

WEEDS IN THE AGRICULTURAL CROPS OF NEW SOUTH WALES

Reviewed by
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WINTER GROWING CROPS

The winter cereals, of which wheat gives a gross return of \$167 million from 6.6 million acres, and the oilseed crops, linseed and safflower, are affected by the same weed spectrum. Control is usually effected by cultivation, crop rotation, and the use of herbicides.

North of an east-west line through Parkes the major weeds include wild oats (*Avena* spp.), *Phalaris paradoxa*, spiny emex (*Emex australis*), the crucifers *Brassica* spp., *Sisymbrium* spp., and *Raphanus* spp., and the bindweed (*Polygonum convolvulus*). The native *Senecio daltoni* is a weed in some situations.

South of this line, skeleton weed (*Chondrilla juncea*), wild oats (Predominantly *A. fatua*), Wimmera ryegrass (*Lolium rigidum*), saffron thistle (*Carthamus lanatus*), yellow burr weed (*Amsinckia* spp.), fumitory (*Fumaria* spp.), and in some situations spiny emex, *Sisymbrium* spp. and capeweed (*Arctotheca calendula*) are important.

In cereal crops, 2,4-D and MCPA are the most frequently used herbicides. Where weeds are resistant to 2,4-D, however, barban di-allate, linuron, prometryne, bromoxynil and selected mixtures are used for their control.

Weed control in linseed is by cultivation and application of MCPA. Barban and prometryne offer good weed control but are not widely used. With safflower, weed control is mainly by cultivation, chemical methods being of minor importance.

SUMMER GROWING CROPS

Although the summer cereals and cotton generally have a common weed problem, rice, which grosses \$16 million from 97,000 acres, is an exception. In drill-sown rice barnyard grass (*Echinochloa* spp.), can reduce yields by at least one third; both crop rotation and the application of molinate or propanil give effective control. Molinate, however, is more selective in cold conditions and has the added advantage of residual activity.

The picturesquely named 'Dirty Dora' (*Damasomium minus*) and *Cyperus* spp. also may reduce yields, especially in aerially sown rice, but MCPA applied at the end of tillering gives some control.

Sorghum and maize are affected by barnyard grass, caltrop (*Tribulus terrestris*), *Xanthium* spp., *Amaranthus* spp., *C. rotundus*, *Datura* spp., and *Hibiscus trionum*. Cultivation is used as the main weed control measure but, in irrigated crops, atrazine, fluometuron, propachlor, and similar herbicides are applied. Low rates of 2,4-D may be employed to control young broad-leaved weeds.

Cucumis myriocarpus, *T. terrestris*, *C. rotundus*, *Colocynthis citrullus* and *Bothriochloa* spp., also are important in cotton (\$16 million from 60,000 acres). The broad-leaved species also act as alternate hosts for verticillium wilt and the rough boll-worm. Weed control is mainly with trifluralin and the interchangeable associated herbicides fluometuron, prometryne, or diuron, but monuron, norea, nitralin, and MSMA are used occasionally. Since irrigation is essential careful cultivation is necessary prior to sowing and during early crop growth.

Soybeans, a new crop possessing summer weed problems, require careful cultivation, preplanting application of trifluralin and extremely low rates of 2,4-DB.

RESEARCH AND EXTENSION

In general, herbicides are used where there is a wide profit margin between cost and return, as in cotton, and where serious yield depression is anticipated because of dense weed growth. Yield losses are largely determined in the first three to six weeks of crop growth. Thus there is a need for more information on (a) the effect of type and density of weed growth on the young crop, and (b) the response by low return crops to the regular use of preplanting and pre-emergence herbicides. Since the full impact of herbicides on crop and pasture ecology is yet to be determined, and because residue problems indicate the need for farmer education in the use of alternative herbicides, it is contended there is still a real gap in information and extension which could be of value to the farmer.