



Yonas HAILU ALEMU

Technology Centre:	Teagasc Food Research Centre Moorepark, DPTC
Academic Mentor:	Noel McCarthy
Company Partner:	Dairygold
Company Mentor:	Ian O'Loughlin

Yonas received his master's degree from Haramaya University, Ethiopia in 2013 and has a number of years' experience in the dairy sector. Following service at the university in research and teaching activities; Yonas received his PhD degree from Haramaya University under a collaborative program with the University of Copenhagen. His Project focused on developing suitable processing technologies for camel milk i.e. cheese manufacturing and ripening. Yonas has wrote and won national research grants from the Ethiopian Agricultural Research Institute between 2016-2018 and a collaboration Project Funded by Bill and Melinda Gates Foundation in 2018. He was a Postdoctoral fellow at Teagasc, Moorepark Food Research Centre in 2019 working on a project to develop a beta-casein enriched whey protein concentrate.

Noel McCarthy

Dr. Noel McCarthy is Food Scientist with a vast amount of dairy processing experience based at Teagasc Moorepark Food Research Centre. His areas of research interest focuses on dairy processing efficiency and the development of complex nutritional formulations. Dr. McCarthy has collaborations with a number of Irish dairy companies and has acquired a number of research grants from DAFM and Enterprise Ireland. He has previously managed and completed a number of projects on spray dried powders, particle and ingredient interactions, food structure, functional foods, novel consumer foods and advanced process technologies.

Ian O'Loughlin

Dr. Ian O'Loughlin is a senior scientist in nutritional powder product development. He is currently the Product and Proposition Development Manager at Dairygold. Dr. O'Loughlin has excellent expertise in dairy and plant-based nutritional product development. Dr. O'Loughlin has been involved in a number of research collaborations focused on protein, lipid, mineral and carbohydrate interactions in complex nutritional formulations. This industrial expertise has been garnered with a number of multinational companies in the life-stage nutrition and ingredient development sectors. Dr. O'Loughlin has collaborated with an array of applied research performing organizations including University Collage Cork, University of Limerick and University College Dublin.

Teagasc Food Research Centre Moorepark, DPTC

Teagasc Moorepark Food Research Centre is a science oriented centre with excellent research facilities to generate and deliver technological solutions for the advancement of the Irish Dairy industry. Teagasc Food Chemistry and Technology Department has state-of-the-art analytical equipment, lab/pilot scale facilities in the area of membrane separation, homogenization, heat treatment, evaporation and spray drying. The department has a number of active researchers in

[Career-FIT PLUS Researcher](#)

dairy chemistry and formulation design with expertise in processing, dairy chemistry, membrane processing, spray drying, microscopy, enzymatic digestion, etc. Dairy processing technology centre (DPTC) is a University of Limerick based centre designed to bring fundamental and industrial level science to the Irish Dairy industry. It has brought Irish universities, research institutes and the dairy industry together under a number of common themes relating to milk and milk product processing.

Dairygold

Dairygold is one of the largest farmer owned dairy co-operatives involved in manufacturing a variety of dairy commodities and powder ingredients in Ireland for export around the globe. Through state-of-the-art processing, Dairygold valorizes grass-fed milk to provide nutritious dairy ingredients for the global marketplace, in such important sectors as infant formula and targeted adult nutrition. This is achieved through smart innovation, research and collaborative development initiatives that leverage Dairygold's century of experience in creating value and ensuring quality from nutrient-rich raw milk. Dairygold's Nutritionals Campus in Mallow is at the forefront of these initiatives, and with significant capital investment in recent years, is ideally positioned to maximize opportunities in product and formulation development for application across life-stage nutrition.

Yonas's project

Enhanced Dairy Powders for Life-Stage Nutrition

Currently, Ireland produces ~250,000 tonnes/annum of infant milk formula/premium nutritional dairy powders for export from mainly three multinational producers based in Ireland, with ~40000 tonnes imported by China each year. Dairy economists have predicted that the dairy industry will need to add as much value as possible to milk in the coming years to keep abreast of dairy alternatives.

Valorization and designing a suitable nutritional formulation for specific consumer cohorts is an ongoing effort in what is a competitive arena among dairy ingredient manufacturers. There are also a number of processing issues to overcome in achieving the required functional properties of the final product. Therefore, it is crucial to overcome these hurdles by firstly understanding the potential interactions of the multiple components in complex formulations and secondly generating the know-how/expertise through fundamental research science. Therefore, the project will build on the existing state-of the art, which mainly focused on infant formula, to produce nutritional powders for specific consumer cohorts. The knowledge to be generated is anticipated to underpin and contribute to a wider understanding of dairy science and processing technologies in complex nutritional formulation.