

- (2) higher yield potential of grain sorghum;
- (3) greater likelihood of moisture stress in grain sorghum; weed competition increases the severity of moisture stress.

The best method of application of atrazine depended on the expected sorghum yield. In low-yielding situations, sorghum gave higher yields when grown in widely spaced rows and the herbicide was applied in bands over crop rows and supplemented with inter-row cultivation. In high yielding situations, the sorghum yielded more when grown in narrowly spaced rows and a blanket application of herbicide was used.

HERBICIDE EFFICACY IN LUPINS AND CHICKPEAS UNDER DRYLAND CONDITIONS

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LUPINS (*Lupinus angustifolius* and *L. albus*)

Simazine and trifluralin are recommended for weed control in lupins in New South Wales. Both provide effective control of annual grasses, but simazine has the added advantage of controlling a wider range of annual broad-leaf species. Unfortunately, although both require moisture for activation, soil moisture status is more critical for surface-applied simazine than for incorporated trifluralin. In our experience, if sowing is performed with limited soil moisture, and rain does not fall shortly afterwards, simazine is ineffective, whilst trifluralin provides good control of annual grasses.

Experiments at Wagga and also at Rutherglen (Reeves 1974), have shown that post-emergence application of simazine to lupins also gives good weed control without crop damage. In more recent experiments at Wagga, simazine at 2 kg ha⁻¹, applied pre-planting and incorporated at sowing, was as effective as pre-emergence applications, and did not affect lupin germination. Early post-emergence application, at the one- to two-leaf stage, was equally effective.

These results provide at least a partial answer to the simazine problem. Critical moisture conditions could be