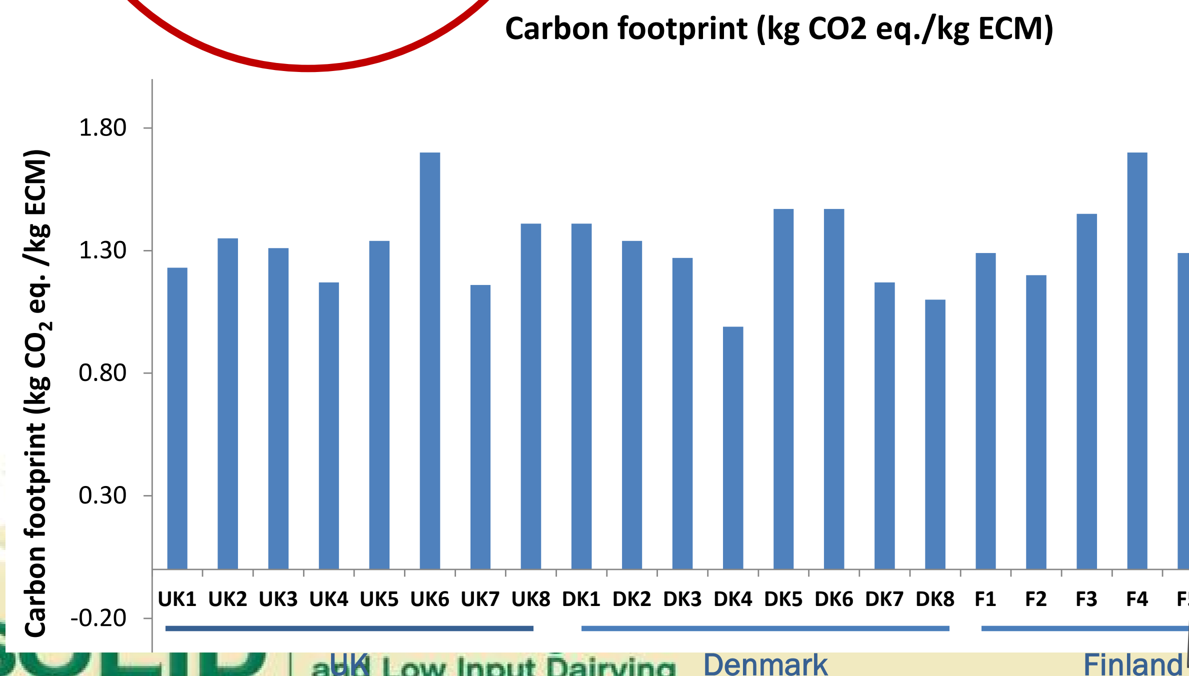
Carbon footprint of milk - 23 farms

Global warming



Nutrient enrichment





Carbon footprints of organic dairying in six European countries—real farm data analysis

Soil carbon sequestration
- should be included!

Organic farming have significantly higher soil carbon sequestration compared to conventional

BUT normally not included in life cycle assessments

Biodiversity should also be included!

Organic farming have significantly higher biodiversity compared to conventional

BUT normally not included in life cycle assessments

Super-low input dairy goat production

Phenotypic and Genetic characterisation of 3 goat breeds (Skopelos, Eghoria, Damascus) in 7 flocks

A large Database has been created:

8,057 observations regarding welfare assessment traits\

7,985 measurements of milk yield

7,734 recordings of milk quality traits (fat, protein and lactose concentration)

7,456 measurements of Total Viable Counts

6,815 measurements of Somatic Cell counts

1,203 milk samples were analyzed for microbiological profile

2,000 parasitological examinations (from individual goats)

Milk yield (g/d/goat) between the three breeds of goat across all participating flocks according to sampling time during the two years of the study

					Year 1 (2012)					
	1st Sampling		2nd Sampling		3rd Sampling		4th Sampling		5th Sampling	
	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.
Skopelos	1784	41,5	1550	41.6	1148	40.9	1031	41.4	729	56.5
Eghoria	904	40.7	885	41.2	758	41.1	542	41.4	476	41.4
Damascus	2442	46.0	2076	46.7	1820	45.2	1593	45.7	1298	49.5
					Year 2 (2013)					
	1st Sampling		2nd Sampling		3rd Sampling		4 th Sampling		5 th Sampling	
	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.
Skopelos	1579	48.5	1660	43.6	1612	50.7	1243	53.1	872	54.6
Eghoria	923	61.7	772	48.9	858	43.8	491	48.0	438	46.6
Damascus	2124	56.7	1901	45.4	1666	47.1	1301	51.7	1067	55.7

Quality characteristics of goat milk between breeds in all participating flocks during the two years of the study

	Year 1 (2012)				Year 2 (2013)			
	Skopelos	Eghoria	Damascus	s.e.d	Skopelos	Eghoria	Damascus	s.e.d
Fat (%)	4.92	4.69	4.87	0.044	4.84	4.68	4.70	0.042
Protein (%)	3.76	3.72	3.95	0.023	3.79	3.58	4.03	0.023
Lactose (%)	4.49	4.52	4.29	0.014	4.22	4.29	3.99	0.015
Total solids (%)	9.14	9.14	9.13	0.023	8.90	8.74	8.91	0.021

Daily milk yield (g/day) of healthy goats (824.8 g/day) and goats with subclinical mastitis due to infection with different pathogens and the pairwise comparisons between them

