

26-27 January 2016

SOLID

Sustainable Organic
and Low Input Dairying



Co-funded by
the European Union

Future sustainability of organic and low-input milk production: Challenges and solutions

Full programme, including abstracts and
biographies

#SOLIDdairy 



AGRICOLGY 
SUSTAINABLE PRACTICAL FARMING

IOTA
Institute of Organic
Training and Advice





TUESDAY 26th January 2016

10:00 - 11:15 Opening plenary - Victoria Suite (ground floor)

The challenge of low-input and organic milk production

The opening plenary will set the scene for the day and set out the challenges of low-input and organic milk production. After an introduction to the full work programme of the SOLID project, two speakers will introduce low-input and organic milk production, which share a reliance on grasslands and pasture but differ in other ways. The session will also provide some time for discussion, but there will be more time for that at the end of the day.

Chair: Susanne Padel

Nigel Scollan (IBERS Aberystwyth): Introduction to the SOLID project

Sustainable organic and low-input dairying [SOLID] is a European Commission funded project involving 25 partners across Europe, from 2011-2016. Organic and low-input dairy farming systems are increasingly noted as delivering multifunctional benefits to the agricultural industry and society but technical and economic constraints prevent widespread adoption. The SOLID project, involving a multi-disciplinary team comprising researchers and stakeholder partners across Europe, encompassing dairy cows and goats has addressed a suite of issues that contribute to the competitiveness of the dairy industry and sought to increase the effectiveness with which these benefits are delivered. The project employed a strong participatory approach to further nurture farmer-led innovation and 18 participatory projects examined a range of issues to help further knowledge on sustainable organic and low-input dairying. The concept of 'adapted breeds' for low input systems was examined along with the development of a tool to help assess welfare on farms. Options for nutritional improvement in low input systems were examined including a unique assessment of the energy requirement of dairy cows offered diets containing a large forage proportion. Life cycle assessment tools were further developed to assess environmental sustainability of grassland-based multifunctional dairy systems. Socio-economic modeling has examined a range of innovations at farm level and along supply chains and examined the impact of more widespread adoption of low-input practices.

Richard Hampton (OMSCo): The challenge for organic milk producers

Richard will look at the commercial challenges facing producers in the sector, and those looking to start organic production. What are the prospects? Is there room in the sector for increased supply? What's the international perspective? The short presentation will focus on factors that drive change in the organic milk market that are distinct from the factors facing the conventional sector.

Sinclair Mayne (AFBI Northern Ireland): Low input dairying – challenges and opportunities

Given the low milk prices prevailing throughout 2015, there is currently considerable interest in reducing milk production costs through adoption of lower input systems. One of the most effective ways of reducing input costs is to increase reliance on grass and forage, reversing the trend across the UK in recent years, which has seen milk from forage decline to less than 1500 litres per cow. Increased milk production from forage involves three basic principles:

- Growing Grass - Soil management and appropriate nutrient inputs;
 - Effective Grassland Management - Flexibility through the grazing season; and
 - Efficient Conversion of Grass to Milk - The right animal genetics.
- Soil analysis is critical in establishing soil nutrient status, yet less than 5% of UK grassland is sampled on a regular basis. Similarly, the importance of nitrogen supply, via fertiliser or white clover, is often underestimated. Effective grassland management involves regular assessment of grass growth, frequent adjustments in stocking rate through the season and use of other strategies e.g. altering rotation length, tactical use of complementary feeds and lactation management to ensure nutrient supply from grass matches the nutrient requirement of the herd. Finally, using appropriate cow genetics, in particular high genetic merit animals selected in a grazing environment, is essential to maximise milk solids from pasture based systems.



The animals tell you about their nutrition

The future of managing the feeding of ruminants

11:15 - 11:45 Tea/coffee break - Foyer area and Elements Restaurant (ground floor)

11:45 - 13:00 Parallel workshops

Presenting and discussing results from the SOLID project and other related research with presentations from researchers, farmers and other professionals



Improving cow health (Victoria Suite)

To present novel practices to reduce drug use at farm level and discuss possible limitations and future aspects of their implementation.

