EuroDairy

R&D needs and priorities based on feedback from end-users

EuroDairy
R&D needs and priorities based on feedback from end-users

Submission date:
30 January 2019

Names of the responsible authors and organisations:
Valérie Brocard – Idele

Jocelyn Fagon (Idele)

Pilar Merino (NEIKER)

Jason Rankin (Agrisearch)

Alberto Menghi (CRPA)

Jouke Oenema (DLO-WUR)

Ralf Loges (UKiel)

Maria Rey Campos (AGACA)

Henrique Trinidade (UTAD)

Dissemination level:
Public

Deliverable:
D2.5 Report of further R&D needs and priorities based on feedback from farmers and other end-users

About EuroDairy

EuroDairy spans 14 countries, from Ireland to Poland, and from Sweden to Italy, encompassing 40% of dairy farmers, 45% of cows and 60% of European milk output. EuroDairy is an international network to increase the economic, social and environmental sustainability of dairy farming in Europe. EuroDairy fosters the development and dissemination of practice-based innovation in dairy farming, targeting key sustainability issues: socio economic resilience, resource efficiency, animal care, and the integration of milk production with biodiversity objectives.
EuroDairy is funded by the EU Horizon 2020 research and innovation programme under Grant Agreement No 696364.

Contents

1. Summary of deliverable

Across participating European countries, 120 innovating pilot farmers have been recruited to the EuroDairy network. These farmers are implementing and developing innovative practice, and have been chosen as good communicators, to act as champions for the network and to inspire other farmers.

These farmers reflect a range of circumstances and farming systems: from high-input indoor systems to low-input pasture-based production. Regional differences in approaches to forage production, including variations in crop rotation, types of forages grown, fertiliser policy and harvesting methods provide a range of experience and measured performance levels which can be shared more widely. Pilot farms provide a practical context for further development, demonstration and dissemination of improved husbandry techniques.

In addition to these Pilot Farms, 43 Operational Groups (following the model of the European Innovation Partnership) have also been linked to the EuroDairy network. Many of the pilot farms and some Operational Groups have been involved in exchange visits (see D2.1 *Cross border exchange visits*), either travelling themselves, or hosting incoming exchange visits from countries involved in the network.

Based on feedback from farmers and other end-users within the EuroDairy network, this report captures some of the topics and ideas, which *might* require further R&D. It should be noted that in some instances there has already been considerable previous research, while in others new questions arise for which answers are sought. As set out in the EIP, much can be achieved by effective implementation and customization of existing knowledge.

No attempt is made in this document to prioritise, or to adjudicate on the feedback received. Equally, the circumstances of the interaction and subject matter of the exchange visit, could curtail the breadth of response on topics outside of that particular discussion. Nevertheless, the topics captured are likely to be a good barometer of farmer needs and concerns.

2. Feedback from exchange visits by EuroDairy theme

From the feedback received from exchange visits participants (pilot farmers, operational group members, advisors and researchers), a list of potential topics requiring further research and knowledge exchange activity is set out below.

2.1 WP3 Resource efficiency

- Improving milk from forage
- Optimising grass utilisation to reduce dependence on purchased feed
- Re-establishing the use of pasture in an intensive system
- Grazing management for a large herd
- Improving grass production and maximising dry matter intake of fresh grass during grazing
- Breeding schemes to help improve utilization of grazed grass
- Seasonal calving with a greater focus on fertility and longevity
- Farm infrastructure improvements, to maximize grazing opportunities
- Adoption of useful decision support tools for grassland management
- The potential role of Jersey cows in a pasture-based system
- Integration of robotic systems within a pasture-based system
- Integration of arable and dairy enterprises
- Home-grown protein to improve self-sufficiency in terms of protein
    - Mixed species swards to improve productivity and robustness
    - Lucerne cropping techniques and best practice guide
    - Crop rotation systems for cereals, maize silage and lucerne
    - On-farm assessment to determine how improvement in protein self-sufficiency can be achieved
- Biogas plants as an option for farmers to help improve slurry management, and produce energy for farm use
- Reducing ammonia emissions, improving cow comfort and welfare through the use of high welfare floors.

2.2 WP4 Biodiversity

- Commercial vision and opportunities i.e. organic milk, GMO-free milk, to exploit biodiversity at a farm level.

2.3 WP5 Animal care

- Reducing the use of antimicrobials through benchmarking criteria, investigating the role of veterinarians/farmers, implementation at farm level
- Reducing the use of antibiotics before the dry period
- Herd health and comfort with an emphasis on reducing the need for antibiotics
- Crossbreeding to improve health, fertility and longevity
- Housing and bedding innovation and best practices including floor types, bedding systems etc.
- Standards of animal welfare in relation to building design to prevent lameness

- Further investigation into calving boxes and the idea of ‘cuddle boxes’ to keep calves with cows longer
- Deep bedding with sand or recycled manure, including management of biosecurity risks
- Precision technologies to improve cow health, comfort and welfare.

