Forage value index validation – Interaction between genetic merit potential of perennial ryegrass cultivars and nitrogen fertiliser in a pastoral grazing system

Background

The DairyNZ Forage Value Index (FVI) was developed to help dairy farm businesses select a suitable ryegrass cultivar-endophyte combination. The FVI value of a cultivar-endophyte combination is given in $/ha/year; this value is an estimate of the expected contribution to the business' operating profit. The FVI $ value and ranking position for a specific cultivar-endophyte combination is calculated using trait performance values from small plot trials, and the expected economic value of differences in these performance traits.

A potential limitation of the performance values is that small-plot trials are managed to a standard that is higher than what could realistically be achieved on a typical farm. The objective of this research was to close the knowledge gap around the validity of the FVI model under different management conditions by testing the performance value traits using large-scale paddocks that are exposed to different management conditions in terms of nitrogen fertiliser and stocking rate.

Results

Pasture production was higher in the high FVI treatment compared with the low FVI treatment 11.6 vs 10.7 t DM/ha/yr with the high FVI cultivars producing more biomass during the summer.

Pasture growth increased under the standard management (180 kg N/ha) compared with the lower impact management (50 kg N/ha/yr) i.e. 11.8 vs 10.4 t DM/ha/yr, with increased DM yield in the standard treatments during summer and autumn

The overall economic advantage to the high FVI treatment was determined to be $109.30/ha/yr; only 22% of the predicted difference of $503/ha/yr

Key messages

- Selecting high FVI cultivars will result in extra pasture DM production in Southland, especially during the summer months.
- For both high and low FVI cultivars total DM production will be determined by the N fertiliser regime of the farm
- The fact the high FVI treatment outgrew the low FVI treatment suggests the FVI model is valid, however the model appears to be overestimating the $ value

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