John Bax (Lallemand, SOLID Stakeholder platform): Chair

Mette Vaarst (ICROFS Denmark): Improving cow health and welfare under organic principles

The organic principles of health, fairness, ecology and care call for a unique way of viewing and handling animals: to create a framework and a system in which they can meet their natural needs, and at the same time intervene to avoid animal suffering. The aim of building synergies in multi-functional and resilient agricultural systems in harmony with their surrounding environment and social-human systems can guide us to organise the farming systems to support the health and welfare of animals, and let these animals be valuable resources within the farming system. In the SOLID project, six farmer participatory studies related to animal health and welfare promotion in organic and/or low-input dairy herds, were conducted in Denmark and the UK. They showed widely different approaches to improving dairy cow and calf welfare through the use of herbs in grass fields, leaving dairy calves with their mothers, and goal-directed efforts in farmer groups to reduce antibiotic use, among others in so-called Farmer Field Labs, where discussion took place and mutual advice exchanged. The diverse collection of studies demonstrated the widely different needs and interests of farmers, as well as widely different perspectives on animal health promotion and disease prevention.

Christine Gosling (Berkeley Farm): Reducing antibiotic use - participatory research from a farmer's point of view

I will be sharing my experience of participating in a field lab aimed at reducing the use of antibiotics on the dairy farm, as part of the Duchy Future Farming Programme.

Peter Plate (Endell Veterinary Group): Selective antibiotic treatment for dairy cow mastitis

Antibiotic resistance in humans and animals is a significant and growing concern. The "UK Five Year Antimicrobial Resistance Strategy 2013-2018" mentions more targeted treatment following diagnostics as part of the strategy. Organic dairy farmers have always been at the forefront of reducing antibiotic usage, e.g. selective dry cow therapy has been in the standards from the very beginning. However, there has not been a major breakthrough in reducing antibiotic usage in the treatment of clinical mastitis. A recently launched bacteriological test kit has been validated under UK conditions and may be used on farm, potentially enabling farmers to select which cases of mild or moderate grade mastitis require antibiotic treatment (Gram positive cases) and which are likely to cure spontaneously (Gram negative cases). The effect of using this test and selective treatment on overall mastitis and milk quality parameters on farm has not been studied in the UK, and this is an area in need of research. In a large scale US study selective treatment of clinical mastitis compared with a conventional treatment protocol led to a 49 % reduction in cows receiving antibiotics, with no significant differences in clinical and milk quality parameters. Selective treatment of clinical mastitis is tried in an ongoing field lab involving 10 organic dairies. Apart from the benefits of reduced antibiotic usage, there is potential for a significant economic benefit to the farmer.

Understanding breed choice and breeding (St Mary - First floor)

The session aims to provide an insight into genotype by environment interactions and discuss how dairy cow breeding and fertility can influence the productivity and product quality in organic/low input systems.

Debbie McConnell (AHDB Dairy): Chair

Werner Zollitsch (University of Natural Resources and Life Sciences Austria): Adapted breeds for productivity in organic and low input dairy systems

Low input and organic dairy systems (OLIDS) require cows which are adapted to the specific conditions within individual systems, while the regional diversity of these systems call for different breeding approaches. Actors within Europe have identified a number of possible alternative strategies, such as crossbreeding and selection for robustness and lifetime performance to overcome the limitations of conventional genotypes used in OLIDS. The work undertaken within the SOLID project was conducted to characterise the degree of adaptation to OLIDS of different dairy cattle genotypes. There were indications of improved health traits with the alternative genotypes in two regions, while across all regions fertility was unaffected by genotype or an OLIDS-specific reduction in concentrate supply. In the absence of consistent interactions between genotype and dietary treatment, both the conventional and alternative genotypes appeared to have responded in a similar manner to the feed challenge, but with some differences at the metabolic level. It can be concluded that alternative genotypes will show some differences to conventional genotypes if managed in OLIDS. Depending on the actual conditions within the production system, these differences may not be large enough to result in an overall advantage over conventional genotypes in terms of productive and reproductive performance.

