

Abstract 4:

Analysing the farm-level impact of multispecies swards on Irish ruminant production systems

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Irish traditional pasture-based ruminant production is facing many challenges: agriculture is the largest contributor to Irish greenhouse gas emissions; profitability at farm level in beef and sheep farms is low and productivity of conventional permanent pastures is compromised.

Reseeding permanent pastures is a way of addressing the productivity issue with the aim of increasing farm profit, with farmers largely turning to monocultures of perennial ryegrass. These swards have high yields, but are quite dependent on nitrogen inputs, increasing production costs and greenhouse gas emissions.

Research has shown that multispecies swards have higher yields than monocultures, at lower fertilization rates, and can also reduce lamb's days to slaughter and thus, greenhouse gas emissions (per kilogram of meat).

However, whole farm-level analysis of the benefits and drawbacks of multispecies is still lacking. In this project we aim to explore the impact of reseeding with multispecies, versus perennial ryegrass, on farm greenhouse gas emission and operating profit. Using the bio-economic model FarmDESIGN and based on data from an Irish experimental farm, we built three mixed grazing farms (a traditional permanent pasture farm, a perennial ryegrass farm, and a multispecies farm).

Preliminary results show that, although both multispecies and perennial ryegrass farms could generate similar operating profits, which are higher than those of the permanent pasture farm, multispecies do so while maintaining lower greenhouse gas emissions. This suggests multispecies swards could be an ecological intensification option for farmers to address some of the socio-economic issues they face, without a negatively impacting greenhouse gas emissions.