SOLID is a European 7th Framework Programme project

SOLID NEWS

NEWSLETTER OF THE SOLID PROJECT ● 2013 ● 4TH ISSUE

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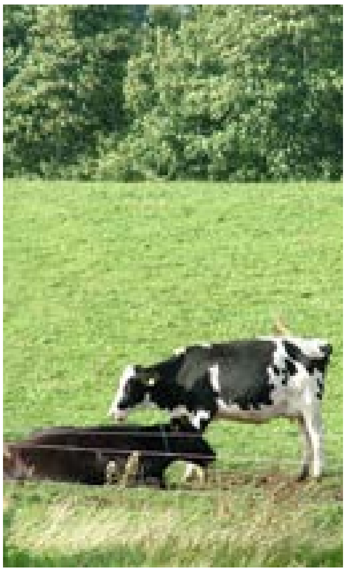
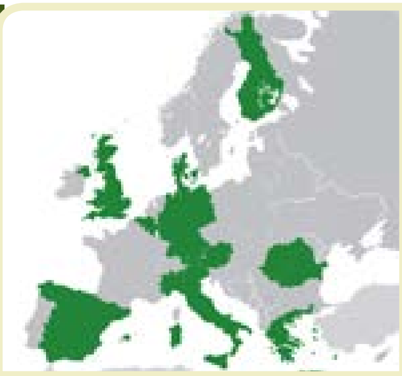




ABOUT THE SOLID PROJECT

SOLID is a European project focusing 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.

Welcome by the coordinator

Welcome to the fourth Newsletter from SOLID. Work has been moving ahead apace over the summer months since our project meeting in Greece in May. This newsletter highlights the work that the Aristotle University team from Thessaloniki are doing with respect to characterising the performance of dairy goats in contrasting low input systems.
We were lucky enough to visit some of the farms involved in the study and see first-hand the diversity that exists between dairy goat systems in Greece. Other SOLID work highlighted in the newsletter is the Rapid Sustainability Assessment that was used in the early stages
of the participatory farm research to enable farmers to identify the strengths and weaknesses of their own systems, and then in workshops hosted in partner countries,
to identify specific research needs to address system weaknesses. These research needs have subsequently formed the basis of the 18 participatory research projects that are now taking place or are in preparation across Europe.
Finally the extremely important work on the development of a decision support tool to support farmers and their consultants in managing feed supply in high forage low input and organic dairy systems is presented. As with our previous newsletter, this issue features another of our SME partners, Agro-Solomonescu from Romania, who's input in this type of project is critical for engaging industry by not only participating in research, but also setting the research agenda as per the participatory research of WP1 .
Finally, congratulations to Marco Horn (BOKU) and colleagues involved in WP2 for winning the best poster presentation at the recent EAAP meeting in Nantes, France.

Nigel Scollan, Project Coordinator

About SOLID

The objective of SOLID is to support developments and innovations in organic and low input dairy systems to optimise competitiveness for a sustainable and profitable dairy industry in Europe.

Workpackage titles

Innovation through stakeholder engagement and participatory research	WP 1
Adapted breeds for productivity, quality, health and welfare in organic and low input dairy systems	WP 2
Forages for productivity, quality, animal health and welfare in organic and low input diary systems	WP 3
Environmental assessment: For improvements and communication in organic and low input dairy systems	WP 4
Competitiveness of organic and low input dairy sector: Supply chain and consumer analyses	WP 5
Socio-economic evaluation of novel strategies in organic and low-input dairy farming	WP 6
Knowledge exchange, training and dissemination	WP 7
Project coordination and overall management	WP 8

Rapid Sustainability Analysis

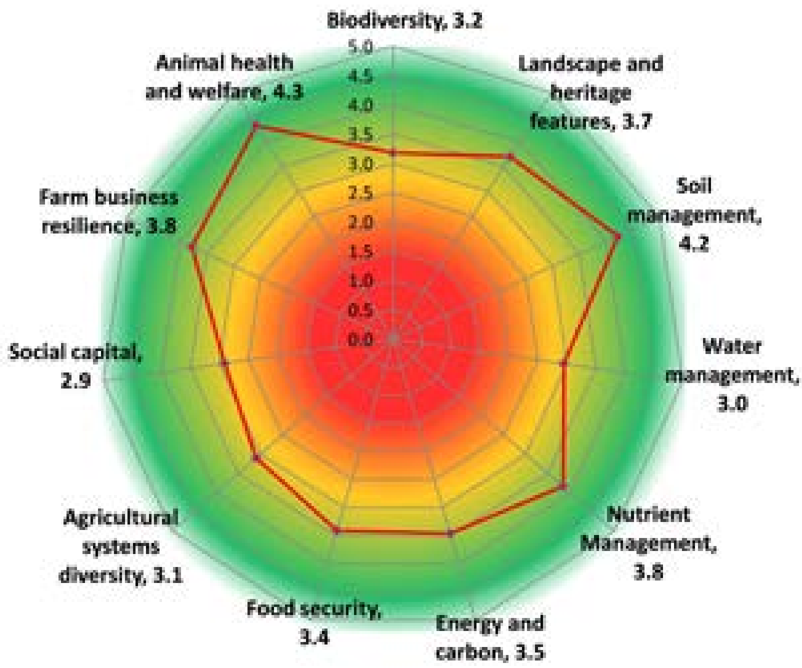
By Mark Measures, Organic Research Centre, Hamstead Marshall, Newbury, UK

An important initial step in addressing the development of more sustainable dairy farming in the SOLID project has been to gain a better understanding of commercial organic and low input farms in terms of their current environmental, social and financial sustainability. This was achieved by undertaking an assessment of 102 farms in 9 countries, involving farms from the SMEs participating in SOLID.