Andrew Dodd (AHDB Dairy): Profitable lifetime index and spring calving index for promoting the genetic potential of a herd

The aggregated financial benefit of using dairy specific genetic indexes in the UK has been estimated at between 2.2 and 2.4 billion pounds between 1980 and 2011. The evolution of the Profitable Lifetime Index (EPLI) over the last 10 years has paid a significant part in this. In 2013/14 AHDB Dairy conducted a review of the EPLI with the industry's Genetics Advisory Forum. This review resulted in the EPLI being updated, with reduced emphasis on milk and increased weighting on constituent's and health traits along with the introduction of a 'Maintenance' value and calving ease to ensure a farms future genetics fit their system. In addition to updating the EPLI the recommendation was also for the development and introduction of a new Spring Calving Index (ESCI) to enable farmers on a low-input, spring-calving, grass-based system to select bulls based on UK conditions and markets to maximise their return. These changes, along with the Herd Genetic Reports (web-based interactive report for dairy females – www.dairy.ahdb.org.uk/breeding) and growing use of genomics make it a very exciting time for UK dairy farmers to ensure they breed an efficient, healthy cow to maximise the return on their chosen system.



Richard Smith (Farm Manager, Daylesford Farm): Breeding livestock fit for the environment

There is a cost associated with producing high milk yields from energy intensive feeds; not least a reliance on external inputs. Cows, as ruminants, naturally evolved to process low-energy inputs (e.g. grasses and herbs). With this in mind we sought a breed that can efficiently convert our low-input home grown forage.

Starting with an input-hungry Holstein herd we began 10 years of breeding from pure British Friesian blood lines, with careful selection of desirable traits from each generation. We wanted to maintain a medium milk yield whilst looking for other beneficial traits, such as:

- locomotion and avoiding issues of lameness;
- conformation and suitability to support beef production; and
- A sound udder, with resistance to diseases such as mastitis.

We also explored different legumes and discovered that sainfoin is very suitable for our farming system, in addition to grass leys of red and white clover. Sainfoin is very palatable for the Friesian herd, has a favourable ME of 13.5%, and builds the soil structure and fertility of some of our poorer soils.

This approach was derived from experiencing different farming systems and a desire to reduce the costs of milk production. The farm has benefited from reduced cost of imported, high protein compound feeds, lowered cost of replacement animals, sales of females, higher animal welfare, virtually no lameness, and staff satisfaction.

13:00 - 14:00 Lunch in Elements Restaurant (ground floor)

14:00 - 15:15 Continued parallel workshops

New research and practical experience of feeding dairy cows (Victoria Suite)

Most organic and low-input dairy cows are still far from achieving the objectives of high reliance on forage, producing feed from the farm and optimum milk quality. This workshop will address this drawing on recent research that shows the potential.

Mark Measures (IOTA/ORC): Chair

Werner Zollitsch (University of Natural Resources and Life Sciences Austria): Do existing feed rationing programmes suit high forage diets?

Cows managed within organic and low input dairy systems (OLIDS) are usually fed on forage-based diets which are supplemented with relatively small proportions of concentrates. These diets typically contain a lower nutrient and energy density and are more bulky as compared to diets fed in intensive, high-input dairy systems. The lower nutritional density results in the need for cows to ingest greater amounts of feed in order to maintain a certain level of performance.

From a scientific point of view, it is expected that the consequences of forage-dominated OLIDS-diets (i.e. greater gut fill, greater gut mass, more work needed in digestion of the diet, greater heat production of internal organs, etc.) may result in an overall increased energy requirement for maintenance, which is not always properly accounted for in rationing systems. Results from a calorimetric study conducted within the SOLID project show that the maintenance energy requirement is significantly affected by dietary forage proportion. The immediate practical impact for OLIDS of this effect may however be limited. This issue will be discussed in reference to selected feed rationing programmes.

Chris Reynolds (Reading University): How low can we go? – Implications of feeding lower protein diets to lactating dairy cows.

