

# Automatic milking, grazing and cow health monitoring

## innovative solutions for Short Food Supply Chains

Campden BRI Hungary

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**Project acronym: Smart Food Supply Chains**

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<b>PU</b>	<b>Public</b>	
<b>PP</b>	<b>Restricted to other programme participants</b>	
<b>RE</b>	<b>Restricted to a group specified by the consortium</b>	
<b>CO</b>	<b>Confidential, only for members of the consortium</b>	

**1. Title of the case description**

Automatic milking, grazing and cow health monitoring

**2. Indicate your role in the Smart Food Supply Chain:**

- individual member of the chain:
- chain operator:
- network operator:
- association:
- technical, scientific, or management expert:
- advisor:
- policy maker:
- other: .....

**3. Indicate the region (if applicable):**

#### 4. WP2 Cross-reference table

Please indicate with an X in the relevant box of the matrix for which needs and the steps / functions of the supply chain the described innovative solution is applicable

		Individual steps of the SFSC							Short food supply chain as whole						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Needs of the consumers (citizens)	food safety	X	X						X					X	
	food quality	X	X						X					X	
	trust														
	ethical aspects	X	X						X					X	
	accessibility														
Needs of the chain actors	fair price														
	increased negotiating power														
	shared use of available resources	X	X						X					X	
	product development support														
	access to markets and consumers														
	access to infrastructure														

**1: Farming**

**2: Primary production**

**3: Transport**

**4: Processing and packaging**

**5: Storage**

**6: Logistics**

**7: Sale**

**8: Product integrity, authenticity, transparency**

**9: Marketing concepts**

**10: Food chain management and networking for enhancing cooperation among chain actors**

**11: Business modelling**

**12: Policy environment**

**13: Legal requirements**

**14: Labelling**

## 5. Short description of the innovative solution

- **Describe the specific need or problem being addressed by the case and please explain what is the novelty of this innovative solution**

Agriculture, Primary production, Labour shortage

- **Describe the enabling function(s) and the practical benefit(s)-(e.g. for which types of problems and opportunities is used and can it be used, and how)**

With good insight into the health of the cows, the user prevent illness and loss of production. The Lely Qwes cow-recognition system measures the most crucial information on each cow every two hours. This provides the user with a good insight into the activity of the cows and allows the user to know when the user need to intervene.

The Qwes system is included as standard with the Lely Astronaut and other Lely equipment through the Lely T4C management system. Lely T4C converts the data into useable information for managing the cows' health. This gives the user a real-time overview of each cow in terms of milk yield, lactation status and history.

Automatic milking introduces a new routine on the farm, providing greater flexibility, enhanced efficiency, and a better work-life balance. The new routine also means that the user is in control. The user decides what the day-to-day management involves. It also allows the cows to follow their own rhythm at all times.

Robotic milking and grazing go hand in hand. The Lely Grazeway cow box supports efficient grazing. The cow decides whether she wants to go outside and the Grazeway indicates if this is allowed or whether the cow needs to be milked first.

- **Describe the method/procedure/technology/solution implemented. (Please explain, whether the innovative method is a product / service / process / marketing or organisational / management innovation) After completing the description, please indicate, whether this innovation is a technological or non-technological one.**

With the Lely Astronaut A5, the user achieve optimal freedom of movement for the cows. With free cow traffic, the cows decide themselves when to eat, drink, relax or be milked. Features such as the hybrid arm and the I-flow

concept contribute to the cows' natural rhythm and increase the milking robot's capacity. A healthy and stress-free cow means more milk in the tank.

One display is all the user need for an easy first milking. The user-friendly interface makes it easy to find the way around functions, settings, information and important reports. Automatic milking as it should be, giving the user the time to enjoy farming while having total control over the herd. Providing the best usability, accessibility and serviceability, all in one system.