Sustainability means different things to different people. Our aim has been to take a comprehensive view encompassing environmental, social and financial objectives, including the sometimes overlooked areas of animal welfare, role in the community and farm diversity as well as the more commonly stated objectives of profitability and yield.

The Rapid Assessment Tool was developed by the Organic Research Centre (The Public Good Tool) and was modified for the use in this project. It provides a simple, measurable and accessible way to begin the process of examining the sustainability of a farming system and its management, for both organic and low input farms. It usually takes half a day to undertake the farm assessment.

The individual farm is assessed through a combination of quantitative and qualitative measures over a given time period under 11 headings. The tool assesses the individual farm wherever possible, not merely the standards to which it conforms by using several indicators for each objective. For example, a nutrient budget is calculated which gives a guide as to whether there is a nutrient deficit or surplus across the farm. Under animal welfare, it asks about rates of mastitis and lameness in the herd as well as more qualitative, subjective questions e.g. about ability of the livestock to perform natural behaviour; the farm's energy use is compared to standard benchmark data. A cobweb (radar) diagram demonstrates the results of the assessment on each spur and can be quickly understood by the farmer. See example from a UK farm below:



Cobweb (1 is poor performance, 5 is good)

William Waterfield carrying out one of the UK RAT assessments.

Within the SOLID project the assessment was undertaken on 102 farms providing a starting point for discussion of strengths and weaknesses of the farms. The results are being used to inform research priorities in the project, building on those innovative practices already being used by farmers and addressing some of the significant shortfalls in other areas, such as feed self sufficiency.

Beyond the SOLID project, the tool has great potential as an advisory tool to help to demonstrate how a farm is doing, to identify priority areas for improvement and assess changes over time. Such assessment and benchmarking provides a measurable and effective means of delivering more sustainable farming.

Dairy cows grazing in Wales

Towards a Better Balance of Forage Supply and Demand

*By Jan Vaillant, Leibniz Centre for Agricultural Landscape Research, Germany &
Lisa Baldinger, University of Natural Resources and Life Sciences, Austria*

Task 3.4 seeks to develop a decision support system (DSS) – a software – that supports farmers and their consultants to evaluate measures in terms of their ability to reduce risks of feed shortages on low input dairy farms – both organic and conventional.

Although a generally recognised definition does not exist of what a "low-input" dairying business exactly is, it is widely accepted that most farms of this type feed a considerably higher share of forages grown on-farm and less concentrates. The herd's requirements must be met to a large extent by grazing, conserved fodder from permanent grassland or forages from arable land. Therefore a low-input dairy farm has less options to supplement - and in case of shortages: substitute – forages with purchased feedstuffs. The risk of weather induced on-farm forage shortages is of greater importance in a low-input dairy farm, and feed supply and price volatility is less evened out by markets. The DSS models scenarios to help farmers

The DSS will evaluate measures to help to reduce risks of feed shortages – both in terms of dry matter and nutrient supply. The major components of such a system are requirement (herd), supply (feedstuff) and a logic that connects both sides (rations).
The mathematical models and algorithms include a model to simulate the herd structure with different calving patterns (no. of dry and milking cows, heifers, young stock, days in milk etc.). This model will feed the algorithms that estimate feed requirement (dry matter, energy and protein).
The supply side is estimated via a grassland (pure grass or grass-clover swards) model which simulates forage growth and quality throughout the year. Later it will be extended with other crop models. A soil model will cover the most important dynamics of water and nitrogen availability.
The models of the demand and supply side are connected with a ration formulation routine (linear programme) that designs the rations in a way that both over- and undersupply is minimized for energy and protein across all animal groups throughout all periods.

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The major challenges are:
• to find a reasonable balance between minimizing the need for the user to enter data (usability) and model output quality.
• to compromise between an implementation of the many different feed evaluation systems which are used throughout Europe and an oversimplified single evaluation system (a sort of common denominator).
• to design a useful method to describe the risk of feed shortages in order to evaluate management options.
• to narrow down and prioritize all possible management options that could be evaluated by the DSS.

It is apparent that the approach must be reduced to a certain extent in both scope and precision. It is not possible to design and parameterize a very complex DSS model that could be used in any low-input dairy farm in Europe. We try to cope with those problems by pursuing a strategy that allows us to continuously, iteratively develop sub-models and test their interaction without prior precise knowledge of all potential sets of decision questions.

A range of questions that could in theory be evaluated by the software are presented here. Basically there are three possible areas of intervention to reduce the risk of a feed shortage:

- A reduction on the demand side
- An increase on the supply side
- A better balance of demand and supply

All measures within these areas shall be evaluated against the status quo and an indicator will be derived which reflects the risk a farmer is currently willing to accept (e.g. in x out of n years the supply is not sufficient to satisfy herd requirement).

Since the software will not be able to predict e.g. harvest dates and yields exactly, all management options should be evaluated in terms of their probability to lower the risks: How much would an improvement in management towards an ideal situation reduce the risk of forage undersupply? How sensitive is a certain option with respect to the overall goal?
If one assumes that it is not possible to manage everything in an ideal manner (pick the optimum harvest date plus pick the optimum grazing day plus have an ideal herd structure etc.) it could be helpful to evaluate how much an 'investment' (spending management resources, gaining knowledge, improving technology) in a certain improvement would pay off.

Reduction of the demand
A reduction of the demand side can be achieved by altering the herd structure, e.g. changing the number, breed and production potential of cows, or keeping cows longer to reduce the proportion of non-producing heifers.

Increase of the supply
Increasing the area of forage production (either by acquiring additional land, substituting cash crops with forages or grow intermediate crops) is the most trivial decision one can think of. A proper decision question might be "which forages should be grown on additional land to minimize the required area?"