Dietary protein is used inefficiently by lactating dairy cows, with approximately 75% of nitrogen intake excreted in manure. There are clear benefits of feeding lower protein diets that reduce the proportion of dietary N excreted in manure, but this strategy will only be acceptable to dairy farmers if potential negative effects on milk production and cow health and fertility are minimized. In recent years numerous strategies for minimizing the negative effect of lower protein diets on milk and milk protein production have been investigated, including feeding higher energy diets, synchronizing supplies of rumen degradable protein and energy, and feeding rumen-protected proteins and essential amino acids. However, most of the published information on feeding lower protein diets has been obtained using experiments with relatively short treatment periods that have not assessed potential long-term effects of chronic reduced protein intake. We will review some of the strategies that have been investigated, as well as results from an on-going long term study at the University of Reading's Centre for Dairy Research. In addition, we will consider the opportunity legumes offer for improving nitrogen use efficiency at a systems level, as well as some of the practical implications of low protein ration formulation.

Heli Ahonen (Juvan Luomu LTD, Finland): Self-sufficiency without soya?

In Finland average milk yield on organic farms is more than 8000 kg /cow/yr (year 2014), best farms even 10,000 kg /cow/yr. Feeding is based on good quality grass-clover silage, cereals, oilseed rape cake, field peas and faba beans. Typical protein mixture is 50 % rape/ 25 % pea/ 25 % bean. By mixing different protein sources we can balance the diet according to the quality of silage. Normally we take two cuts of silage. First cut is low in crude protein, high in digestibility and the second cut is the opposite. Because of our climate oilseed rape and faba bean can't be grown everywhere in Finland. Dairy farmers grow their own, buy or make contracts with arable farmers to grow or they buy oilseed rape cakes from the factories pressing rapeoil for consumers. Why not soya ? We can't grow it here. Oilseed rape has shown to be more suitable with our silage. We don't need soya to get high milk yields. A higher degree of self sufficiency helps financially.

**Wider impacts of organic and low-input milk production (St Mary - first floor)**

In this session we will cover the wider impacts of organic and low-input milk production on soils, environmental footprints and the supply chain.

Susanne Padel (ORC): Chair

Anja Vieweger (ORC): Assessing the health of your grassland's soil

In former workshops of the SOLID project, organic dairy farmers in the UK explained their difficulties in understanding and managing their soil fertility. Soil compaction is a common problem in England and the management of organic matter (OM) is a key factor to sustain soil fertility in organic systems. To increase the confidence of farmers to regularly and reliably assess their soil organic matter and soil structure, this participatory project (conducted as the MSc thesis of Ms. Coline Capron) assessed various practical assessment methods with farmers in on-farm case studies, evaluating the usefulness and relevance of different soil assessment approaches. Another objective of this work was to understand the determinants for farmers in adopting certain soil structure assessment methods (or not), for which a wide range of farmers were surveyed, interviewed and visited; and the results were compared to indicators and methods found in the literature. Here, we will present some relevant outcomes of this work.

Laurence Smith (ORC): Environmental impact of organic and low-input milk production - new evidence from the SOLID project

Dairy farming is the largest agricultural contributor to greenhouse gas emissions in Europe. As part of the SOLID project the carbon footprint of organic dairying has been evaluated by means of a life cycle assessment, based on real farm data from six European countries: Austria, Belgium, Denmark, Finland, Italy and United Kingdom. This presentation will provide an overview of the farm assessments, highlighting emission hotspots within the supply chain and potential mitigation measures for organic dairy farmers.

Pip Nicholas-Davies (IBERS Aberystwyth): Do farmers, consumers and supply-chain professionals differ in their attitude to innovation?

Many constraints to the development of low-input and organic dairy farming supply chains have been identified, including economic, political, and technical constraints. In order for these types of supply chains to develop and provide further benefits to society, innovations are required to improve their sustainability. However, an innovation will only be taken up and result in desirable change if the whole supply chain accepts the innovation, hence it is important to understand the attitudes of different supply chain actors to innovation.

15:15 – 15:45 Tea/coffee break Foyer Area and Elements Restaurant

15:45 - 17:00 Plenary panel discussion (Victoria Suite - ground floor)

Supporting organic & low-input dairy production in North West Europe

The panel will respond to key points discussed in the breakout session and questions from the audience to draw conclusions on supporting organic and low-input dairy production through policy and research.

