

Establishment of the seedlings by the following spring occurred in 2 of the 3 years. In 1968 there were fewer seedlings established with increasing length of pasture on the PPFW rotation, and in 1969 there were fewer seedlings on all phases of this rotation compared with the FW rotation.

CULTIVATED AND CHEMICAL FALLOWS IN A SKELETON WEED SITUATION IN THE VICTORIAN MALLEE

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The effect of skeleton weed in reducing both soil nitrogen and soil moisture prior to cropping suggests that these losses might be offset, at least to some extent, by fallowing. Cultivation alone does not give effective control of the weed since regeneration from the taproot is rapid; the only short-term alternative appears to be chemical treatment.

Experiments to compare the effects of duration of fallows and the substitution of herbicide applications for some cultivations on subsequent wheat yields were conducted on soil infested with skeleton weed in the Victorian Mallee between 1962 and 1969.

Between 1962 and 1967, winter and spring fallows, both cultivated and chemical, were compared with an autumn-cultivated treatment. The mean wheat yields over eight sites for the winter and spring fallows and autumn cultivation were 13.4, 10.1, and 7.7 bus. per acre (900, 680, and 520 kg per hectare) respectively.

The response to fallowing, i.e., to the control of skeleton weed by cultivation, was due almost entirely to an increase in nitrate-nitrogen in the surface 6 in. (15 cm) of soil. Although moisture was conserved on some fallows, the greatest amount was equivalent to only 86 points (22 mm) of rainfall.

For the chemical fallow treatments, a mixture of simazine, 2,2-DPA, and amitrole was used initially, but in 1965, picloram + 2,4-D (as Tordon 50-D) was substituted, resulting in improved weed control. There was higher soil nitrate-nitrogen and soil moisture at sowing on the picloram-treated fallows than on the cultivated fallows, resulting in average yield increases of 7.7 and 6.1 bus. per acre (5.20 and 4.10 kg per hectare) for winter and spring fallows respectively.