



Biorefinery Glas - Small-scale Farmer-led Green Biorefineries

Geographical Location	IE 053 South-West Region
Keywords	Bioeconomy, Biorefinery, Circular Bioeconomy, Resource Efficiency, Ammonia Emissions, Nutrients, Fodder, Climate Resilient, Diversification
Project Leader	James Gaffey, Institute of Technology, Tralee (email: James.gaffey@staff.ittralee.ie)
Project Type	Operational Group
Starting Date	2019
End Date	2020
Project Status	Ongoing
Main Funding Source	Rural Development Programme (RDP) 2014-2020
Total Budget	€940,498



Project Rationale

Agriculture has been put under the spotlight in recent years as Ireland attempts to decarbonise its economy and meet the challenges and commitments laid out under the Paris Climate Accord and Sustainable Development Goals. With over a third of national Greenhouse Gas (GHG) emission currently coming from the agriculture sector, most would agree that urgent action is necessary. Ireland's fragmented supply chain and high grass production area make small-scale biorefineries a key opportunity area for growing Ireland's bioeconomy, particularly in rural regions.

Project Aims & Objectives

This project aims to improve the overall sustainability, value and resource efficiency of Ireland's agriculture sector through diversification into the bioeconomy, using a widely replicable small-scale farmer-operable grass biorefinery.

To achieve this goal, the project will pursue the following specific objectives:

- (i) Improve traditional farming activities and provide diversification opportunities for farmers via the integration of new technologies, driving new value chain development;
- (ii) Demonstrate a viable mechanism for better utilisation of national protein reserves through small-scale biorefineries. Reduce agri-related greenhouse gas emissions, both indirectly (through displacement of soybean imports) and directly (through reduction in overall nitrogen and phosphate emissions in cattle excrement) emissions arising in the agri-sector;
- (iii) Target a 40% increase in usable protein per hectare of Irish grassland, helping to contribute significantly to indigenous feed reserves &
- (iv) Demonstrate a model which integrates easily into Ireland's existing agricultural structures.

Project Activities

- Demonstrate a small-scale mobile grass biorefinery on multiple farms in South West Ireland.
- Ensure that each component of grass is used at its highest value, with the simultaneous production of multiple products from grass, including an improved fodder press-cake fibre for cattle, protein concentrate feed for monogastrics, high value prebiotic sugars (for the food and feed markets) and recovery of nutrients for use as fertilizer.
- Promote farm-to-farm symbiosis and cooperation.
- Facilitate several knowledge exchange activities, including training of farmers on the operation of small-scale biorefineries in the South West and nationally.
- Deliver a dissemination package with farmers playing a central role, sharing their experiences with other farmers and relevant multi-actors through a digital storytelling initiative.