Cled Thomas (Service ICAR): Chair

With Nigel Scollan (IBERS Aberystwyth), Werner Zollitsch (University of Natural Resources and Life Sciences Austria), Mette Vaarst (ICROFS Denmark), Lyndon Edwards (OMSCo), Debbie McConnell (AHDB Dairy), Sinclair Mayne (AFBI NI)

19:30 Dinner in the Novotel, Bristol

WEDNESDAY 27th January 2016

9:30 - 10:30 SOLID workshop - Victoria Suite (ground floor)

Lessons from SOLID - Sustainability of organic/low-input dairy

A Discussion Workshop on practical ways forward for organic dairy farming and cow nutrition to meet current challenges. With short contributions from:

Mark Measures (IOTA/ORC): Chair

John Bax (Lallemand, SOLID Stakeholder platform)

Werner Zollitsch (University of Natural Resources and Life Sciences Austria)



Biographies

Heli Ahonen

Heli Ahonen has been a dairy farmer in Finland for 25 years.

John Bax

John has a particular interest in optimizing rumen function to improve forage utilization, animal health and performance. He started his agricultural career as a stockman in Scotland and Wales, before studying Animal Science at the Scottish Agricultural College (SAC). He was took on responsible for a long-term dairy systems study comparing the physical and financial outcomes of two herds with different management strategies at the Crichton Royal Farm (CRF) of SAC in South West Scotland and developed new forage strategies for milk production systems. John moved to Lallemand UK, 11 years ago as their national technical manager, working on developing new silage inoculants and an integrated nutrition and forage planning program. He now provides technical support for Lallemand globally for ruminant production and forage quality. John Bax is also a member of the SOLID stakeholder platform representing the agricultural supply industry.

Andrew Dodd

After graduating from Harper Adams in 2000 Andy gained a sound knowledge of dairy farming, working on and managing dairy units across the country, before joining AHDB Dairy in 2009 as Extension Officer and developed to become Technical Extension Officer. Andy leads the delivery of AHDB dairy knowledge transfer for Breeding and Fertility, demonstrating how to use bull proofs and explaining the UK's specific breeding indexes; Profitable Lifetime Index (EPLI) and Spring Calving Index (ESCI), and promoting the use of Herd Genetic Report (HGR) and how it can be used to understand the genetic potential of a herd.

Lyndon Edwards

Lyndon, who operates a 670-acre organic dairy farm in Monmouthshire, is an integral part of the OMSCo management team. He is passionate about the dairy industry and works tirelessly to ensure dairy farming has a sustainable future. He is also a council member of the Royal Association of British Dairy Farmers, Chairman of the Action Group for Johnes, a Board member of Dairy UK, a Nuffield Scholar, a Waitangi fellow and the recipient of the Dairy Ambassador of the Year award at the 2015 Cream Awards.

Christine Gosling

Chris farms in Wiltshire with her husband Nick and son Edward. They have 120 Guernsey cows and process their own milk. They converted to Organic farming in 1998 and since then she has become increasingly interested in using natural methods to improve cow health including homeopathy, the Obsalim technique and the use of essential oils.

Richard Hampton

Richard is Managing Director of The Organic Milk Suppliers Cooperative (OMSCo). He has a wide range of commercial experience in the food industry, beginning his career at Walkers crisps, before moving into the dairy industry with Unigate. For the last 13 years, he has guided the commercial development of OMSCo, then an organic

milk co-operative with annual sales of 70m litres of raw milk to the UK processing industry. Having built partnerships with a range of processors, focusing heavily on supply chain flexibility and expanding its customer base into Europe, OMSCo is now the UK's pre-eminent supplier of organic milk and its fractions to more than 50 customers throughout Europe and the USA. Selling more than 200m litres of raw milk equivalent and with a turnover of £90m, OMSCo supply now accounts for around two thirds of the UK's organic milk output. Uniquely amongst raw milk suppliers, OMSCo continues to invest heavily in consumer marketing activity to ensure the continued prosperity of the organic sector. OMSCo retains an active technical development programme focusing on specialist milk types, which has allowed it to launch the only European organic dairy brand in the United States, as well as USDA-compliant organic dairy ingredients to customers in Europe – an area destined for significant future growth. Richard lives in Bath, Somerset, with his wife and two children.

