

# Performance of grass varieties and white clover on commercial farms

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## Summary

- The evaluation of grass and clover variety performance on commercial farms provides important information in sward evaluation.
- There was a 7.8 t DM/ha difference between perennial ryegrass varieties on commercial farms over a five year period.
- Sward white clover content ranged between 5–22% in 2018, and 8–21% in spring 2019.

## Introduction

An evaluation process to identify and promote the use of grass and clover varieties with improved on-farm performance in the areas of production, persistence and quality is economically important for ruminant grazing systems. Since the introduction of Recommended List evaluations to Ireland, the grassland demands of farmers have changed. To overcome the limitations of simulated grazing studies and identify superior grass and clover varieties for grazing systems, on-farm evaluation studies have been established. On-farm evaluation has the ability to influence and direct the breeding of the next generation of grass varieties for intensive grazing systems. This paper presents results from the first five years of a long-term study to assess the life-time performance of grass varieties on commercial farms.

## Perennial ryegrass on farm evaluation

This study is being undertaken on 89 farms across Ireland. It includes an array of soil and weather conditions. Over the five years of the study, variety influenced total and grazing DM yield. The highest performing variety for total DM yield was AberGain (14.8 t DM/ha/year) and the lowest yielding variety was Glenveagh (13.4 t DM/ha/year). A larger range in production was found between paddocks across farms, ranging from approx. 6.5 to 19.5 t DM/ha. The wide range in paddock soil fertility and regional meteorological conditions contributed to the level of variation in on-farm herbage production.

Grazing DM performance indicates how well a variety performs from a grazing perspective, with more frequently grazed swards having greater DM production. The varieties evaluated differed significantly in yield of grazed herbage. The highest yielding variety with respect to grazing DM was AberGain (12.6 t DM/ha/year) and the lowest yielding variety was Dunluce (10.6 t DM/ha/year). AberGain and Astonenergy achieved the highest yield of grazed herbage, combined with recording a low silage yield. Varieties such as AberGain, Drumbo and Twymax appeared to have good yield stability. Other varieties had fluctuations in annual DM production.

## White clover cultivar evaluation

In April 2016 and 2017, a study looking at the on farm performance of six white clover (four medium and two small leaf) cultivars was established. Nine farms from across the country were selected based on geographical location, soil type and previous grazing management. White clover was over sown into existing perennial ryegrass swards using an Einbock grass seeder, immediately after swards were grazed, at a seeding rate of 3.7 kg/ha. Between

70% and 80% of the milking platform was over sown with white clover, excluding silage ground. Sward clover contents were determined four times in 2018. Sward clover content averaged 5–22% across the nine farms. In spring 2019, sward white clover contents were determined on all of the nine farms. Sward clover content varied significantly between and within farms. Average sward clover content on the nine farms was between 8% and 21%, and within farms, ranged from 0 to 35%. There was no clear trend in terms of the performance of the white clover cultivars. Farm type, sward condition, soil fertility and grazing management had the largest impact on sward white clover establishment and persistency. The farms and paddocks where white clover established and persisted had high soil fertility for P and K and a high soil pH status, and also generally had high perennial ryegrass sward content.

**Table 1. DM yield (T DM/ha) of perennial ryegrass varieties on commercial farms over five years (2013–2017)**

Year	2013	2014	2015	2016	2017	Mean
AberChoice	13.5	12.5	14.0	14.4	14.6	13.8
AberGain (T)*	12.8	15.1	15.4	15.1	15.6	14.8
AberMagic	11.4	13.7	13.2	16.1	16.0	14.1
Astonenergy (T)	12.8	14.7	15.2	15.1	14.7	14.5
Drumbo	13.1	15.0	14.2	15.1	15.2	14.6
Dunluce (T)	11.0	13.5	13.2	14.2	16.0	13.6
Glenveagh	11.3	13.9	13.5	13.2	14.8	13.4
Kintyre (T)	13.6	13.4	14.4	13.6	14.3	13.9
Majestic	12.0	13.8	13.0	13.6	15.6	13.6
Twymax (T)	12.6	13.8	13.5	14.7	14.7	13.9
Tryella	12.9	13.2	13.3	13.8	14.4	13.5

\*(T) — indicates a tetraploid variety. All other varieties are diploid.

## Conclusions

On average, a difference of 7.8 t DM/ha was observed between perennial ryegrass varieties over a five year period on commercial farms. On-farm white clover evaluation has commenced but no clear results are available to-date. On-farm evaluation helps to identify varieties which maintain production across years in terms of total DM production and grazing DM production. Current and future developments in grass and clover evaluations in Ireland need to result in the delivery of improved varieties suited to intensive grazing environments.

