

The key to successful second year white clover seed crops

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Abstract

In recent years there has been an increase in the number of white clover seed crops taken for a second harvest. Traditionally yields from second year crops are substantially lower than first year crops. A trial was established investigating techniques to increase yields in second year crops.

The trial was located in a dryland crop of white clover (cv. Grasslands Demand) 4 km east of Methven, mid Canterbury. It involved 10 herbicide treatments and 8 'inter-row' treatments arranged in a split block design. Number of mature flower heads were recorded on all treatments at harvest as an indirect estimate of yield. Additionally, selected treatments were cut and collected using a rotary type mower, threshed, and machine dressed for direct estimates of seed yield.

Flower number and machine dressed seed yield were significantly ($P < 0.01$) higher on treatments with late winter applications of Paraquat and Gardoprim (terbutylazine) at 400 g + 1000 g ai.ha⁻¹ (640 flowers.m⁻², 311 kg.ha⁻¹) and 400 g + 1500 g ai.ha⁻¹ (710 flowers.m⁻², 326 kg.ha⁻¹), compared to an untreated control (490 flowers.m⁻², 209 kg.ha⁻¹). Flower number was significantly ($P < 0.01$) decreased by late winter applications of

Glean (Chlorosulfuron 5.5 g and 11.0 g ai.ha⁻¹) and a spring application of Harmony (Thifensulfuron-methyl 15 g ai. ha⁻¹).

Flower number and machine dressed seed yield were significantly ($P < 0.01$) increased by a light cultivation followed by grazing in mid winter (650 flowers.m², 395 kg.ha⁻¹) compared to no mechanical disturbance (500 flowers.m⁻², 305 kg.ha⁻¹). 'Creating' new rows at right angles to the original (first harvest rows) by inter-row spraying in winter (Glyphosate and Dicamba 30, 45 and 60 cm row spacing) and spring (Buster – Glufosinate ammonium – 30 cm row spacing) did not significantly affect seed yield or flower number.

The significant yield increases are associated with increased space for stolons to run, and effective residual weed control. On this dryland site which experienced early summer moisture stress, inter-row spraying appeared to be too 'severe' in terms of creating space, and the stolons did not run to fill the whole area. Light cultivation and grazing was considered a less severe treatment, leaving more plants, and appeared a more suitable treatment on this dryland site in a dry season.

Keywords: inter-row spraying, residual weed control, second harvest, white clover, seed production

