



Closing the loop: turning dairy processing wastewater into a protein-rich resource

Dairy industry expansion in Ireland is resulting in substantial increases in dairy processing wastewater. Remediation of such processing wastewater constitutes a significant cost for the industry in Ireland. Conversely, dairy industry wastewater is an exploitable and valuable source of components that can be converted into feed.

The EPA-funded NEWTRIENTS project at University College Cork is developing eco-innovative technologies that enable reuse of valuable components present in the effluent with potential environmental and economic benefits.



NEWTRIENTS aims to deliver innovation and efficiency through value-added dairy wastewater resource recovery using two novel linked technologies carried out in sequence:

- Acidogenic fermentation of dairy industry waste yielding building blocks for bioplastics
- Production of duckweed biomass which is a protein-rich resource with potential as a high-value agricultural feed

Technologies to grow duckweed, and especially native *Lemna minor*, on dairy industry processing wastewater have been developed by NEWTRIENTS. The resulting biomass can serve as a high-value, high-protein agricultural feed. Dairy industry wastewater is particularly attractive as a growth medium in Ireland as it contains high amounts of nitrogen and phosphorous but, unlike other wastewaters, is not contaminated with pathogenic material, heavy metals or micro-pollutants, thus facilitating use of recovered resources as potential feedstuffs. Productivity is high, and protein content can be as much as 40% of dry matter, with high levels of key essential amino acids.

Stakeholders in the feed industry and/or agricultural sector are invited to liaise with the NEWTRIENTS team to explore opportunities for further collaborative development.

Contact: Prof. Marcel Jansen, m.jansen@ucc.ie; Dr Niall O'Leary, n.oleary@ucc.ie

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