Feed allocation and balancing of demand and supply
A third area of questions potentially supported by the DSS are concerned with a better allocation of feedstuffs. The reduction of waste due to improper rations might be an important way to achieve better food security: "How does grouping of animals affect feed allocation and reduction of wasted nutrients? Does variability of requirements within the herd make a huge difference? What is the optimal supplementation of available forages?".

By Georgios Arsenos, Athanasios Gelasakis, Rebekka Giannakou, Sofia Termatzidou, Maria Karatzia, Katerina Soufleri, Sophocles Pinopoulos, Panagiota Kazana, Apostolos Angelidis & Mary Kalamaki, Aristotle University of Thessaloniki, Greece

Exploring the low input dairy goat farms in Greece

Goats have been milked since time immemorial in Greece. They comprise genetically diverse populations that take advantage of semi-mountainous or mountainous regions, where they are traditionally fed on natural pastures and scrublands under varied climatic conditions. Such systems are characterized by limited human intervention. Considering their role in rural development of Greece, goats represent an appropriate model of low input farming systems.

Outline of dairy goat production in Greece

Historically, dairy goats in Greece have played a vital role in maintaining rural tradition, sustaining development in line with environmental protection and diversifying farm activities towards marketing special dairy products. The Greek national flock is ranked as the largest national dairy goat flock in the E.U., counting more than 3.5 million female dairy goats.

Annual goat milk production is about 420,000 tons, representing about 22% of the total milk production in the country and rendering Greece the leading country within the E.U., in respect to goat milk output and production of value-added quality products. The total number of goat flocks exceeds 120,000 and are mainly grazing in communally owned land. The dominant system is semi-extensive where the kidding season coincides with the emergence of grazing resources. The goats have to be able to go through phases of extreme underfeeding during late summer months, using their body reserves accumulated during phases of grazing abundance. The latter is more evident in the transhumance system, which remains an essential activity in mountainous areas of the country. Moreover, recently a growing number of flocks are raised under the semi-intensive system. Both in mainland Greece and the islands the topography and climatic conditions are characterized by extreme irregularity of annual rainfall, sparse vegetation over poor and rocky soil and scarcity of arable land. Management of dairy goat farms is dictated by the availability of natural vegetation and most farms have low financial returns. Across different systems milk production is the key objective and after a suckling period of approximately two months, the milk is sold and processed into popular dairy products with feta (70% sheep and 30% goat milk) being the most renowned. For the purpose of SOLID a total of 103 flocks were visited and assessed using a purpose built questionnaire that enabled a detailed exploration of their characteristics.

Table 1. Average characteristics of dairy goat farms in Greece (n=103)

Assessed Parameter	Mean
Animals/flock and management:	
Adult goats	364
Bucks	26
Yearlings	74
Annual replacement rate	0.13
Prolificacy (kids per goat)	1.50
Milking goats	317
Machine milking installed in farms	0.31
Number of milkings per day	2.07
Milk yield/goat (lt/year)	207
Age of kids at weaning age (days)	82
Age of yearlings at mating (months)	9.2
Goats body weight (kg)	48
Bucks body weight (kg)	68
Kids carcass weight (kg)	9.6
Milk price (€/lt)	0.58
Meat price (kids) (€/kg)	5.40
Meat price (adult animals) (€/kg)	2.50
Land use/farm (hectares):	
Cultivated land	28
Cultivated land per livestock unit	0.37
Irrigated land	2.46
Non-irrigated land	25
Cultivated land for grazing	11.7
Duration of grazing (hours):	
Spring	8.2
Summer	10.7
Autumn	8.6
Winter	4.5
Walking distance for grazing (km)	
Spring	7.3
Summer	9.3
Autumn	7.1
Winter	4.0
Feedstuffs per farm/year (tons)	
Roughages	37
Concentrates	78
Straw	7
Personnel	
Number of workers	1
Number of family members	1.3
Total labour units	2.9
Livestock units per worker	22

Activities in WP1 and WP2

In WP1 a structured direct questionnaire was designed for in depth interviews with farmers to obtain a general description of farm characteristics and overall management practices. A total of 103 farms involving 37,484 animals, were visited. Table 1 presents some of the results obtained. A cluster analysis revealed that flocks shared common characteristics but were also different in terms of land availability and use as well as production traits. The majority of flocks (80/103) raised less than 500 animals each, whereas 5/103 had over 1200 animals. Based on WP1 outcomes, our work in WP2 focused on a small number of farms that were representative of raising three different goat breeds, two indigenous (Skopelos and Elliniki aiga) and a foreign well adapted breed (Damascus).

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Damascus Goats

Sampling

In WP2 our resource population comprised about 900 dairy goats from the above three breeds. Over the last two years phenotypic and genotypic differences were studied. Milk yield, milk quality, incidence of mastitis (based on milk somatic cell counts and microbiological analyses), body tissue changes and fertility status have been recorded for each individual goat monthly. Moreover health and welfare parameters were also assessed and monthly faecal samples were collected for egg counts and coprocultures. A large database is now available including information of about 9,000 milk yield records and about 8,600 records of milk quality (fat, protein, lactose, SNF, cells and TVC). Moreover, about 1,000 milk samples from individual goats have been cultured for pathogens such as CNS, Staphylococcus aureus, Streptococci spp, Listeria and coliforms. Also, parasitological examinations have been performed including coprocultures for the identification of nemadote genera. Data regarding the fertility status as well as the farm records are also available. The completion of field work is expected at mid October 2013. The genetic analyses for candidate genes which are believed to be linked with the phenotypic traits described above are in progression. The collection of this data has been quite a challenging and time consuming task and required personnel with high-level expertise. However, the outcomes so far provide valuable information that will enable the dairy goat sector in Greece to capitalize on these findings and meet the challenges of these changing times in agriculture. The response of existing goat farmers as well as policy makers and other stakeholders in different dissemination activities justifies that the work is definitely cost-effective.

