Livestock Systems Department

Title

Increased environmental efficiency of ruminant production systems through the incorporation of a Life Cycle Assessment into a quality assurance scheme

Abstract

The Food Harvest 2020 report highlights the requirement for Ireland to build on its green credentials through "SMART GREEN GROWTH" based technologies. The objective of this proposal is to develop, apply and validate models capable of quantifying, benchmarking and identifying strategies to increase the environmental efficiency (reduce the environmental footprint) of the primary agri-food sector. Whole farm and life cycle assessment models will be developed and used to assess the various components of the environmental sustainability of dairy, beef and sheep systems. Models will be developed around biodiversity, energy and water consumption, greenhouse trans-boundary and eutrophic emissions. Biodiversity, energy and water consumption will be measured on representative dairy, beef and sheep systems, and will provide the parameters necessary to develop country-specific life cycle assessment (LCA) models for these environmental indicators. The models will be developed, calibrated and validated using data collected on 80 dairy, beef and sheep farms. A sustainability audit system will be mapped to the models for implementation of a national quality assurance scheme. Decision support tools will be developed to identify mitigation strategies around the five key environmental indicators included in the LCA. This national quality assurance based sustainability scheme building on the GHG emissions schemes developed between Bord Bia and Teagasc will allow the environmental efficiency of Irish ruminant production systems to be benchmarked, thus ensuring that there is a focus on environmental impact reductions and that focusing on one impact category is not detrimental on another impact category. Outputs from this research will be implemented into the national inventory methodologies (where possible) through consultation with the EPA.

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