



LOCATION



Italy

PARTNERS



4.2

Consumer Awareness: Milk Quality and Animal Welfare Tracking Management

CHALLENGE

Many farmers already monitor their animals by using different smart devices which collect data in a scattered way. However, they often miss an overall vision of the most important animal welfare and milk yield indicators. In addition, processing companies are interested in data relating to the milk's quality levels while consumers want more transparency regarding the food they eat. However, data is not exchanged between actors in the supply chain. The challenge is therefore to optimise the flow of this information.



AIM

The pilot aims to integrate the data collected from the breeding farm and from the processing company in order to optimise the flow of information between the actors within the milk value chain. By using open and standard-based technologies, it will allow actors of the milk value chain to get an overview of animal welfare and insights on the quality of milk, that is strictly connected to the health of the animal. The data collected will be acquired by a traceability system, to improve communication between actors right up to the consumer, increasing food liability and trust.

HOW

New wearable devices for animals will be installed and their data will be integrated with data coming from sensors already existing on the pilot farm in order to implement an information flow optimisation and optimise processes. Devices will be installed to allow automatic milk composition analysis and to guarantee the traceability of milk collected. Deployed solutions will adopt standards protocols and DEMETER data formats to enable interoperability.

BENEFIT

The implementation of standards-based and interoperable elements will enrich the overview of the animal welfare and milk yield indicators, easing the extension of the information flow to new data sources and optimising the availability of scattered data in a single access point. This will result in a higher quality of milk and a fairer price for producers. It will lead to greater transparency on milk production and animal health for farmers and processors. For consumers, it will deliver improved transparency on product nutritional values, origins and animal welfare.



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DEMETER Integration

Pilot 4.2 built a digital ecosystem that optimized the collection, visualization, management, and exchange of a large amount of data, collected through multiple new and existing devices on the milk supply chain by a farm and a milk processing company improving the overall value of the product.

Facilitating the integration between data and systems by using the DEMETER solution and specifically the Agricultural Information Model, the pilot improved animal welfare monitoring, milk quality measurement and, through a blockchain solution, its traceability. This eased the collaboration among the actors of the milk chain and improved consumers awareness on milk origin, potentially increasing their trust toward such widely consumed food.

Feedback From Farmers

The pilot helped both end-users improving the way they used their data. Maccaresse appreciated the unique interface developed, where all data is clearly visible and meaningful, and the flexibility of the solution, adaptable to different conditions and future exploitations. Moreover, thanks to the pilot, the farm realized that its data has an economic value which, so far, has not been carefully considered.

Lattesano, the processing company, highlighted the improvement of its capacities in collecting, detecting, managing, and storing data relevant for monitoring its activities. Lattesano has been enabled to connect in a dispatchable and effective system, with a strong degree of automation, reliability and transparency. They were impressed by the data collected from its milk process and expressed an interest in extending the system across their overall production.



Outcomes

The collaboration of the end-users and the technological providers developed three DSSs which helped the farm to make more informed decisions to guarantee animal welfare, milk quality and productivity; this consequently benefitted the processing company which collects milk from the farm. One DSS was on the animal welfare to evaluate cows' health (no ketosis, mastitis, lameness); one was on the heat-stress the cows are exposed to; and one on milk quality to analyze both raw and processed milk samples. Once developed, the prediction algorithms have been trained and fed and the generated output tested and assessed to ensure its compliance to end-users needs.

From a technological point of view, the information model has been enriched and transformed into AIM; AI algorithms on animal welfare have been integrated with this model and a new dashboard designed and developed using the data visualization tool.