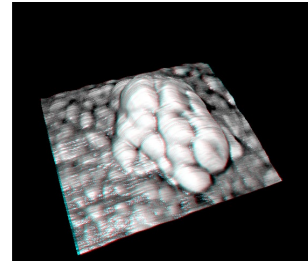


Food Chemistry and Technology Department



FC&T Core Research Team



Dr John Tobin
Department Head
Dairy science and
process engineering



Dr Andre Brodkorb
Protein chemistry
and colloidal science



Dr Brijesh Tiwari
Novel process
technologies



Dr Noel McCarthy
Behavior of dairy
concentrates and
ingredients



Dr Tim Guinee
Dairy and cheese
chemistry



Dr Sean Hogan
Fat technologies
and colloidal
science



Dr Norah O'Shea
Process Analytical
Technologies



Dr Eoin Murphy
Dehydration
technologies and
process engineering



Dr Song Miao
Food structure
and powder
technologies



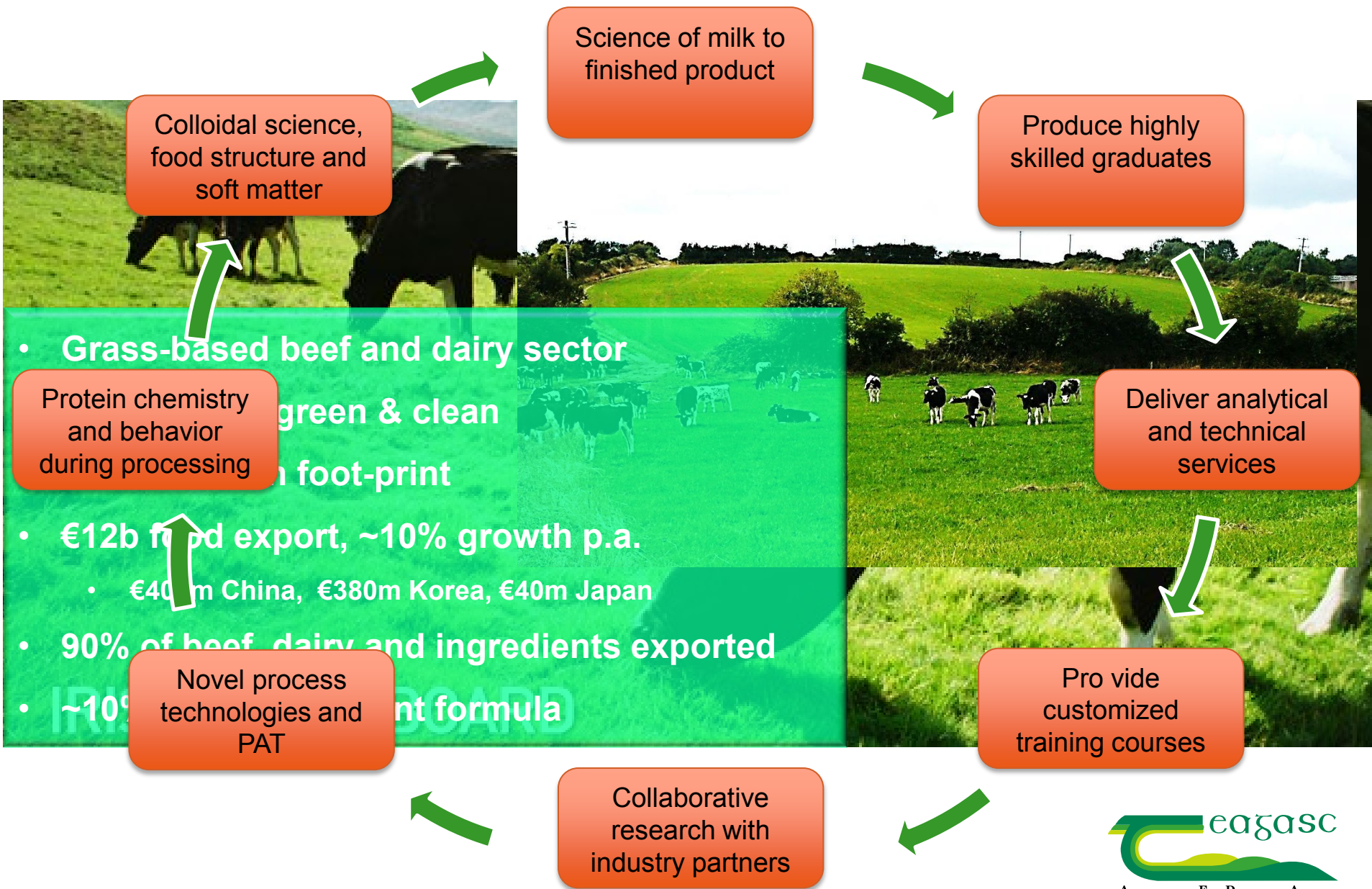
Dr Tom O Callaghan
Dairy chemistry and
functionality across
the supply chain



Dr Diamuid Sheehan
Cheese
diversification

Food Chemistry and Technology Department

What drives our research?