Goats eating salt in the mountains

Country specific analysis of competitiveness and resilience of low input dairy farms across Europe

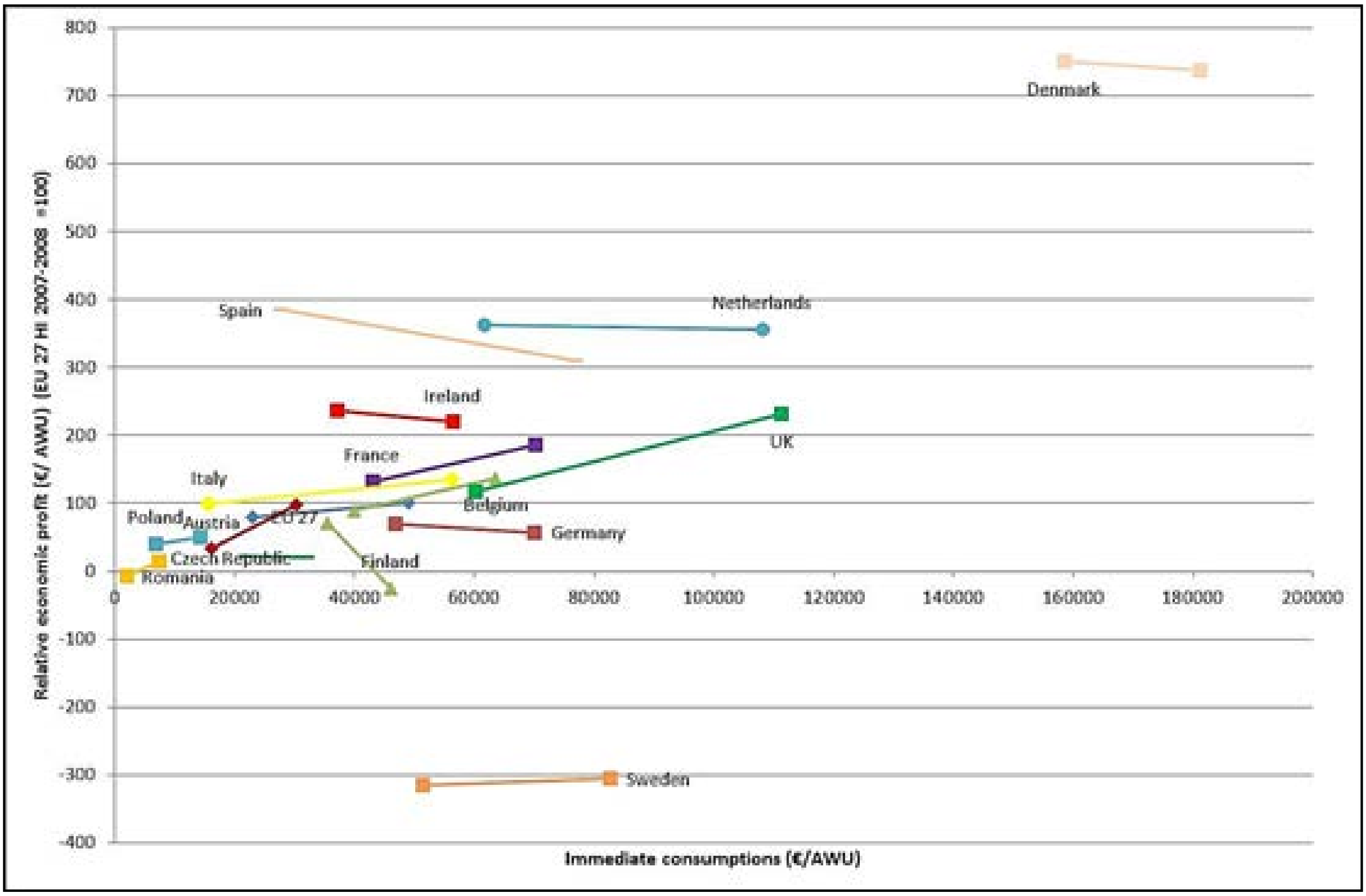
By Jolien Hamerlinck, Jo Bijttebier, Ludwig Lauwers, Simon Moakes

SOLID WP6 aims to evaluate the economic performance and potential of low input (LI) and organic farms to adopt novel strategies. Edition 2 of SOLID News described how a pragmatic LI definition was developed; pragmatic because the definition was developed within limited variables available through FADN data; and to fully exploit it as a tool for further analysis on the profitability of LI farms, allowing exploration of their economic potential in adopting new strategies. An EU-wide analysis has been undertaken to provide a first insight of the relative performance of organic and LI farms compared to conventional farms. In this article, we explore the more country-specific results. This article aims to identify the main differences between countries in terms of income and resilience of high and low input dairy farms to volatile milk and feed prices. For further details on country specific results of the low input farms, we advise interested readers to read the summary of deliverable 6.1 at www.solidairy.eu

Does the low input European dairy farm exist?
Based on a detailed review of existing literature on classification of farming systems and an explorative study of these methodologies on UK and Belgian data, it was concluded that a general definition of the European LI dairy farm was difficult to develop. One of the main causes was the variety of farming systems in Europe. To fully elaborate competitiveness issues within and between the farming systems across Europe, LI farms were defined for each country as those farms with the lowest 25% expenditure on inputs for that country. The inputs taken into account to identify LI farming systems, were the costs for fertilizers, crop protection, purchased feed for the ruminants and energy, expressed as € per grazing livestock unit. A first study of the FADN database (2007-2008), revealed that LI farms were smaller, with fewer animals, a slightly higher family labor percentage and lower milk yields. Besides these structural differences, LI farms were less profitable than other holdings, but also received lower support payments (see summary of deliverable 6.1 for more information).

