NIR4Dairy

In-line NIR sensors combined with advanced chemometrics to rapidly monitor dairy composition for smart milk processing

The Irish dairy industry is one of the largest sectors in the agri-food area in Ireland. After removal of milk quotas in 2015, Ireland is expecting to increase 50% of total milk production by 2020. The increase in global demand for dairy products is also driving Irish dairy processors to become more competitive and the streamline process to be more efficient. This project NIR4Dairy will utilise state-of-the-art in-line NIR sensors for rapid measurement of key dairy components (i.e. protein, total solids, lactose) during the production of milk protein concentrate, providing real-time compositional information to improve process efficiencies, optimise the use of dairy materials and to produce a consistent final product. The project NIR4Dairy links the expertise of University of Córdoba (Spain) and Teagasc (Moorepark Food Research Centre) with Ireland's leading dairy company (Glanbia Ireland) to address the challenges that can occur when integrating the in-line NIR sensors into dairy manufacturing (i.e. process vibration, sample temperature, flow conditions). A robust model will be developed to predict dairy composition. The model will be further optimized and validated from laboratory to pilot to industry scale. Successful completion of this project will make significant advancements in the area of NIR application and dairy processing.

Project Duration: 36 months (18M University of Córdoba + 6M Glanbia + 12M Teagasc)

Collaborating Institutions: Teagasc Food Research Centre Moorepark, Ireland
University of Córdoba, Spain
Glanbia, Ireland

Project Team:

RL2025 Fellow	Teagasc Supervisor	Outgoing Phase Supervisor	Secondment Supervisor
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