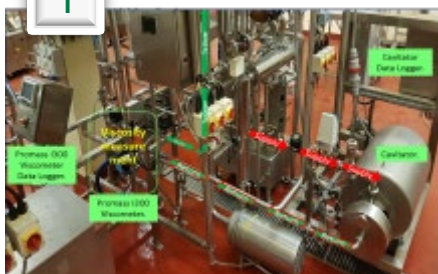
FC&T Innovative Drying Platform

Working with INRA/VOMM to develop sustainable alternative to spray drying

VOMM

INRA
SCIENCE & IMPACT

1



2



Vacuum evaporation

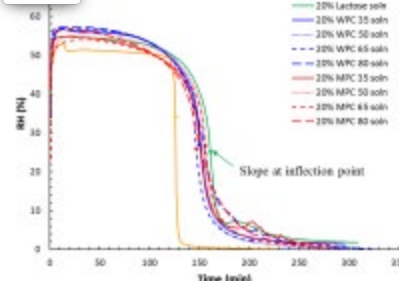
Wet process:

- Optimisation of standard processes
- Novel wet-process design

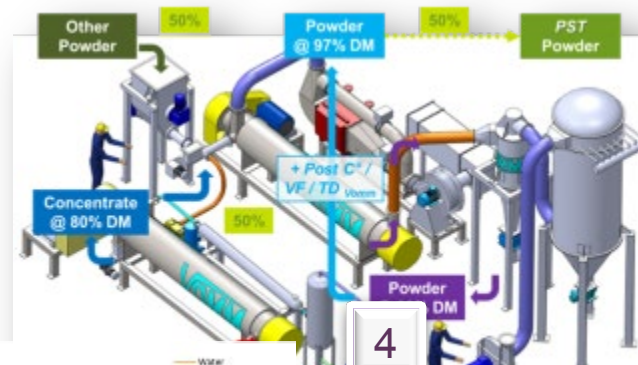
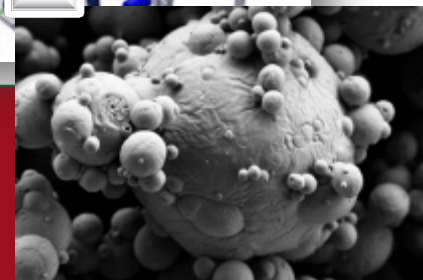
PAT tools:

- Online monitoring of heat induced changes to formulations

3



4



Proven concept for permeate/whey drying

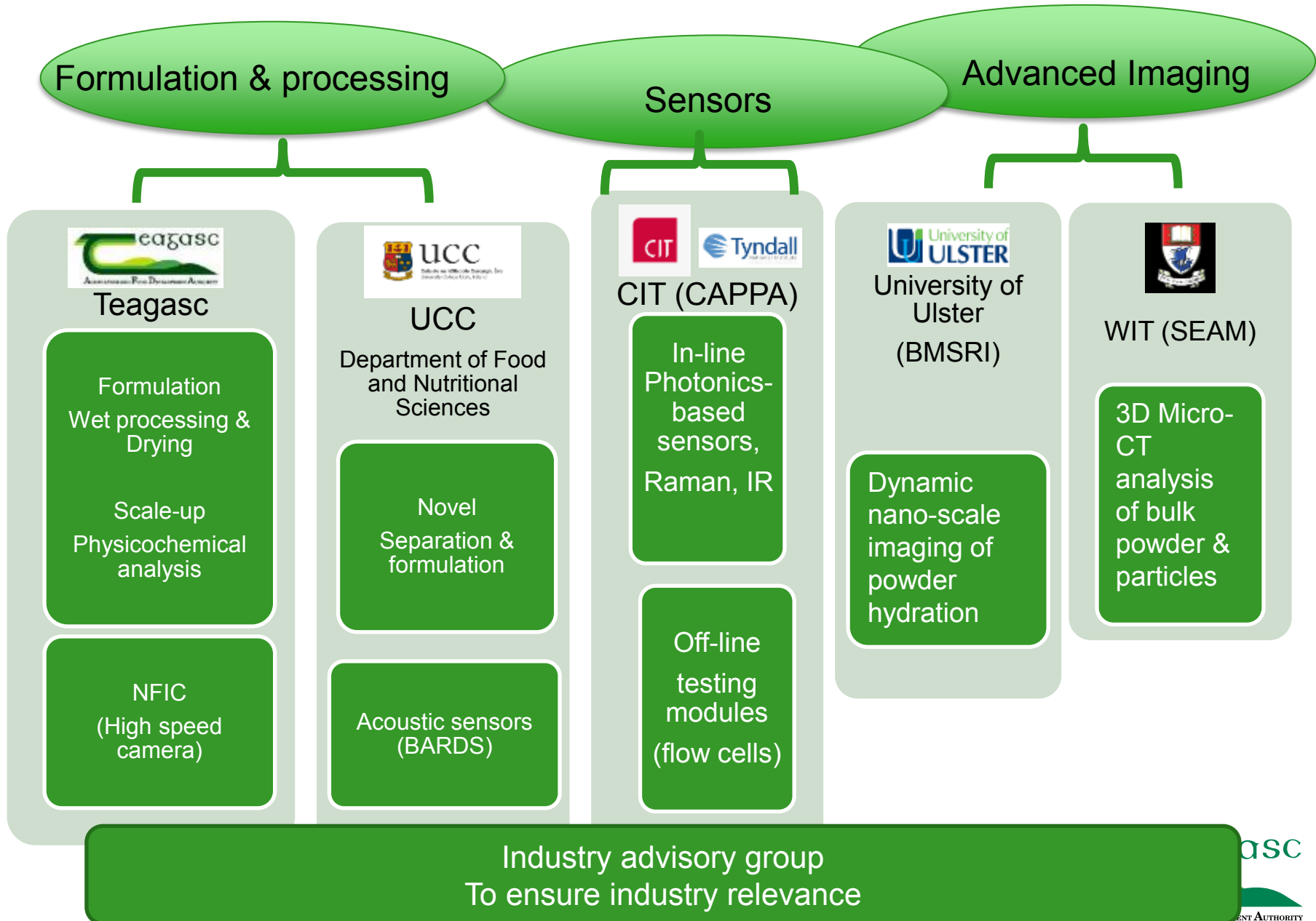
Drying optimisation:

- Use of drying kinetics to optimise dryer conditions
- Stickiness analytics

Powder microstructure:

- Optimise rehydration/flow properties
- State of the art imaging

DAIRYDRY Powder Functionality Platform



Validation of New Technologies

Journal of Food Engineering 225 (2018) 18–25



Contents lists available at ScienceDirect

Journal of Food Engineering

journal homepage: www.elsevier.com/locate/jfoodeng

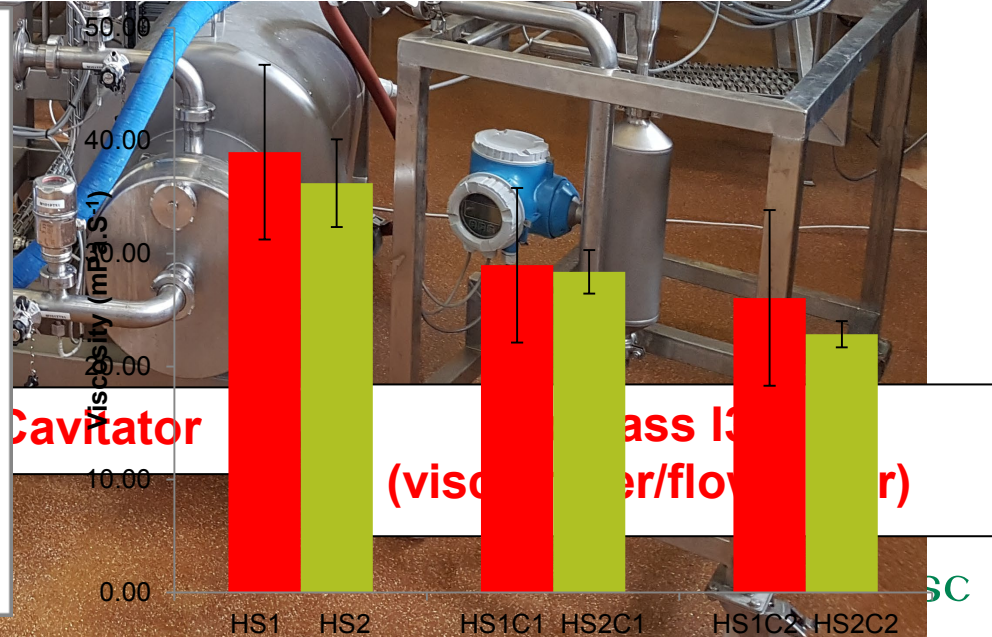
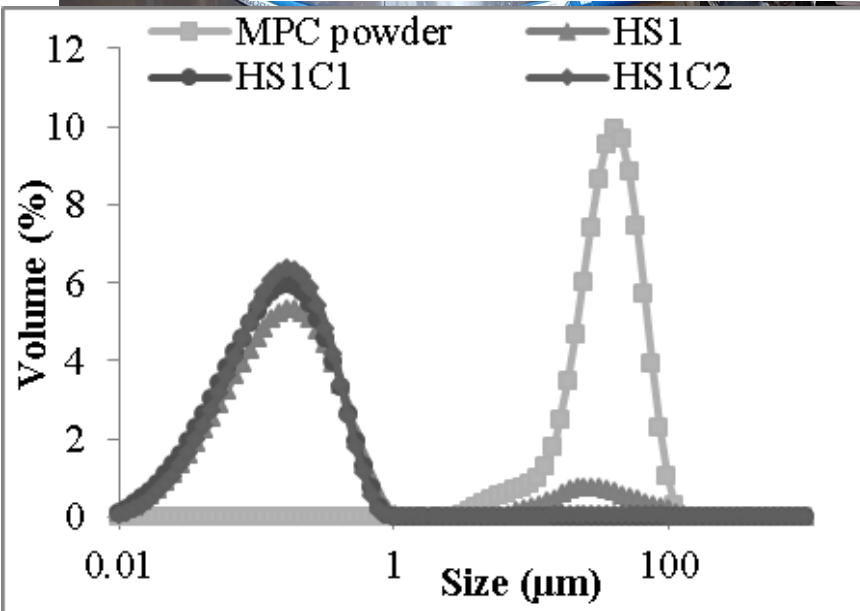


Applications of hydrodynamic cavitation for instant rehydration of high protein milk powders

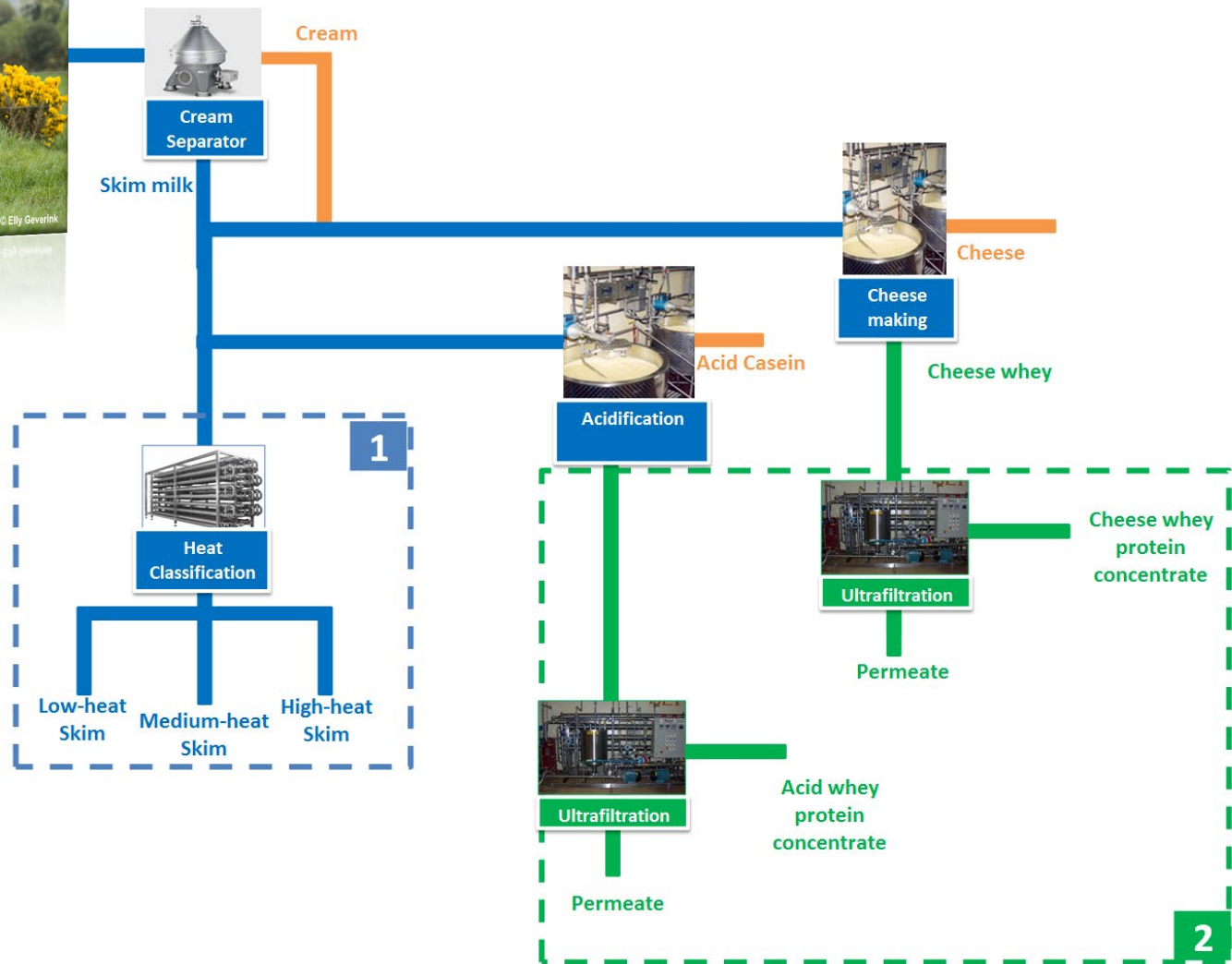
Shivani Pathania ^{a, b}, Quang Tri Ho ^{a, b}, Sean A. Hogan ^a, Noel McCarthy ^a, John T. Tobin ^{a, *}