2.4 WP6 Socio economic resilience

- How to address social and environmental issues
- Public perception towards dairy farmers, the sector and large herds
- Resilience of the whole dairy sector, and adaption of the system to price volatility
- Effective tools and techniques of financial management
- Risk management and practical solutions in dealing with on-farm risk
- Adopting lean management onto large herds to improve workflow and organisation
- Organising training and knowledge transfer on-farm
- Monitoring and interpretation of economic figures and data on-farm
- Enhancing the attractiveness of dairy farming as a career
- System sustainability in relation to labour input, hours worked, quality of life, sustaining personal and family life
- Commercial vision and opportunities: organic milk, GMO-free milk
- Using innovation to add value and develop a closer connection with consumers
- Producing high-specification milk, including the use of regional/traditional breeds
- Adding value through on-farm processing of milk
- Breeding crosses to improve milk protein for cheese producing contracts
- Integration of biogas plants into milk production systems.

3. Cross cutting issues

- Test and demonstrate practical solutions to improve **the technical efficiency of the dairy production systems,** across a large variety of soil and climatic conditions in Europe, **namely:-**
    - improving protein self-sufficiency
    - the protein conversion rate in the feeding systems
    - limiting the competition between feed and food
    - GMO-free animal feeding systems.

- Test and demonstrate practical solutions to **improve animal welfare** and the image of the dairy sector
    - cow-calf separation
    - access of cows to pastures
    - fate of bull calves etc.

- Explore solutions, disseminate testimonies to demonstrate how to **improve transmission of knowledge and opportunities to young dairy farms entering the industry.**
    - Facilitate easier entry for young farmers
    - develop new business models

- Implement innovative methods to manage large herds with a big team of staff members.

- Test and demonstrate practical solutions **to implement low carbon footprint and low emissions dairy production systems.**
    - Farmers rarely listed these topics as an important issue and only questioned the regulations implemented in the different countries. It shows that they still lack information and technical practical solutions to improve mineral resource efficiency on-farms without endangering the resilience of dairy enterprises. This remains a major challenge for the dairy sector in coming years.

- Improve the use and valorization of the **digital tools and technologies** on farm
    - better use of collected data
    - development of easy-to-use indicators for farmers and advisers.

- Develop specific **regulation tools and solutions** for the whole dairy chain to limit risks related to **volatility** due to fluctuating milk prices.

4. Appendix 1 Farmer exchange visits - feedback by nationality

4.1 France

- Methods to address social and environmental issues
- Public perception towards the dairy industry and large herds
- The resilience of the whole dairy sector, and system adaption to price volatility
- Risk management and practical methods for dealing with risk on-farm
- The application of lean management to improve work organisation in large herds
- The attractiveness of dairy farming as a career
- Optimising the use of grazed grass to lower the need for purchased concentrate
- Re-establishing grazing practices within an intensive system
- Grazing management for larger herds (> 450)
- Integration of grazing and automated milking systems
- Reducing the use of antibiotics before the dry period.

4.2 Ireland

- Sustainability of systems in relation to labour input, hours worked, quality of life and sustaining proper family life
- Standards of animal welfare and relation to building design to prevent lameness.

4.3 United Kingdom

- Reducing the use of antimicrobials on-farm through benchmarking, investigating the role of veterinarians and farmers, implementation of practical solutions
- Housing and bedding innovations and best practices in order to improve cow health and welfare
- The use of cuddle boxes to keep calves with cows for a longer period
- Home-grown protein to improve self-sufficiency in terms of protein
    - Mixed species swards to improve productivity and robustness
    - Lucerne cropping techniques and best practice guide
    - Crop rotation systems for cereals, maize silage and lucerne
    - On-farm assessment to determine how improvement in protein self-sufficiency can be achieved.

4.4 The Netherlands

- Improving milk from forage
- Improving grass production and maximising dry matter intake of fresh grass during the grazing season
- The potential role of Jersey cows within a pasture-based system
- Labour and the amount of working hours
- Producing high-specification milk and the use of regional/traditional breeds.

4.5 Finland

- Calf management
- Building design – deep bedding with sand/ recycled separated manure
- On-farm milk processing.

4.6 Germany

- Breeding schemes for better use of grazed grass
- Seasonal calving with a focus on breeding for fertility and longevity
- Improving on-farm infrastructure
- Development of decision support tools for grassland management

4.7 Spain

- Commercial vision and opportunities
- Crossbreeding to improve milk protein production for milk solids based contracts
- Biogas plant cooperation between farmers to improve slurry management and to produce energy.

4.8 Slovenia

- Improving cow comfort and welfare and reducing ammonia emissions through high welfare barn floors
- Reducing the use of antibiotics
- Calving boxes
- Breeding programmes focusing on improving longevity
- Precision technologies on farm
- The use of innovations to add value and build relationships with consumers