

Grassland Science Department

Title

Modelling for increased grazing management precision on Irish grassland farms

Abstract

An analysis of Irish National Farm Survey data has indicated that net profit per hectare is increased by €162/ha for each additional one tonne of grass utilised on Irish dairy farms, with the figure for beef farms being in the region of €90/ha. The average level of grass utilisation on Irish dairy and beef farms at present is approximately 6.5 and 4.8 tonnes/ha, respectively. Information from research and technically efficient commercial farms has indicated that this can be increased to 11 to 13 tonnes DM/ha through the adoption of modern grazing technologies. The Food Harvest 2020 Report proposes a significant increase in both milk and meat output using smart green technologies. Internationally there is an abundance of indoor feeding systems for dairy cows (Feed into Milk, UFL, VEM, NRC, AFRC); however, there is a lack of feeding systems designed for grazing dairy cows. This project will develop precision grazing management technologies that will facilitate increases in milk and meat output from sustainable grass-based systems of animal production. A Grass Growth Predictor model will be developed, allowing better synchronisation of grass supply with grass demand for grass budgeting on grassland farms. The model will be evaluated using data from Teagasc grazing experiments. Ultimately, the Grass Growth Predictor will use forecasted meteorological data in combination with current grazing management to predict grass growth. Similarly a Grass Intake Animal Performance model will be developed to simulate grass DM intake and animal performance from easily obtainable animal, sward, grazing management and supplementation variables. Following evaluation and testing, these two models will be combined with a Grass Quality predictor Model to form an integrated Grazing Management Animal Performance Model. These technologies will be developed into a decision support system and made available to grassland farmers and advisers through web and mobile based applications.

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Programme/Subprogramme/RMIS Number:

AGRIP – Moorepark Grassland Science-Grass growth, sward dynamics & utilisation-6334

Start Date: 1/1/13 **End Date:** 31/12/16