

THE EFFECT OF REPEATED APPLICATIONS OF PICLORAM ON
SKELETON WEED CONTROL

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Skeleton weed (*Chondrilla juncea*) infests large areas of light sandy soil in the Victorian Mallee. On these soils it can be eradicated or controlled for a period greater than 3 years by treatment with picloram at 1 lb per acre (1.12 kg per hectare). This treatment costs approximately \$32 per acre (\$79 per hectare) for the chemical alone. If repeated treatments at lower rates would give as good, or better, control than a single application at a high rate, the cost of treatment could be spread over several years. Several trials have been carried out to determine the effectiveness of repeated applications of low rates of picloram in controlling skeleton weed.

In a trial, carried out in March 1965, rates of 4 and 8 oz per acre (0.28 and 0.56 kg per hectare) gave control of skeleton weed for 30 months. The regrowth which appeared was treated with a further 4 oz per acre (0.28 kg per hectare) in September 1967. This second treatment has given complete control up to the time of writing (April 1970). A single application of 24 oz per acre (1.68 kg per hectare) was used for comparative purposes and some new growth appeared on this treatment after 4 years. Thus, control for 5 years has been achieved with two applications giving a total of 8 or 12 oz per acre (0.56 or 0.84 kg per hectare), while only 4 years control was obtained with a single application of 24 oz per acre (1.68 kg per hectare).

In a further trial to investigate more fully the effect of repeated applications of low rates of picloram, treatment with 2, 4, 8, and 16 oz per acre (0.14, 0.28, 0.56, and 1.12 kg per hectare) was carried out during each month of the year, commencing in October 1966. As has been observed in other trials, treatment from September to November, particularly at the lower rates, was the least effective. A rate of 2 oz per acre (0.14 kg per hectare) gave control for an average of 9 months when applied during this period, while the average period of control for all other months of treatment was 17 months. With 4 oz per acre (0.28 kg per hectare) control for an average of 15 months was obtained for the September-November treatment period and an average of 24 months for all other months. At a rate of 8 oz per acre (0.56 kg per hectare) control was obtained for almost 3 years with all months of treatment, although regrowth occurred slightly earlier on the plots treated in September and October. No regrowth has occurred as yet, on the plots treated at 16 oz per acre, (1.12 kg per hectare) except

on the September and October treatments where slight regrowth occurred after about 3 years.

With repeated applications of picloram, two applications of 2 oz per acre (0.14 kg per hectare) have given control for 20 months on the plots originally treated during September to November, and control for an average of 3 years on all other plots. Thus, two applications of 2 oz per acre (0.14 kg per hectare), gave better control than a single application of 4 oz per acre (0.28 kg per hectare) and approximately the same control as a single application of 8 oz per acre (0.56 kg per hectare).

Three applications of 2 oz per acre (0.14 kg per hectare) have given control for more than 3 years on all except the plots originally treated in the September-November period, as also have two applications of 4 oz per acre (0.28 kg per hectare). Regrowth occurred on the September-November treated plots after approximately 3 years at both rates.

It will be several years yet before final results are obtained from this trial, but indications are that repeated doses of low rates are as effective as a single dose of a high rate. Although the cost of treatment is spread over several years there could be problems of picloram residues in the soil associated with this method of treatment. With a single application of a high rate, the residue slowly disappears, but with repeated applications the herbicide being lost from the soil would be continually replaced.

RELATIONSHIP BETWEEN CULTIVATION, PICLORAM APPLICATION,
SKELETON WEED CONTROL, AND WHEAT YIELD

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Trials carried out in the Victorian Mallee on skeleton weed (*Chondrilla juncea*) have shown marked differences in the control achieved with picloram applied on cultivated and on uncultivated land. The best control has been on plots which were not cultivated or, in cropping trials, cultivated just prior to sowing. If cultivation occurred shortly after treatment with picloram less control was achieved, while the poorest results were obtained on plots cultivated prior to spraying.