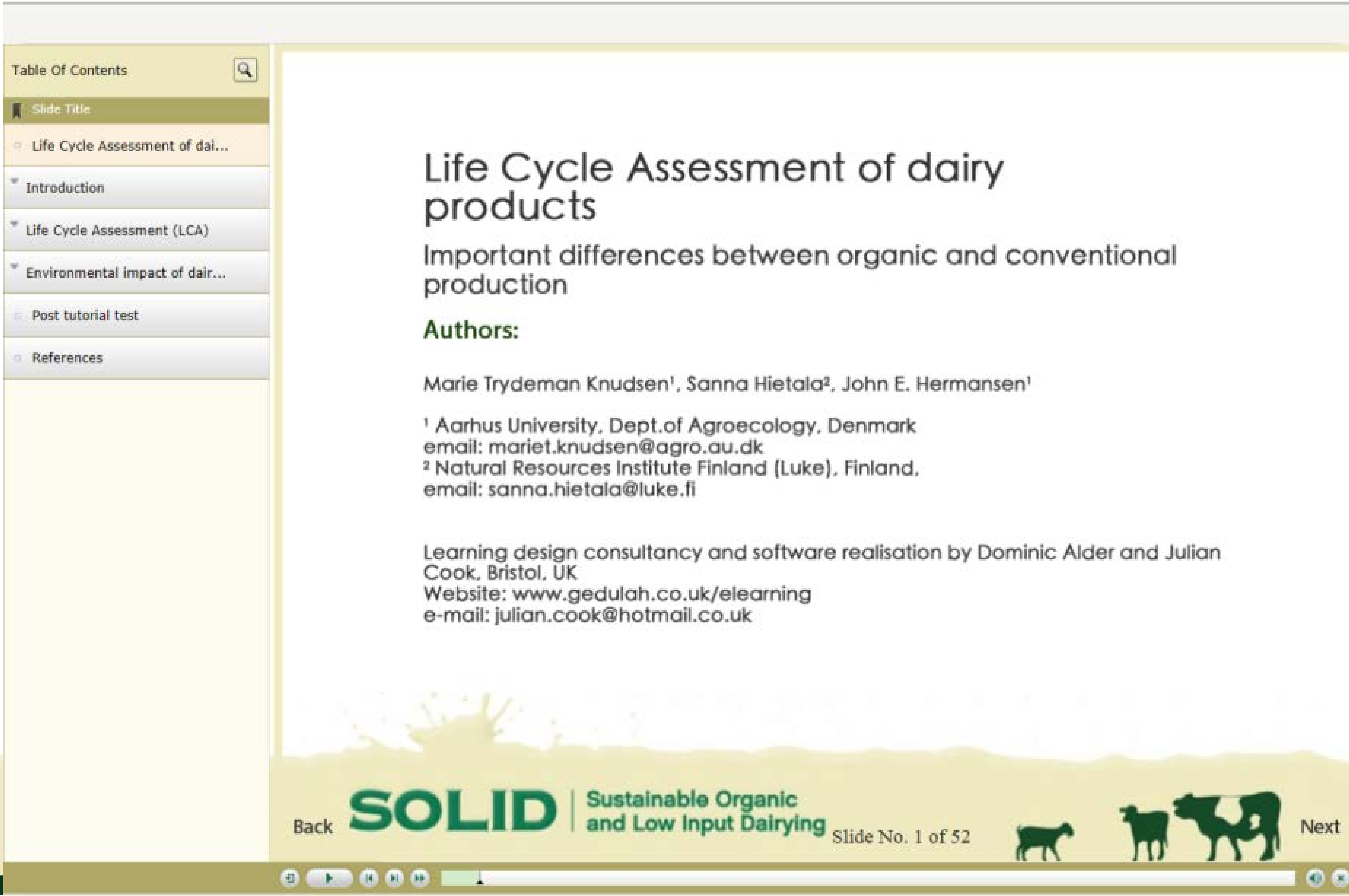
SCM pathogen	DMY (g/day)	Mean difference of DMY (g/day)*	SE	P-value	95 % CI	
					Lower	Upper
CNS	796.6	-28.2	23.7	0.233	-74.3	18.2
CPS	745.2	-79.6	30.4	0.009	-139.2	-20.0
S/E	762.5	-62.3	72.9	0.393	-205.3	80.7
Gram-negative	701.2	-123.6	57.3	0.031	-236.0	-11.2
Mycoplasma agalactiae	731.4	-93.4	121.0	0.440	-330.6	143.7
Unidentified	826.8	2.0	80.1	0.980	-155.1	159.1
Negative culture	743.9	-80.9	25.3	0.001	-130.5	-31.3

*Compared to healthy goats

SCM: subclinical mastitis; DMY: daily milk yield; SE: Standard error; CI: Confidence interval; CNS: Coagulase-negative staphylococci; CPS: Coagulase-positive staphylococci; S/E: *Streptococcus/Enterococcus* spp.

SOLID enable the assessment of negative effect of SCM on milk yield for the first time in low-input goat farming systems.

SOLID e-learning



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SOLID Workshop: “Organic and low-input dairying”

Posted on 24. November 2015 by SOLID

The SOLID Workshop “Organic and low-input dairying” – an option to Northern European Dairy Sector?” was held in Helsinki, Finland on 27-28 October 2015.

Majority of the participants represented various Finnish stakeholder groups with delegates from other Nordic countries and the Baltic countries as well.

The presentations covered findings from all work packages of the project. Additional

Search

ABOUT SOLID

SOLID is a European project on Sustainable Organic and Low Input Dairying financed by the European Union. The project runs from 2011-2016. 25 partners from 10 European countries participate in the project.

Categories

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- Meetings and workshops
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- WP1 Participatory research
- WP2 Adapted breeds
- WP3 Forage
- WP4 Environmental assesment
- WP5 Supply chain and consumers
- WP6 Socio-economic evaluation