With the right strategy, grazing can be perfectly combined with automatic milking. The Lely Grazeway selection box is an essential tool for this. Cows choose when they want to go out to pasture. The Grazeway then determines whether or not they can, using the Lely Qwes cow-recognition system.

Through the link with the Lely T4C management system, the user has total control over each individual cow's grazing. The T4C settings make the Grazeway an exceptionally flexible tool. By linking the selection box to the cows' milk yield data, the user can manage feeding and grazing much more efficiently.

technological

non-technological

- **Describe the business, which implemented the innovated solution (size, country, region, location, type of food)**

Cattle breeding, Dairy products

- **Describe the distribution channels of the product(s)**
- **Describe what makes the innovation work.**

- **Describe the specific prerequisites for the business related to the implementation of the method and/or related to the location, method, procedure, solution**

**a: List the relevant necessary resources (including the estimated cost) for the specific innovation.**

**Please list the relevant ones only (list is annexed)**

- materials (access to: raw materials/ ingredients - including volume, land – including size, packaging materials)
- infrastructure, equipment, facilities, - size, minimum volume of production/sales, IT infrastructure
- financial

**b: List the relevant necessary capabilities for the specific innovation.**

**Please list the relevant ones only (list is annexed)**

- **food safety:**
  - basic skills to comply with the EU food safety regulations
  - ability to understand what makes the product safe (the key controls, which ensure the safety of the product – biological, chemical and physical hazards, providing the safety shelf life of perishable products)
  - food safety culture (motivation, responsibility for food safety) and basic skills for the implementation of HACCP
  
- **food quality:**
  - ability to define the target segments of consumers for SFSCs
  - ability to define the product characteristics which are (tacit) basic requirements for the target segment(s) of consumers;
  - ability to define which product attributes/levels and augmented services represent an added value for the target segments of consumers;
  - food quality culture (motivation, responsibility for food quality);
  - production experiences which help to provide the expected quality reliably, uniformly;
  - ability to provide distinguishable quality which meets the needs of the targeted consumer segment;
  - meeting (local) legal requirements, application of the labelling rules;
  - ability to access the consumer willingness to pay for specific products of SFSCs.
  
- **ethical aspects**

- ability to understand consumer needs for ethical behaviour related to the specific product(s) of the SFSCs;
- culture for ethical food production and supply;
- ability to implement necessary measures to ensure ethical food production and supply;
- ability to access the consumer willingness to pay for products meeting ethical aspects

**6. Describe the results, achievements and typical failures**

**7. Summarize what makes the case to a good practice for the members of the SFSCs (e.g. lessons learned)**

**8. Aspects, methods for transfer of methods for other SFSC members**

**9. Recommendations for members of other SFSCs for further applications**

.....  
**10. More information is available at (web), if it is relevant**

<https://www.lely.com/us/solutions/milking/lely-qwes/>  
<https://www.lely.com/us/solutions/milking/>

## **Annex**

### **1. Checklist for necessary resources (tangible and non-tangible):**

- materials (access to: raw materials/ ingredients - including volume, land – including size, packaging materials)
- human: labour force: size, knowledge & skills (production, technical, marketing, managerial, ICT, financial, etc.)
- technology: patents, know-how, trademarks, copyrights, trade secrets
- infrastructure, equipment, facilities, - size, minimum volume of production/sales, IT infrastructure
- information, reputation, brand, trust
- financial\*

\*: estimated cost:

0 - 10 000 Eur  
10 001 - 50 000 Eur  
50 001 - 100 000 Eur  
100 001 - 300 000 Eur  
300 001 – 1 000 000 Eur  
1 000 000 Eur above –

- other specific necessary resources for the application of the specific innovation

## 2. Checklist for the necessary capabilities

- **food safety:**
  - basic skills to comply with the EU food safety regulations
  - ability to understand what makes the product safe (the key controls, which ensure the safety of the product – biological, chemical and physical hazards, providing the safety shelf life of perishable products)
  - food safety culture (motivation, responsibility for food safety) and basic skills for the implementation of HACCP
  