Country specific differences in performance of high input (HI) and LI dairy farms
With the pragmatic country-specific definition of low input dairy farms as a tool, we can differentiate farms in each country into high versus low input farms. Figure 1 represents the average economic profit per annual working unit (AWU) for dairy farms across Europe for the years 2007-2008 (with direct input costs along the x-axis). The relative economic profit of the farms in the different countries is compared to the economic profit of the EU 27 HI farm, e.g. the profit of a dairy farm in Denmark is more than 7 times greater than that of the EU average. In the figure, each country is represented by two dots, interconnected with a line. The left dot represents the average profit of the LI farms of that country while the right dot illustrates the average profit of the HI farm.
See figure 1 on next page

Figure 1: Economic profit per annual worker unit (AWU) of HI versus LI dairy farms in Europe (2007-2008)



The length of the line indicates the relative difference in input expenditure between HI and LI; the slope indicates the difference in profit: A downward slope indicating that LI holdings perform better than HI, (which is strongly pronounced in Finland, but is also the case in Spain and Ireland) i.e. additional inputs have resulted in lower profitability. In several other countries however the line slopes upward; HI farms have higher economic profits compared to the LI farms. The position in the figure demonstrates very clearly the variety in farm size of the different farming systems within Europe. The immediate expenditures for a LI farm in Denmark, for example, are 10 times higher than those for a LI farm in Italy, reflecting the variation in dairy systems across the EU. These data reveal further insights on the real behavior of LI farms: some belong indeed to another farming system, while other LI farms, like in the Netherlands and Denmark, may still belong to a similar production system but are more efficient than the HI farms in their country.

Are LI farms more resistant to future volatility of milk and feed prices compared to HI farms?

Due to current and future tendency of high volatility of milk, feed and energy prices, the resilience of LI and HI dairy farms to this volatility is of interest. Figure 2 illustrates this volatility for milk prices in Europe and Belgium. Two sensitivity analyses have been undertaken based on two observations in the milk price evolution. First, the average milk price during a longer period (2007-2012) is lower compared to that of the period 2007-2008, though the recent trend is again upwards. Secondly, there are significant changes, illustrated by the high milk price in 2008 and the pronounced decline in the following year 2009.

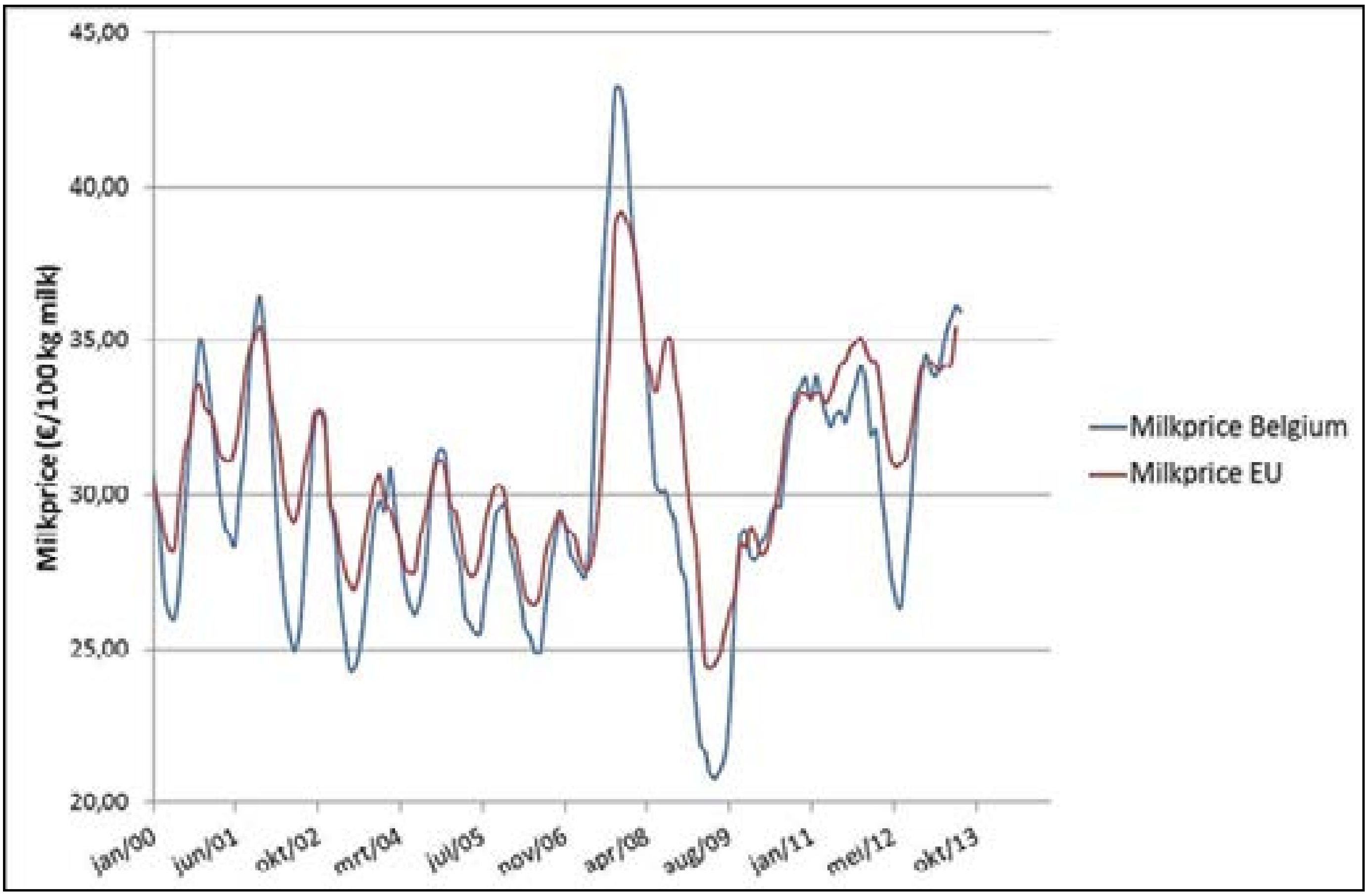


Figure 2: Evolution of the milk price (€/100kg milk) in Belgium and the EU (2000-2013)

