Effects of early grazing on the growth and development of red clover (*Trifolium pratense* L.)

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Abstract

Developments in red clover cultivars have shown that persistency issues that have limited the inclusion of red clover in New Zealand pastures in the past are now less of a concern. The seasonality of current New Zealand pastures can lead to poor summer production. Red clover (*Trifolium pratense* L.) offers high drought tolerant pasture along with strong yields and high quality herbage. The objective of this research was to compare recent red clover cultivars with an industry standard red clover cultivar and lucerne (*Medicago sativa* L.), determining the effects of timing of first grazing and grazing frequency.

Two experiments were conducted. The field experiment included two red clover cultivars, Grasslands Relish and Grasslands Sensation, and a lucerne cultivar, Grasslands Torlesse. Treatments consisted of a first grazing 10, 12 and 14 weeks after sowing and a final grazing at 28 weeks after sowing. The species were measured over the experiment for morphological development and production through the establishment period. The second experiment was conducted in a glasshouse which included three red clover cultivars Grasslands Relish, Grasslands Sensation and Grasslands Colenso. Defoliation treatments were applied at 1, 2 and 4 week frequencies while production and development were continuously measured including monthly destructive harvests to further measure total plant biomass content and allocation.

The two recent red clover cultivars showed better production than lucerne and the older red clover cultivar, and especially notable production was seen by Grasslands Relish during the field experiment. Grasslands Relish was able to be grazed earlier than Sensation giving more flexibility, as well as maintaining a high plant population from autumn through to spring. Timing of first grazing showed that it substantially affected yield but had no effect on plant populations. High frequency defoliation resulted in less total herbage mass production and suppression of unique cultivar characteristics, such as growth habit, that was shown in red clover cultivars that were defoliated less frequently.

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