



Smart dairy system

Towards a smarter dairy system

The FoodNexus project ‘Towards a smarter dairy system’ will enhance the sustainability of the dairy system through a transdisciplinary effort involving sustainability, marketing, ICT and technology. It will focus on using digital technologies to gather data at multiple points along the supply chain and translating this data into knowledge that will increase value creation along the entire dairy supply chain. Whilst initially focussing on dairy production, the ambition is to expand the results to other food domains.

SMARTER USE OF AVAILABLE DATA AND TECHNOLOGY

This ‘Ready-to-go’ project is working within the area of ‘smart dairy production systems’, and addresses challenges within ‘Food security and sustainability’, which is one of the FoodNexus strategic objectives. It takes into account the span from dairy production to consumers where possible and includes the use of novel ICT technologies for a more sustainable and resilient dairy system. The project will focus on ICT big data and data analytics and is focussed on the FoodNexus approach ‘creating and integrating new technologies’ to ‘reduce fragmentation and remove barriers to innovation’.

CHANGE AGENT FOR A SOLUTION-DRIVEN APPROACH

The project is engaging the FoodNexus partnership for developing streams of activity and collaborative proposals in line with other EU-initiatives and ready for proposals such as ICT AGRI ERA-NET.

As one of more actions, the partners in the project identified an opportunity to develop and quantify a number of sustainability metrics in the dairy production sector by taking a

standardised approach and a common methodology across a number of countries.

This is because worldwide, there is huge interest in the application of precision technologies and ICT in agriculture. Precision technologies in farming promise increased efficiency, improved product quality, reduced environmental impact, and overall improvements in animal health and welfare, thereby facilitating a holistic approach to sustainable farming (i.e. economic, environmental, stakeholder perception and food security).

However, the promised benefits of precision technologies have been slow to be realised. In a review of sensors in health management for dairy farms, Rutten et al. (2013)¹ noted that, while the measurement part of systems largely worked, the integration and decision-support parts were inadequate because a solution-driven approach was not adopted. As a result, while many relevant technologies are currently available, their value to farming systems is unclear. Therefore, the project proposes capitalising on existing databases that are available in each of the relevant countries.

Smarter application across disciplines

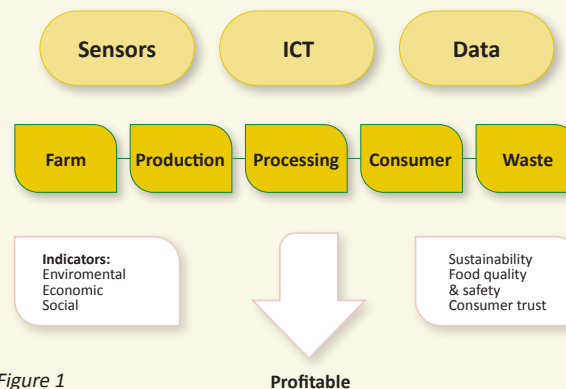


Figure 1

¹ Rutten, C.J. Veilthuis, A.G. Steeneveld, W. Hogeveen, H. (2013). “Invited review: sensors to support health management on dairy farms,” *Journal of Dairy Science*, Elsevier, vol. 96, no. 4, pp. 1928-1952

READY-TO-GO PROJECT #3

These will be enriched with data collected specifically for the computation of sustainability metrics in dairy production. The data collection process will use SMART technologies to maximise the opportunity for interaction within the overall system.

The models will be developed to a number of different standards based on differing guidelines including LEAP, PAS 2050 and ISO standards. Once completed, the analysis will be used to benchmark sustainability across countries and over time and will facilitate the completion of detailed analysis on various strategies to increase sustainability across the supply chain.

TASKS WILL INCLUDE:

1. Development of a relevant and pertinent set of sustainability metrics along the dairy production chain
2. Review of available databases within the project partners
3. Development of a set of sustainability-based models
4. Development of a SMART mechanism to collect additional data
5. Computation of dairy production sustainability metrics
6. Benchmarking across countries and over time
7. Inputting of more “consumer” aspects.

NEXT STEPS

Following a meeting with the relevant experts from interested parties, projects are being developed:

- An ICT hub
- Digital dairy production processibility for next generation milk-based products
- Connect-au-Lait.

Two of these are being developed for H2020-projects while one is ready for submission in ICT AGRI ERA-NET in April 2017.

Whilst initially focussing on dairy production, the ambition is to expand the results to other food domains.



FOODNEXUS PARTNERS PARTICIPATING IN THE PROJECT:

Aalborg University - Food	Fondazione Edmund Mach	Sonae Teagasc
ADitech	Friesland Campina	Technical University of Denmark
Arla	IBM Research	Tetra Pak
Biolan Microbiosensors	IK4-CIDETEC	Unilever, UK
Coop Italia	International Iberian Nanotechnology Laboratory	Universidad de Córdoba, Spain
Dairy Industry Innovation Institute Ltd., Poland	IRTA	Universidade de Evora
DCA, Aarhus University	ITENE	Universitat Politècnica de Valencia
ENEA Research Centre	Malmö University	University of Bologna
Eurofins	National Research Council, Italy	Utrecht University
Experimental Station for the Food Preserving Industry (SSICA)	Nofima	Wageningen University & Research
	Portuguese Institute of the Sea and Atmosphere (IPMA)	
	RISE Research Institutes of Sweden	

LEARN MORE AND ENGAGE:

The FoodNexus partnership is open to collaboration with relevant organisations and individuals sharing our vision and mission. Project activity is updated on the FoodNexus website, where you can also read more about the FoodNexus partnership, as well as follow news and activity. For more information about this particular project you are welcome to get in touch with the contact person.

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