For 2007 – 2012, milk prices declined by approximately 5.5% and yet feed prices increased by about 3% in comparison with the period 2007-2008. In 2009, milk prices were very low and declined by 30% while feed prices only declined by 13 %. Based on these figures, we designed a trend and a shock scenario, (based upon FADN data results from 2007-2008) to simulate the effect of both scenarios. Table 1 summarizes the average economic performances of LI and HI dairy farms in EU27 in 2007-2008 compared to the scenario simulations of reduced longer term prices and a price drop shock scenario.

The results show that LI farms are more resilient towards price fluctuations than HI farms. Where HI farms had a higher economic profit in 2007-2008, they have a lower income when assuming trend conditions and were more affected by extremely low prices as those observed in 2009. These results are confirmed by the country specific data (Figure 3). When prices decline, either in the long or short term, the economic advantage of HI farms decreases in these countries where HI farms perform better and in countries where LI farms perform better; this comparative advantage increases when prices decline.

Table 1: Economic performance of high versus low input dairy farms

	2007-2008		Trend scenario		Shock scenario	
	LI	HI	LI	HI	LI	HI
Total output (€/AWU)	43,541	71,141	41,160	67,250	30,975	50,610
Immediate consumptions (€/AWU)	23,097	48,980	22,427	47,559	20,148	42,726
Gross farm income (€/AWU)	28,456	32,874	25,404	27,562	18,839	18,597
Farm net income (€/AWU)	15,968	14,692	12,916	9,380	6,351	415
Economic profit (€/AWU)	4,941	6,168	1,889	856	-4,676	-8,109

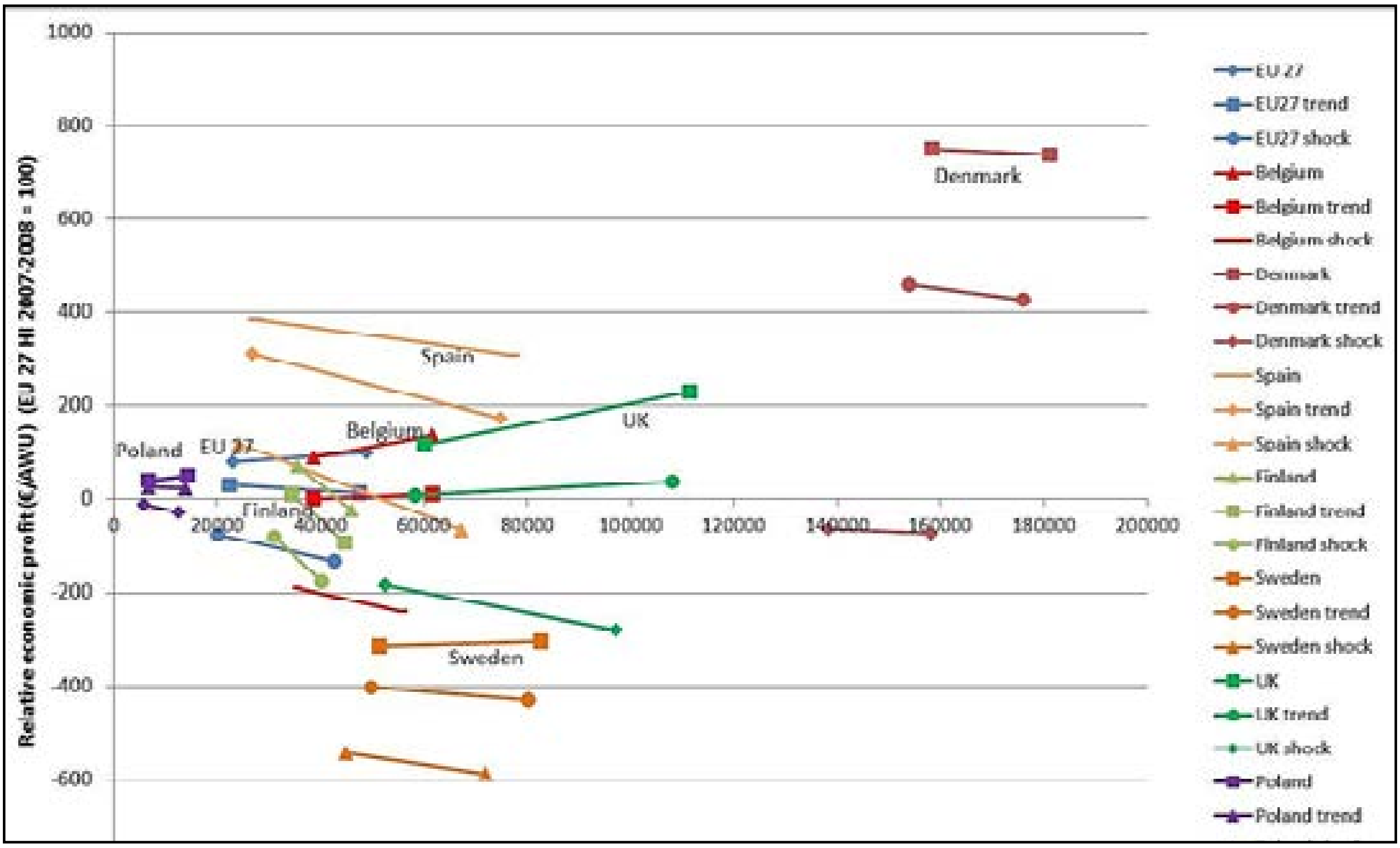


Figure 3: Average economic profit per annual worker unit (AWU) of HI versus LI dairy farms in Europe during 2007-2008, and simulations in a trend and a shock scenario.

