

# Moorepark clover study update

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## Summary

- Grass-clover swards receiving either 100 or 150 kg N/ha/year had similar pasture production to grass-only swards receiving 250 kg N/ha.
- Grass-clover swards receiving either 100 or 150 kg N/ha/year had greater milk solids production compared with grass-only swards receiving 250 kg N/ha at a stocking rate of 2.74 cows/ha.

## Introduction

Incorporating white clover into grass based systems can increase herbage quality in mid-season and potentially supply nitrogen (N) for grass growth through N fixation. Farms with high stocking rates (> 2.5 LU/ha), and therefore a high feed demand, generally rely on fertiliser to supply adequate N for sward growth. Previous Moorepark research has shown that including white clover in intensive grass based systems can allow a reduction in N application rate from 250 to 150 kg N/ha, without impacting on herbage production, while also increasing milk solids production compared to a grass-only sward receiving 250 kg N/ha. Clover growth compliments perennial ryegrass with peak growth during August compared to the peak in grass growth during May/June. Clover growth is slower than grass over winter and in early spring because clover requires soil temperatures of approximately 8°C for growth while grass grows at soil temperatures of 5–6°C. Applying N fertiliser to grass-clover swards can compensate for low clover growth rates in spring. Incorporating clover into grass swards has the potential to increase milk production, particularly in the second half of the year (June onwards).

## Grazing experiment

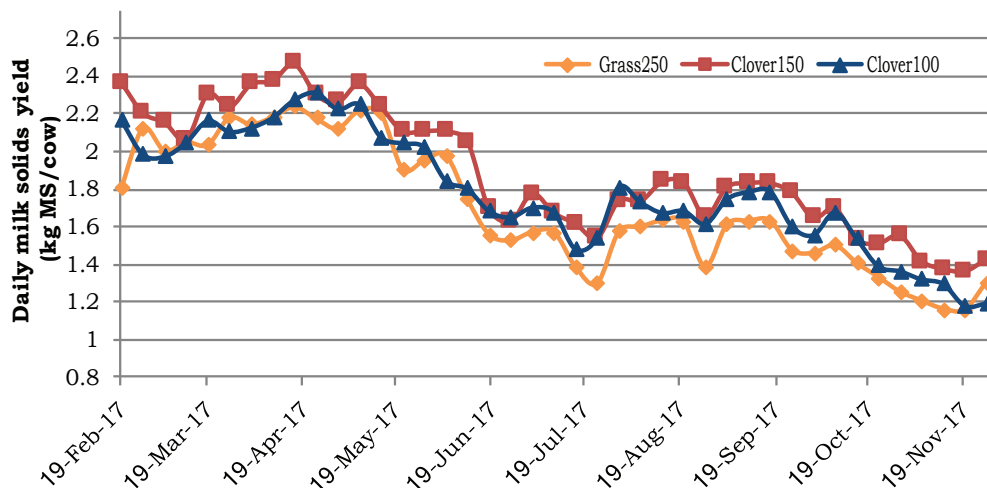
A farm systems experiment is being undertaken at Teagasc, Animal and Grassland Research and Innovation Centre, Moorepark, Fermoy, Co. Cork. The experiment commenced in 2017. The experiment is comparing herbage and milk production from a grass-only sward receiving 250 kg N/ha per year (Grass250) and grass-clover swards receiving 150 or 100 kg N/ha per year (Clover150 and Clover100, respectively). Each treatment is stocked at 2.74 cows/ha. All swards received N fertiliser throughout the year, though the rate varies depending on treatment. Target rotation length, pre-grazing herbage mass (1,300 to 1,500 kg DM/ha in mid-season) and post-grazing sward height (4 cm) are the same for all treatments. Concentrate feeding was the same for each treatment. Results from 2017 are presented.

## Results

Pasture production was 14.0 t DM/ha on Grass250, 14.6 t DM/ha on Clover150 and 13.4 t DM/ha on Clover100. Sward clover content was 18% in both Clover150 and Clover100. Milk and milk solids production was greatest on Clover150, least on Grass250, with Clover100 intermediate (Table 1 and Figure 1). Based on the results of this experiment there is potential to reduce N fertiliser application to grass clover swards in milk production systems with stocking rates up to 2.74 cows/ha. This offers considerable potential saving to the farmer in terms of reduced N fertiliser application.

**Table 1. Average daily milk and milk solids yield and annual milk solids yield on grass-only swards receiving 250 kg N/ha (Grass250) and grass-clover swards receiving 150 or 100 kg N/ha (Clover150 and Clover100, respectively)**

	Grass250	Clover150	Clover100
Milk yield (kg/cow/d)	20.7	22.4	21.9
Milk solids (kg/cow/d)	1.7	1.9	1.8
Cumulative milk yield (kg/cow/yr)	5,141	5,607	5,469
Cumulative milk solids (kg/cow/yr)	420	468	442
Cumulative milk solids (kg/ha/yr)	1,151	1,282	1,211



**Figure 1.** Average daily milk solids production (kg MS/cow) from a grass-only sward receiving 250 kg N/ha (Grass250) and grass-clover swards receiving 150 or 100 kg N/ha (Clover150 and Clover100, respectively)

### Conclusions

Milk solids production was greater on the grass-clover treatments compared to Grass250. Sward clover content was similar on the two clover treatments.

### Acknowledgements

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