- **food quality:**
  - ability to define the target segments of consumers for SFSCs
  - ability to define the product characteristics which are (tacit) basic requirements for the target segment(s) of consumers;
  - ability to define which product attributes/levels and augmented services represent an added value for the target segments of consumers;
  - food quality culture (motivation, responsibility for food quality);
  - production experiences which help to provide the expected quality reliably, uniformly;
  - ability to provide distinguishable quality which meets the needs of the targeted consumer segment;
  - meeting (local) legal requirements, application of the labelling rules;
  - ability to access the consumer willingness to pay for specific products of SFSCs.
  
- **trust:**
  - ability to ensure product integrity, authenticity and transparent information for the consumers (including systems, tools);
  - ability to access external trust enhancers (third party certification, internal certification system, participatory guarantee systems);
  - application of the labelling rules and branding (mandatory and voluntary);
  - ability to meet third party certification requirements
  
- **ethical aspects**
  - ability to understand consumer needs for ethical behaviour related to the specific product(s) of the SFSCs;
  - culture for ethical food production and supply;
  - ability to implement necessary measures to ensure ethical food production and supply;
  - ability to access the consumer willingness to pay for products meeting ethical aspects
  
- **accessibility to consumers:**
  - ability to organize logistics efficiently and to exploit innovative solutions and distribution channels;
  - efficient, innovative sales methods;

- ability to develop and implement new business models for ensuring access of consumers to products and augmented services;
- **fair price:**
  - collecting marketing information;
  - ability to enhance and maintain cooperation among chain actors including the combined use of available complementary resources, capabilities, competences of SFSCs actors, networking, understanding the principles of food value chain management;
  - ability to define, develop or maintain unique quality of products and augmented services;
  - ability to develop and implement new business models;
  - ability to access the consumer willingness to pay for fair price
- **increased negotiation power:**
  - collecting marketing information;
  - ability to enhance and maintain cooperation among chain actors including the combined use of available complementary resources, capabilities, competences of SFSCs actors, networking, understanding the principles of food value chain management, cooperation culture;
  - ability to define, develop or maintain unique quality of products and augmented services;
  - ability to develop and implement new business models;
- **shared use of available resources:**
  - ability to enhance and maintain cooperation among chain actors including the shared and combined use of available complementary resources, capabilities, competences of SFSCs actors, networking, understanding the principles of food value chain management, cooperation culture;
  - the level of value chain management culture;
  - ability to access the consumer willingness to pay for food with reduced environmental impacts

- **input for R+D:**
  - ability to monitor, research, evaluate, and understand the needs and wants of customers and consumers;
  - ability to develop new products, processes, packaging, preservation techniques, systems and access to new markets, including in other categories;
  - access to innovative technologies; distribution and marketing solutions and methods. management systems;
  - access to local input for R+D covered by other aspects
  
- **access to markets: and market success**
  - effective promotion, customer service, efficient and innovative sales methods;
  - ability to understand consumer's needs;
  - ability to organise logistics efficiently and to exploit innovative solutions and distribution channels,
  - unique value propositions;
  - ability to develop and implement new business models for ensuring access of consumers to products and augmented services, develop the market accessibility for the suppliers.
  - stock control;
  - ability to access to required raw materials within a restricted geographical area
  
- **access to infrastructure:**
  - ability to use existing own infrastructure in a focused way to serve consumer needs or to combine it with complementary infrastructures of other SFSC actors, cooperation culture;
  
- **management:**
  - to implement management systems for vision, planning, implementing), coordinating, controlling, monitoring, continuously;
  - improving; ability to motivate, authorize staff;
  
- **production, processing:**
  - management system, production experience, specific controlling, monitoring, continuously;
  - willingness to consider and ability to evaluate the adoption of TECI and NTI in the current production processes;
  - any additional specific resources necessary for the application of the specific innovation.