Conclusions

Earlier analysis of LI farms across Europe revealed lower profitability of the LI farms compared to the high input ones. However, although this tendency can be extended to several European countries, the opposite is true for some countries; LI farms perform better than HI farms. Although their lower use of inputs produces less output, lower inputs may result in increased efficiency in the use of fertilizer, crop protection, feed, and energy on these farms. Moreover, in all European countries, LI farms seem to be more resistant to price fluctuations, which become more and more important in the post quota era, and may be of particular relevance to family farms where reduced income fluctuation is as important as absolute profit.

Innovative approach and locally rooted:

SC Agro Solomonescu SRL was established in 2003, having two main activities: dairy production and crop production.

There are 150 Romanian Black Spotted cattle, of which about 80 are dairy cows. Animal housing is based on a free stall design, with centralized milking parlour and basic facilities for compound feed processing (grinder, homogenizer). The milk is marketed locally for the production of various dairy products (cheese, yoghurt, etc.).

The main purpose of the crop production is to provide feed for the animals, with the surplus being marketed as raw materials. On the 600 ha of agricultural land alfalfa, corn (both for silage and grains), barley, sunflower and oats are produced amongst other crops. In line with the farms attempts to provide protein from local sources, they also cultivate some pea and soybean crops. Therefore, the farm buys only mineral-vitamin premixes and, when the prices are good, some by-products (brans, brewery wastes, etc.).

The farm uses a low-input approach with average milk production up to 5000 l / lactation, low levels of concentrates in the animal diets and low use of chemical fertilizers. However, the diets are properly balanced, the owners being aware of the importance of protein, mineral and vitamins; this shows that they are open to implement technical information and novelties, which displays an innovative approach. Consistently, the owners are open to running various projects – e.g. a SAPARD project for farm modernization in 2005.

The main role of Agro-Solomonescu in the SOLID project is to test the effects of several by-products in the diets of dairy cows, under farm conditions. Thus, under the guidance of the Romanian research partner, the National Research-Development Institute for Animal Biology and Nutrition (INCDBNA), they will assess the effects of Camelina meal and grape marc on the yield and quality of milk, intake level, etc. Also, the effects on dairy products will be investigated, in the endeavour to develop new foods.

Also, Agro-Solomonescu is involved in the identification of the research needs, dissemination of the results and assisted the Romanian research partner (INCDBNA) in performing the sustainability assessment of Romanian low-input farms.

Monitoring productivity of a UK dairy system aiming to increase soil carbon, based on diverse swards and incorporating mob grazing

By K LEACH[1], R RICHMOND[2] and W WATERFIELD[3]
1: Organic Research Centre, Elm Farm, UK 2:Manor Farm, Chedworth, UK 3:Waterfield and White, UK

Rob Richmond, a UK organic dairy farmer in the Cotwolds, has been working with diverse swards and a "mob grazing" system over seven years. As part of the participatory research in SOLID in the UK, the performance of these diverse swards under mob-grazing conditions has been

Discussion Group members discuss Mob Stocking and diverse swards with Farmer Rob Richmond (on the right) and Alan Savory (on the left)

Rob Richmond, a UK organic dairy farmer is very interested in increasing soil organic matter (SOM), both to improve plant productivity, and augment carbon sequestration. One practice that may contribute to increasing SOM is a "mob grazing" approach. This involves high stocking density for a short period of time, and grazing more mature swards, leaving higher cover and longer recovery times between grazings than in typical UK grazing rotations. This approach is likely to be best suited to swards that include a wide variety of grass and herb species, giving greater resilience than a purely ryegrass sward. The approach was developed by Alan Savory in Southern Africa. On 27 September Alan Savory was visiting the UK, so the Organic Research Center, UK took the opportunity to invite him and farmers of a dairy discussion group to take a look at the farm. The performance of dairy herds on such swards under this type of management in the UK has not been documented.

Manor Farm is a 220 ha organic dairy farm in the Cotswolds with 188 spring calving dairy cows. Soils are shallow with brash over limestone, and prone to drought. The grazing area for the milkers is 74 ha, with an additional 20 ha following first silage cut, which is grazed on a 40 day rotation. Cows are allocated a fresh area of approximately 0.8 ha twice a day (117.5 LU/ha/day). Beginning in March 2013, at 2-3 week intervals, dry matter per hectare and botanical composition of the sward available to the cows and remaining immediately post-grazing were measured by sampling 3 x1m^2 quadrats. Metabolisable energy content of the sward available and rejected was evaluated by wet chemistry on two dates and used to estimate energy intake. Feed use and milk sales were recorded (see Table 1 and 2 on following page.)

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Table 1 Intake from grazing and cow performance at Manor Farm from March to July 2013

