

Identification of the major factors affecting nitrogen use efficiency and nutritive value of forage maize production in Ireland (RMIS 6498)

This project aims to reduce the cost of forage maize by optimised agronomic practices that improve crop yield and nutritive value whilst reducing inputs such as N fertiliser. The hypothesis is that the N use efficiency (NUE) and nutritive value of forage maize will be affected by the rate, form and timing of fertilizer nitrogen applied, and also by plastic mulch, genotype, sowing date, harvest date and plant population density.

Thus, the main aims are to:

1. Establish the nitrogen fertilizer input (kg N/t DM) that optimises the yield of whole-crop, cob (grain) and stover.
2. Investigate the effect of nitrogen application rate and timing on the nutritive value of whole-crop, cob (grain) and stover.
3. Determine the interaction between rate and timing of nitrogen applied on NUE.
4. Investigate the effects of plastic mulch, genotype, sowing date and plant population density on the NUE and nutritive value in forage maize.
5. Determine how the effect of plastic mulch, genotype, sowing date, harvest date and plant population density impact on the ensilage process and thus feeding value of forage maize silage.

The extensive array of field plots for this study are located at the UCD Lyons Farm.

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