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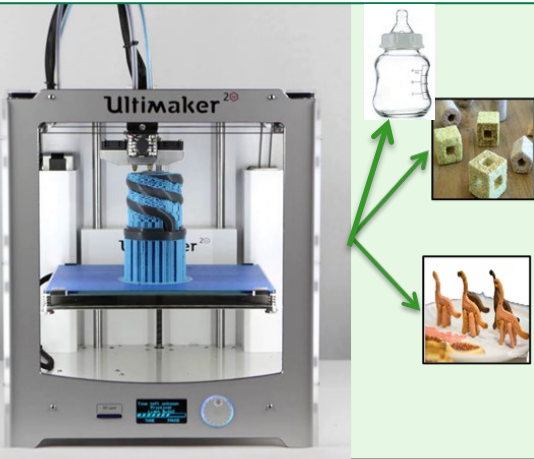


Further Valorisation of Milk by Fractionation



Animal Breed - Milk Compositional and Technological Traits for Functional Ingredients with Health Benefits

FC&T Food IT Platform

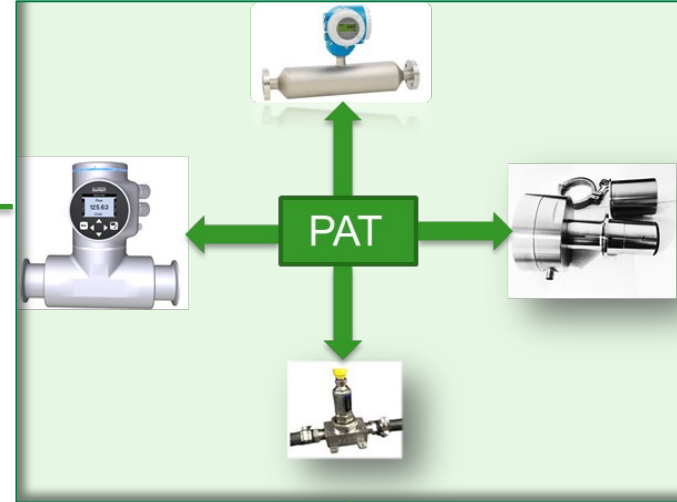


3 DDAIRY



3D Printing Technologies:

- ✓ Design & Printing of:
 - Structured Dairy
 - Food Prototyping



Process Analytical Technologies (PAT):

- ✓ Monitor & Control of Dairy Processes
e.g. concentrate behaviour
 - Quality sensors e.g. temperature

Next Generation Robotics:

- ✓ application of robotics, PAT & image analysis tools
 - New quantitative methodologies for powder quality

