

A SPRAYING GRAZING INTERACTION IN THE CONTROL OF PASTURE WEEDS

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An application of 1 pint of 50% a.e. 2,4-D amine per acre will not give a complete kill of annual pasture weeds such as amsinckia, thistles, capeweed, doublegee, mustard, Paterson's curse, wild turnip and wild radish. Heavy grazing by sheep, without spraying, will reduce the quantity of seed formed by these species, and even reduce the density of the stand to some extent, but little over-all weed control is obtained. However, when these two factors are combined, a highly significant interaction occurs which results in a control technique with numerous advantages.

Many weeds owe their ability to compete with pasture species to a lack of palatability. Animals selectively graze around such plants and allow them to make vigorous growth while the pasture species are kept short. Larger plants are even less palatable, particularly when they develop spines or a dense covering of hairs.

The spray-graze technique described, has been undertaken in Western Australia on large scale demonstration plots of around 10-20 acres each, for 5 years. Because of this, it has been possible to measure the variation in weed population from 1 year to another.

THE TECHNIQUE

With most annual weeds, the pasture infested should be sprayed 6 weeks after the germinating rains with 1 pint of 50% 2,4-D amine. This rate is not sufficient to kill the weeds, but the 2,4-D will cause twisting and an increase in palatability, apparently due to a rise in the sugar level. This slight increase in sugar content has been measured and shown to be at a maximum after spraying.

At this time, the paddock should be stocked with sheep at 4 to 5 times the normal stocking rate for the district. Once the grazing has been commenced it is desirable to carefully watch the condition of the pasture, and remove the sheep before the pasture species are adversely affected by over-grazing.

Because of the extended period of germination with saffron thistle (*Carthamus lanatus*), best results have been obtained by spraying this weed at the stage when the flowering stalk is beginning to form.

Because of the low cost of the treatment and the increased growth of pasture due to the removal of competition, the technique is being widely accepted by farmers in Western Australia. In hilly country around Geraldton, where it is impossible to spray apart from using aircraft, large areas are being treated and grazed.

With Paterson's curse (*Echium plantagineum*) it has been found that after 2 years of spray-graze, the density in the third year has been reduced by around 20%. In the fourth year after 3 years of spray-graze, the density has decreased by approximately 75%, and in the fifth year by more than 95%.

In the case of docks (*Rumex crispus*) a significant reduction has been seen after 1 year and after two spray-graze treatments the docks have been virtually eliminated. With saffron thistle, a very significant reduction in seedlings has occurred after four treatments.

The number of years to eliminate the dormant seed bank will obviously vary with the species concerned and the climatic conditions affecting germination.

GALVANIZED BURR - A PROBLEM OF LAND MANAGEMENT

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Galvanized burr (*Bassia burchii*) which infests millions of acres, and threatens millions more, in western areas of New South Wales, is a serious problem. Present adverse economic conditions brought about by drought, low wool prices and wheat quotas have reduced financial resources of many landholders, preventing them from taking adequate action against the plant. Wheat quotas discourage landholders from growing grain crops, which provide a useful control measure. Where the country is suitable only for sheep, the continued spread of the weed will further reduce landholders' economic viability.

Control of the plant in many areas is not in itself economic in terms of improved productivity, but must be carried out to prevent spread on to clean or only lightly infested country. The alarming spread of the weed following the recent drought suggests a much greater spread, following the next drought.

Continuing spread of the weed increases the costs involved in control and further reduces the finance available. Many