

CONTROL OF WILD RADISH WITH HERBICIDES IN LUPINS

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Abstract. Wild radish (*Raphanus raphanistrum*) is not adequately controlled in grain lupins by any of the herbicides currently registered for use in this crop. Experiments were conducted at Rutherglen Research Institute in Victoria in 1979 and 1980 to find more effective herbicide treatments.

Experiment 1. In 1979, 22 herbicides were screened for wild radish control in lupin cv. Uniharvest (*Lupinus angustifolius*). The most promising were atrazine, propazine, metribuzin and oxyfluorfen.

Experiment 2. Herbicides that showed promise in the 1979 screening experiment were evaluated in 1980 for wild radish control in lupin cvs. Uniharvest and Hamburg (*L. albus*).

The most effective treatments were atrazine at 2 or 3 kg ha⁻¹, propazine at 2 or 4 kg ha⁻¹, metribuzin at 0.7 or 1.05 kg ha⁻¹ and oxyfluorfen at 0.48 or 0.96 kg ha⁻¹, applied to the soil surface immediately post-sowing. These treatments reduced wild radish plant numbers by 95 to 99.5%. The higher rates of each herbicide and the lower rate of metribuzin reduced wild radish seed production by 95 to 98%. The lower rate of atrazine, propazine and oxyfluorfen reduced seed production by 55%, 75% and 90% respectively, due to the larger size of surviving wild radish plants.

The currently recommended treatments for lupins are simazine at 2 kg ha⁻¹ and simazine + trifluralin at 1.5 + 0.4 kg ha⁻¹; these reduced radish plant numbers by 88% and 75% respectively but gave no measurable reduction in seed production. In the unsprayed control, radish seed production was 5800 seeds m⁻².

Yields of cv. Uniharvest were increased by 73% with atrazine at 2 kg ha⁻¹ and by 80% with propazine at 2 kg ha⁻¹. All other treatments did not increase yield. Oxyfluorfen and atrazine damaged cv. Uniharvest at 4 kg ha⁻¹.

In cv. Hamburg, metribuzin at 1.05 kg ha⁻¹, oxyfluorfen at 0.48 kg ha⁻¹ and propazine at 2 kg ha⁻¹ increased yield by 35 to 40% ($P < 0.10$). Other treatments did not increase yield. Atrazine at 4 kg ha⁻¹ and propazine at 4 kg ha⁻¹ reduced the yield of cv. Hamburg.

Experiment 3. Herbicides not previously tested were screened in small plots in 1980 on both cvs. Uniharvest and Hamburg. The treatments in Table 1 gave more than 90% reduction in wild radish numbers and seed production.

Others that showed some promise were lenacil at 3 kg ha⁻¹, metribuzin / methabenzthiazuron at 0.56 / 2.25 kg ha⁻¹ and chlorpropham at 7.2 kg ha⁻¹ post-sowing, all of which were selective on Uniharvest only.