

Renewed germination of the annual species followed the sod-kill by glyphosate. When sowing followed 1 day after herbicide application, both weed and crop germinated together and mutual interference kept annual weed growth to a minimum. With delayed sowing, however, weeds germinated and became established before the crop was sown. As the sowing operation had very little effect on these newly established annuals they had a marked growth advantage over the later germinating crop. Amounts of annual weeds within the crop were thus directly proportional to the length of the sowing delay, e.g. 630, 930, and 1290 kg ha<sup>-1</sup> when sowing was 1, 7 and 28 days respectively after herbicide application.

With skeleton weed the response was the reverse of that given by the annual weeds. The rate of skeleton weed regeneration is a function of herbicide translocation into the root. In this instance even the minimal disturbance given by the sowing technique employed appears to have been sufficient to interfere with herbicide translocation. Skeleton weed numbers were reduced only when sowing was delayed beyond 1 week - e.g. 142, 193, and 15 kg ha<sup>-1</sup> when sowing was respectively 1, 7 and 28 days after herbicide application. Thus the relatively high populations of both weed types when sowing was delayed 1 week after herbicide application is probably responsible for the lower grain yields obtained from this treatment.

These results suggest that, in practice, sowing date in minimum tillage cropping should be associated with the dominant weed type - that is, immediately after herbicide application when annuals are dominant and delayed for 2 to 4 weeks when perennials like skeleton weed are important.

#### HAS HOE 23408 A PLACE IN ADVANCING SEEDING DATES?

I.P. Anderson and H.R. Joiner  
Hoechst Australia Ltd, Melbourne, Victoria

Reliable post-emergent herbicides capable of effectively controlling grasses and wild oats in wheat, barley and dicotyledonous field and vegetable crops may permit the adoption of simplified, shorter and less critical cultural practices.

At present, grass weed control is obtained either by mechanical cultivation, or by the use of herbicides (mainly pre-emergent or pre-planting incorporated). Mechanical techniques often involve several cultivations aimed specifically at grass control and which are additional to the cultivations necessary for preparation of an adequate seed bed. Where pre-emergent, or, in particular, pre-plant incorporated herbicides are used, additional cultivations are again required to achieve the correct soil tilth and for incorporation when necessary. In both cases, weather conditions can cause hold-ups, often resulting in delayed seeding.

It is suggested that any reduction in the number of cultivations, whether for herbicide incorporation or mechanical weed control, must lead to a shortening of the time interval between initial ground preparation and seeding. With the availability of a reliable post-emergent grass herbicide which is not markedly dependent upon rainfall or critical soil preparation, it is proposed that cultivation can be reduced and the seeding date advanced. Naturally the seeding date will depend upon rainfall, but early rainfall can perhaps be used in some areas to seed the crop rather than to encourage weed germination or allow additional weed cultivation.

Over the last two seasons Hoechst Australia Limited has been evaluating a new post-emergent grass herbicide under the code name HOE 23408. Chemically it is described as 2-[4-(2',4'-dichlorophenoxy)-phenoxy]-methyl-propionate. It is formulated as an emulsifiable concentrate, containing 360 g a.i. per litre. The mode of action appears to be based on inhibition of meristem activity preventing root and shoot growth.

Local work in wheat, barley and winter oilseed crops has indicated virtually 100% control of *Avena* spp. sprayed at the two- to five-leaf stage with rates between 0.75 to 1.0 kg a.i. per hectare. In addition, complete control of *Lolium* spp. at rates between 0.4 to 0.75 kg a.i. per hectare have been obtained when sprayed at the two-leaf stage up to tillering. Similar results have been obtained in various summer crops against weeds such as *Echinochloa crus-galli* and *Eleusine indica*.

This weed control obtained in Australia in 1974 and 1975 in over 20 field trials has been both reliable and consistent under both prolonged wet and dry conditions, and indicates that soil moisture does not appear to be particularly critical.

Wheat, barley and all dicotyledonous crops show excellent tolerance to HOE 23408. The herbicide has no effect on broad-leaved weeds.