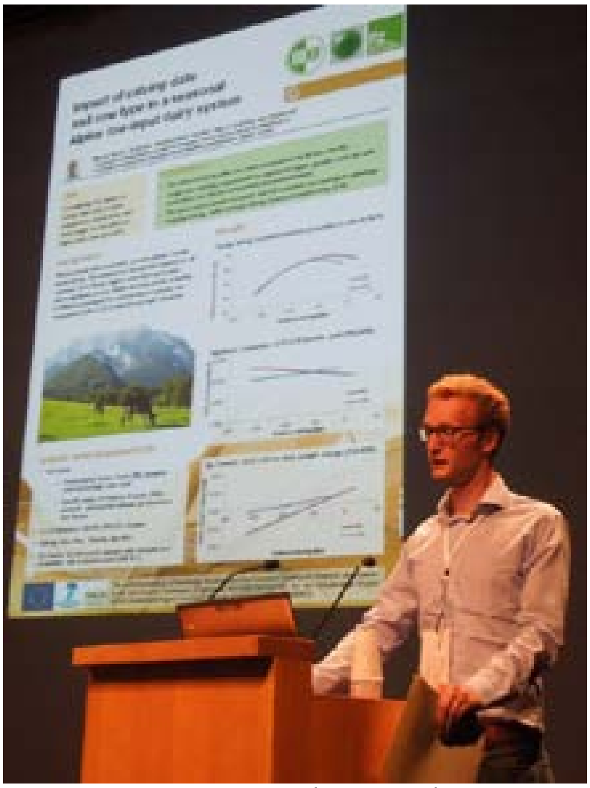
Month	Estimated grazed intake (kg DM/cow/day)	Supplementary feed/cow/day	Milk sales (l/cow/day)
March	4.25	Silage + 6 kg cake	18
April	7.45	Silage + 4 kg cake	22
May (14th onwards)	18.0	2 kg cake	22
June	14.0	1 kg cereal meal	21
July	18.0	1 kg cereal meal	16

Table 2 First results of the characteristics of herbal sward ahead of the cows (NA – not available)

Month	Herbage available (t DM/ha)	Estimated herbage residual (above 6 cm) (t DM/ha)	Estimated energy intake from grass (MJ/cow/day)	Sward clover % (DM basis)	Sward broadleaf % (DM basis)
March	0.4	0	NA	NA	NA
April	0.7	0	87	12	9
May	1.7	0	206	14	9
June	1.8	0.5	141	27	8
July 1	3.4	1.3	180 - 199	13	22
July 21	2.3	0.8		17	38

Diverse sward composition just prior to grazing in September 2013

Cold spring conditions restricted early herbage growth, requiring supplementary silage feeding and higher than expected concentrate feeding into May. Grazing allocations resulted in increasing amounts of residual herbage from June onwards. The proportion of broad leafed species increased over the summer. By late July, cows were selectively grazing legumes and broadleaves, rejecting stalks of grasses, chicory and plantains. The estimation of herbage availability and intakes from such variable swards presents a large challenge. Monitoring is continuing to increase the availability of information.



Marco Horn, BOKU, presenting the poster at the EAAP meeting

"Rommert Politiek Award" for SOLID WP2 poster presentation at EAAP meeting

The annual meeting of the European Federation of Animal Science is one of the largest scientific meetings in the livestock sector. At this years EAAP meeting in Nantes (France) the contribution of Marco Horn, Andreas Steinwidder, Walter Starz and Werner Zollitsch entitled "Impact of calving date and cowtype in a seasonal Alpine low-input dairy system" received the "Rommert Politiek Award" for best poster presentation. The paper investigated possible interactions of cowtype and calving date in a seasonal low-input system and was carried out in SOLID work package 2.

Food and Agriculture Organization of the United Nations

FAO launches a new Dairy-Gateway

Information from the entire dairy value chain in one place.

The FAO Dairy-Gateway is an information platform that offers a wide range of material about milk production and products with the main focus on conditions in developing countries. The Dairy-Gateway provides in English, French and Spanish a general overview about important topics of dairy production, milk and dairy products and their use. Users are encouraged to enrich the information by providing additional information through documents, field experiments and by directly uploading their video and picture stories, and we encourage SOLID participants to upload relevant material and post coming events via the contact info on the page. Learn more at: http://www.fao.org/agriculture/dairy-gateway

PhD student Lifeng Dong presenting at the EAAP meeting

Work on genetics and genotypes in SOLID presented at the annual meeting of the Europan Federation of Animal Sciences

Dr Tianhai Yan and PhD student Lifeng Dong attended the 64th Annual Meeting of the European Federation of Animal Science held in Nantes of France in August 2013. Lifeng made two oral presentations for AFBI research on the effects of cow genetic merits (low vs. medium vs. high) of Holstein-Frisian and cow genotypes (HF vs. HF cross and Norwegian dairy cows) on maintenance energy requirement and the efficiency of utilisation of metabolisable energy for lactation. Prior to this meeting, Lifeng also presented a theatre paper on the effects of cow genetic merit on enteric methane emissions in an important international conference – Greenhouse Gases and Animal Agriculture in Dublin in late June 2013. The presentations received positive responses. All results presented were derived from Task 2.4., calculating the efficiency of energy utilization for maintenance and lactation in conventional and adapted breeds, using data from an existing experimental database.

Workshop on maximizing the grazing possibilities and the use of by-products in dairy goat production

By David R. Yañez Ruiz

As an outcome of a farmer workshop and the Rapid Analysis Tool (RAT) activities in work package 1 of SOLID, it was agreed that a workshop, specifically focused on the nutrition of the dairy goat under the current feeds market situation addressing how to maximize the grazing possibilities and the use of by-products would be of great interest and would help to identify specific research questions to answer in 'on-farm' trials. This workshop was organized together by CSIC and CABRANDALUCIA and held on the 12 March 2013 at CSIC facilities. A total of 124 people attended the event, which included farmers, advisors, vets, media, researchers, feeds cooperatives and local and regional government representatives. At the meeting CSIC presented the results obtained from the production of silages At the meeting, CSIC presented the results obtained from the production of silages made with by-products from the olive oil and tomato industries and the preliminary results from the in vitro (gas production) and in vivo (digestibility, intake and methane emissions) screening (presented in Greece as part of WP3 work). After discussion with specialists and farmers, the main conclusion was that there is potential to introduce these by-products as replacement of conventional ingredients but only at certain periods of the productive cycle (i.e. beginning of pregnancy and last third of lactation, when the animal's requirements are less likely to be compromised). However, this needs to be tested and introduced in the overall farm feeding strategy. Some of the farmers that took part in the RAT showed their interest in taking part in the on-farm experiments.