



Establishing pastures - Readers' Note

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Weed control before sowing

The NSW Agriculture publication *Weed Control in Lucerne and Pastures* gives detailed information on weed control. It is included in this manual. Please refer to it for help in effective weed control.

Weeds as both existing plants and seeds can pose a problem to establishing pastures. Existing weeds can be killed by cultivation or by spraying with the appropriate herbicide or by inclusion of a cropping phase. Read *Weed Control in Lucerne and Pastures* for pre-sowing weed control in coastal areas. In inland districts, annual weeds such as barley grass or *Vulpia* can be reduced by spray-topping with herbicide.

Pasture topping

In inland areas where annual winter grasses are a problem, pasture topping with glyphosate or spray-topping with paraquat is important in year-before weed control in preparation for sowing perennial pastures. Topping involves the application of low rates of herbicide after head emergence to prevent the formation of viable seed. It may also be effective for summer weeds such as summer grass (*Digitaria* spp.), pigeon grass (*Setaria* spp.) and capeweed (*Arctotheca calendula*) without destroying the available feed.

Advantages

- Reduced weed seed numbers. The number of annual grass seeds in the soil can vary from 2000 to 60 000 plants per square metre (m²). (The density of sown grass seed is only about 300/m².) Unless seeding is reduced the previous year, a 90% germination with the autumn break still

leaves large numbers to germinate in spring after sowing to compete with the pasture seedlings.

- Reduced trash and sowing problems. Low trash residues reduce insect harbour, the carryover of the fungal disease pythium, and trash build-up on sowing machinery.

How to pasture top

Even head emergence: This is essential for effecting topping. Begin grazing the paddock during winter and keep it well grazed (that is, 2cm high). Graze heavily throughout spring until the soil begins to dry out and the days are warm to hot—some time between late September and early November. Once stock are removed all grasses will rapidly run to head.

Timing is critical: Apply glyphosate at early head emergence (50% heads emerged). Apply paraquat after complete head emergence until the oldest heads begin to hay off.

Surfactant: Low herbicide rates used for pasture topping mean extra wetting agent must be used. Add wetter at 200–300 mL/100 L of spray volume.

Herbicide rates: Glyphosate 240–360mL/ha; paraquat 500 mL/ha.

Earth mite control: Where earth mites are a regular problem, addition of a miticide to the topping herbicide will decrease the population capable of laying eggs during summer and reduce earth mite numbers the following autumn.

Grazing: This is essential to capitalise on the benefits of topping. Graze immediately after spraying with paraquat, as feed value begins to decline soon after spraying. By using glyphosate, feed quality is preserved, but it is preferable to

begin grazing after 21 days as the palatability of the feed is highest at this time.

In cold, high-altitude areas, which require early sowing, pasture top for two consecutive years if annual grass populations are high.

Spray fallow

In some situations, for example if you have either mixed annual weed species or insufficient grazing pressure, it might be difficult to achieve even head emergence. Use of heavier rates of glyphosate (up to 1L/ha) at full head emergence of the earliest flowering plants will effectively control seeding of the entire sward.

Broadleaf weeds

Gramoxone applied at flowering prevents saffron thistle from setting seed.

Glyphosate applied at flowering controls the seeding of capeweed.

Pre-emergence herbicides for legumes

Trifluralin can be applied before sowing lucerne and other legume crops in prepared seedbeds to control annual grasses and some broadleaf weeds. Full details are in *Weed Control in Lucerne and Pastures*.

Winter cleaning

This technique can be used on well grazed paddocks to remove annual grass weeds in winter the year before sowing. It is used mainly where *Vulpia* is a problem, in inland areas.

The major herbicide used for *Vulpia* control is simazine. Rates vary with weed density, soil type and timing. Simazine can be mixed with other grass or broadleaf herbicides to control a wider range of weeds.

Couch grass control

Couch grass can dominate ryegrass–clover pastures and lucerne stands in many parts of NSW. It is important to kill couch grass completely before sowing. A long-term plan of both summer and winter cropping is very important for its control.

For an April sowing, spray with glyphosate at 8 L/ha in December – early January. Leave for 1 month before cultivation or a follow-up spray with glyphosate. Scarifying or ripping the couch grass and bringing the runners to the surface is recommended. Rotary hoeing or discing buries the runners under the ground, where they can lie dormant for many months before reshooting. This is not recommended.

Cultivate soil November–February then sow a winter forage crop.

Sowing a vigorous summer fodder crop or maize crop before the perennial ryegrass – clover pasture can be advantageous if enough ground preparation time is allowed before pasture sowing. This is usually done a year before sowing because maize is difficult to cut for green chop before the end of March and hybrid forage sorghums grow into April. Shirohie or Japanese millet often finish before February, allowing sufficient ground preparation before the pasture sowing.