**Abstract**

Pasture based agriculture is facing significant challenges, including achieving reductions in environmental emissions, reducing fertiliser nitrogen use, improving water quality and maintaining food security. Grassland continues to provide farmers in the UK and Ireland with a low-cost competitive advantage for milk and meat production. In order to achieve ambitious, but necessary sectoral targets for 2030 farmers are dependent on robust science to ensure the correct strategies are implemented to achieve the reductions required. As well as adapting technologies at farm level, such as low emission slurry spreading, earlier age to slaughter, protected urea and applying lime, farmers are increasingly interested in using legumes to reduce the need for artificial fertiliser without compromising on animal performance. Recent research has demonstrated the role of clovers and herbs in multispecies grazing systems.

Germinal is a 6th generation family business focused on providing farming and food solutions and developing new plants and technologies to improve the efficiency and sustainability of livestock farmers. Findings from our research and innovation division, Germinal Horizon, have demonstrated improved consistency of herbage supply with more diverse mixtures, with perennial ryegrass (PRG) being out-yielded by PRG+ white clover or a multi-species mixture during the main growing season (June-August). These results are consistent with the ongoing work at Lyons Research Farm (University College Dublin) and Johnstown Castle Research (Teagasc). The sward profile is strongly influenced by fertiliser applied, comparing 2 different fertilisation rates, legumes accounted for a significantly higher proportion of the overall sward composition (62%) when 150 kg N/ha was applied, compared to 250 kg N/ha (32.5%). Protein concentration and ME value of the sward was dependent on the sward composition. The longevity of the herbs in particular is limited, with a significant change in the dominant species over time. In Year 1, chicory and plantain accounted for 45.6% of the total sward, declining to 23% in Y2.

In recent years, there has been a significant market shift with a growing demand for legumes and herbs as farmers adapt scientific research to reduce environmental impact and maintain productivity and implement robust and rigorously tested scientific research. This is evident through increased sales of legumes and herbs within Ireland