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# Effect of herb-clover mixes on weaned lamb growth

A thesis presented in partial fulfilment of the requirements for the degree

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*Dedicated to my ever loving parents*

*Amma and Thaththa*

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### **Abstract**

The quality and production of ryegrass (*Lolium perenne* L.) /white clover (*Trifolium repens*) pastures are seasonal in New Zealand. Earlier research showed that a sward mix of plantain (*Plantago lanceolata*), chicory (*Cichorium intybus* L.), white- and red-clover (*Trifolium pratense*) resulted in greater lamb live weight gains in the late summer early autumn period. However, this has not been tested across all the seasons in New Zealand.

Therefore, research was undertaken for two consecutive years (2011/2012 and 2012/2013) on three sward mixes; Pasture mix, Plantain mix and Chicory mix in early spring, late spring and early summer (late spring), summer and autumn. The Pasture mix consisted of perennial ryegrass and white clover. The Plantain mix consisted of plantain, white- and red-clover. The Chicory mix consisted of plantain, chicory, white- and red-clover. It was hypothesised that lamb performance (live weight, live weight gain (LWG) and carcass weight) and apparent carcass weight production per ha would be greatest in the Plantain and Chicory mixes in all four periods. Secondly it was hypothesised that Plantain and Chicory mixes would have lower feed conversion ratios (FCR) with higher herbage utilization efficiencies (EHU%) than the Pasture mix.

In each period weaned lambs were reared in the three herbage treatments for a maximum of two months. Lambs were weighed fortnightly and they were

slaughtered within 12 hours of being off the pasture at the end of the experiment. Carcass weights were obtained from the abattoir.

The Plantain and Chicory mixes had a higher feeding value than the Pasture mix during early spring to autumn. Both Plantain and Chicory mixes produced heavier ( $P<0.05$ ) lambs, higher ( $P<0.05$ ) live weight gains (LWG) and carcass weights compared to the Pasture mix in all periods. Total apparent carcass weight production per ha were 407, 748 and 709 kg/ha in year one and 474, 607 and 642 kg/ha in year two in the Pasture mix, Plantain mix and Chicory mix, respectively. Both Plantain and Chicory mixes had lower ( $P<0.05$ ) feed conversion ratios (FCR) and higher ( $P<0.05$ ) herbage utilization efficiencies (EHU%) compared to the Pasture mix.

This research has shown that sheep farmers in New Zealand can finish lambs at a faster rate for heavier carcasses using herb-clover mixes from spring to autumn than on ryegrass/white clover pastures.

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