Sinclair Mayne

Sinclair Mayne has worked in research and development for over 30 years, initially at the Grassland Research Institute in England, and then at the Agricultural Research Institute of Northern Ireland, which became part of the Agri Food and Biosciences Institute (AFBI) in 2006. His research work has focussed on grass production and utilisation and improving the efficiency of milk production systems. From 2009 to 2013, he was Departmental Scientific Adviser with the Department of Agriculture and Rural Development, before returning to AFBI in his present role as Director of Agrifood Sciences Division.

Debbie McConnell

Debbie is a farmer's daughter from County Tyrone, Northern Ireland. Having completed a Geography degree at Durham University, Debbie returned to Northern Ireland to undertake a PhD at the Agri-Food and Biosciences Institute. Her research focused on improving phosphorus management on dairy farms including work on soil management, manure application timing and techniques, and anaerobic digestion. Debbie remains actively involved in the family business, a dairy farm with a small beef and sheep enterprise. Debbie is a research and development manager with AHDB Dairy, managing the soil, forages and grass research portfolio. In 2016, Debbie will be undertaking a Nuffield scholarship exploring the role of precision technology on dairy farms.

Mark Measures

Mark is an independent organic agriculture consultant specialising in advice and training in farm business management, husbandry, conversion planning and organic systems development. He is Director of the Institute of Organic Training and Advice (IOTA) providing training, information and accreditation to advisers throughout the UK and Ireland, joint editor of the biennial Organic Farm Management Handbook and provides input into the ORC research and dissemination programme. Mark has 25 years of organic farming experience; he established the Organic Advisory Service (OAS) in 1985 and headed it for 15 years and initiated and coordinated the establishment of the OMSCo. He has extensive knowledge of all aspects of organic production and its markets, research, and standards development. He has experience of organic extension throughout the world. He is a partner in a mixed organic farm in Shropshire.



Dr Phillipa Nicholas

Phillipa is a researcher and lecturer in the Institute of Biological, Environmental and Rural Sciences at Aberystwyth University. She trained in agricultural sciences and pasture ecology and management at Massey University in New Zealand and since moving to Aberystwyth in 2001 has worked on a number of organic farming projects, particularly in the area of dairy farming. Phillipa is the Project Manager on the SOLID project and has been involved in the socio-economic research aspects of the project.

Susanne Padel

Susanne is Senior Programme Manager and team leader at The Organic Research Centre involved in several projects related to socio-economics and policy aspect of organic farming and led ORCs involvement in the SOLID project. Susanne is one of the editors of the Organic Farm Management Handbook, published by ORC. She has been involved with organic farming since the early 80s. After working in advice for organic farmers in North Germany, she joined Aberystwyth University as a researcher in 2001 and moved to ORC in 2009. Susanne holds a degree in general agriculture from the University of Kassel, Witzenhausen and a PhD in agricultural economics from Aberystwyth University on conversion to organic milk production. She has a keen interest knowledge exchange and in supporting good collaboration between farmers and researchers.

Peter Plate

Peter Plate works as a practicing farm vet at Endell Veterinary Group in Salisbury and has a special interest in organic livestock farming. He looks after several organic dairy, beef and sheep farms, is a member of the Agriculture Standards Committee of the Soil Association, an innovative farmers coordinator and a regular contributor to the Organic Farming magazine.

Chris Reynolds

Chris Reynolds is Professor of Animal and Dairy Science and director of the Centre for Dairy Research at the University of Reading. His research has primarily focused on the nutritional physiology of ruminants in relation to energy and protein metabolism. His recent research themes include the effects of milk and meat composition on consumer health, the nutritional management of ruminants to reduce the environmental impacts of milk and meat production, and the use of legumes to improve nitrogen use efficiency in ruminant production systems.

Prof Nigel Scollan

Nigel is Waitrose Professor of Sustainable Agriculture and Professor of Public Engagement with Science at Aberystwyth University. Professor Scollan is also the leader of the research group Animal Systems with Institute of Biological, Environmental and Rural Sciences (IBERS) at Aberystwyth University. Nigel conducted his PhD at The University of Edinburgh, followed by a 2-year post doctoral period at the University of Guelph, Ontario, Canada before joining Institute of Grassland and Environmental Research, Aberystwyth in 1993 and subsequently Aberystwyth University in 2008. Nigel's research is primarily related to designing improved feed systems for livestock, largely beef related, which will enhance not only the eating quality of the resultant products but also improve the sustainability and efficiency of the production systems. Improving nutritional quality is an important aspect of the research. Nigel is a Past President of the British Society of Animal Science and a Fellow of the Royal Agricultural Society in the UK.

