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Merino lamb and wool production from a commercial stand of perennial lupin (*Lupinus polyphyllus*) on a high country farm in New Zealand

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State of art and aim: Sawdon Station is a 7500 ha high country farm located near Lake Tekapo in the South Island of New Zealand. The farm produces fine Merino wool from about 4500 ewes for the global markets. Following the tradition of early pastoral run-holders, the Merino ewes are raised on a pasture-based system, generally comprised of native grasses and introduced pasture species grown in the difficult high country environment. This system is acceptable for producing fine Merino wool, which is shorn in September, and market weight lambs by February. However, as a global industry competitor in fine wool production, Sawdon Station faces the challenge of improving efficiency and productivity. This challenge is being met, at least in part, by using pasture legumes that are adapted to the environment. The area planted in lucerne (*Medicago sativa*) and perennial clovers has expanded in the more fertile areas, while perennial lupin (*Lupinus polyphyllus*) is cultivated in the lower-cost developments. Perennial lupin survives the climate and is adapted to acidic, low phosphorus soils. However, there has been little commercial sowing of perennial lupin in the high country; Sawdon Station is one of only a few farms using perennial lupin in the district. The objective of this study was to quantify the performance of Merinos grazing on a commercial stand of perennial lupin-grass (10 ha) on Sawdon Station over 4 years.

Results and discussion: The stand of perennial lupin-grass used in this study had persisted under sheep grazing, modest inputs of fertiliser and lime, and 600-650 mm of rainfall a year, for 8 years prior to commencement of measurements in 2011. Over the next 4 years, the stand carried an average of nine ewes/ha from October to May each year. The ewes lambed in October and the lambs were weaned and taken off the stand in February. On average, the annual lambing percentage was 112%, the weight of the lambs at weaning was 27 kg, and the amount of lamb liveweight produced was 344 kg/ha a year. The wool yield in September averaged 4.62 kg/ewe (greasy) with a mean fibre diameter of 18.5 µm. In comparison, a similar flock of ca. 200 ewes managed predominantly on lucerne and clover-based pastures on the farm achieved on average 105% lambing, 31 kg lambs at weaning, and 4.92 kg/ewe of 18.5 µm wool. The average standing biomass in the lupin pasture was 3.0 t of dry matter (DM)/ha at the start of lambing in October, reached 7.8 t DM/ha in December, and decreased to 3.5 t DM/ha in May. Results support the use of perennial lupin where lucerne fails to thrive on high country farms in New Zealand.

References:

Ryan-Salter TP *et al.* (2014) *Proc NZ Grasslands Assoc*, 76, 61
Scott D (2014) *Proc NZ Grasslands Assoc*, 76, 47

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Tags: animal performance, grazing, high country, *Lupinus polyphyllus*, rangeland.