

SESSION 6a

THE CONTROL OF HOARY CRESS (*Cardaria draba* (L.) Desv.)

by

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Hoary Cress is one of the most important perennial weeds in the world. In Australia it is particularly serious in the Wimmera region of Victoria where it is a serious competitor with wheat. The investigations described in this paper were commenced in 1946 at Murtoa, Victoria.

(i) Selective Control in Cereals. The yield of wheat was increased significantly by aqueous sprays containing 1 lb per acre MCPA. The sprays were applied at 100 gallons per acre in the spray when the cress was in the rosette stage of growth and the wheat had 3-4 tillers four inches in length. Higher rates of application had some toxicity to wheat and reduced part of the gain from lesser competition from the hoary cress. MCPA at 1 lb acid equivalent per acre increased grain yields by $3\frac{1}{2}$ bushels per acre (28 per cent) but there was an increase relationship between wheat yields and cress density prior to spraying.

In a more recent experiment 1 lb per acre MCPA applied in 20 gallons per acre gave no increase in yield but 4 ozs and 8 ozs MCPA per acre affected increases of the order of 16-18 per cent. An outcrop the following year gave no response to any concentration of MCPA applied during the growth of the crop. However this crop showed a marked response (approx. 20%) to the spray treatments applied the previous year i.e. in the wheat crop.

(ii) Effect of concentration of growth regulating compound on hoary cress control. In the year following application there was on more than one occasion a curvilinear response to increasing concentration of hoary cress. The most effective dosage level for reduction in rosette density six months after spraying was between 2 and 3 lb per acre. However the difference between dosage levels disappeared with time and 6-18 months after the initial single applications there was no difference between dosage levels.

(iii) Effect of second application. A second application of a growth regulating compound effected a greater reduction in cress density than a single application irrespective of the dosage rate of the latter. Two applications each of 1 lb per acre MCPA effected a greater reduction in cress density than a single application at 2, 3, 4 or 5 lb per acre. Moreover two applications each at 1 lb per acre were equal in effect to

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two at 5 lb per acre or any combination of rates from 1 to 5 lbs per acre. The reduction in cross density resulting from two applications was of the order of 70-80 per cent. One or two years interval between the first and second applications did not effect the results. There was evidence that the cress plants were more sensitive to the second treatment than to the first. The possibility exists that repeated applications of rates lower than 1 lb per acre might be as effective as higher rates.

(iv) Effect of compounds For two years following the first applications there were differences between compounds but such differences disappeared with time. There were no differences between compounds after a second application. MCPA (salt) was more effective as a single application than sodium 2,4-D when applied at the rosette stage of growth but at flowering the latter tended to be superior. Amine 2,4-D was highly toxic at both growth stages and significantly more toxic than the sodium salt at the rosette stage. Esters of 2,4-D were more toxic than MCPA (salt) and sodium 2,4-D at the rosette stage of growth but not at flowering.

The disappearance of the compound effects with time and the similarity of the effects of compounds after two applications suggests that insofar as the eventual control of cress is concerned the type of compound is relatively unimportant.

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