Laurence Smith

Laurence is Senior Sustainability Researcher at The Organic Research Centre. His work is focused on the development and application of sustainability assessment tools and farm-system modelling. Laurence is currently leading work packages across a number of EU projects which aim to assess the environmental, economic and social sustainability of organic and low-input farming systems.

Richard Smith

Richard Smith has been Senior Farms Manager at Daylesford Organic Farms for 10 years having previously farmed in a wide range of systems from the Cheviot Hills to Cornwall; Oxford University farms to the Kapiti coast, New Zealand. In 2015 Richard was honoured to be appointed as Chairman of the Steering Group for Agricollogy (Agricollogy.co.uk). He has been interested in the training of working sheep dogs for 30 years and has had some wonderful dogs. In 2014 and 2015 his dog Glen qualified to run for England at the International Championships.

Cledwyn Thomas

Cledwyn did a PhD in Reading on 'Maize silage for beef production'. He then worked at the Grassland Research Institute from 1973-1988 and was seconded to the Ministry of Overseas Development for three years. From 1988-2004 he held a number of positions at SRUC (then SAC) including: Head of Animal Production, Head of Food Systems, Head of Animal Science, Vice Dean and Emeritus Professor. Since then he has been an independent consultant mainly for EAAP and ICAR Rome and on EU FP 6 and 7 projects. He is a Member of Council of Royal Agric Soc England, Editor in Chief of Advances in Animal Biosciences, on the management board of Animal Journal Consortium and chair of the Stapledon Memorial Trust

Mette Vaarst

Mette is senior researcher at Aarhus University, Denmark, with an educational background of being a veterinarian, with a master degree in anthropology as well as education as a classical homoeopath as well as a veterinary homoeopath. Mette has about 25 years of experience in on-farm studies and work in the field of animal science and human decision making, learning and advisory interaction, action research and agro-ecological systems development, in particular in East Africa, but also elsewhere.

Anja Vieweger

Anja Vieweger is Senior Researcher at The Organic Research Centre. With a background in horticulture, specialised in vegetables, she has several years of experience in horticulture and soils research. Having joined the ORC in January 2011, she is now working on various subjects such as health concepts in agricultural systems, links between the health of soil, plant, animal and human; soil health assessment in the UK; participatory research; horticulture and soils aspects of Innovative Farmers; and an international network of organic greenhouse horticulture in the EU.

Werner Zollitsch

Dr. Werner Zollitsch is Head of the Division of Livestock Sciences at BOKU-University of Natural Resources and Life Sciences Vienna, Austria. His main focus is research and teaching in the fields of sustainability of livestock production, effects of feeding strategies on various aspects of animal production systems, feed resource development and animal nutrition in organic livestock.

Time	
TUESDAY 26TH JANUARY	
09.20 – 10.00	Registration
10.00 – 11.15	Opening Plenary - The Challenge of low-input and organic milk production (Victoria Room – ground floor)
11.15 – 11.45	Tea/Coffee break Foyer Area and Elements Restaurant (ground floor)
11.45 – 13.00 Workshops 1	Victoria 2 and 3 (ground floor) Improving cow health
	St Mary (1st floor) Understanding breed choice and breeding
13.00 – 14.00	Lunch in Elements Restaurant (ground floor)
14.00 – 15.15 Workshops 2	Victoria 2 and 3 (ground floor) New research and practical experience of feeding dairy cows
	St Mary (1st floor) Wider impacts of organic and low-input milk production
15.15 – 15.45	Tea/Coffee break Foyer Area and Elements Restaurant (ground floor)
15.45 - 17.00	Plenary Panel – Supporting organic and low-input dairy production in North Western Europe (Victoria 2 and 3 (ground floor)
19.30	Conference Dinner in Victoria Suite
WEDNESDAY 27th January morning	
09.30 – 10.30 Workshop	St Mary (1st floor) Lessons from SOLID – Sustainability of organic/low-input diary