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Control of weeds in processing peas

Cover Page Footnote

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Control of Weeds in Processing Peas

By J. G. PATERSON, B.Sc. (Agric.)

A summary of the results of trials carried out in 1962 to test recent developments in the chemical war against weeds in crops of processing peas.

GROWERS of processing peas face many problems not the least of which is the control of weeds. Crops which are to be harvested for canning or freezing must be practically weed free if good returns are to be obtained.

Much of the land potentially suitable for growing peas in Western Australia is heavily infested with weeds such as cape-weed, doublegees, wild turnip and annual grasses. Both cultural and chemical control methods may be needed to produce weed-free crops on this land.

Chemical weed control should always be regarded as supplementary to correctly timed and thorough cultural methods. With the advent of the modern herbicides this fact is sometimes overlooked and preplanting cultivation is neglected. A properly prepared and selected seedbed

will generally give sufficient control to enable a comparatively weed free crop to be grown in most districts without the use of weedicides.

If the crop is kept weed free until it is 8 inches high it is unlikely that later weed growth will cause a marked reduction in yield. On the other hand, experience has shown that a weedy crop may return less than one quarter of the yield of a clean crop grown under the same conditions.

Details of the cultural aspects of pea growing are given in Department of Agriculture Bulletin 2997.

A means of controlling weeds when cultural methods fail would enable many acres of otherwise unsuitable ground to be brought into production. With this in mind a series of trials was commenced in the winter of 1962 to test the most promising of the newer weedicides.

The following figures show the value of processed peas imported into Western Australia from both Eastern States and overseas sources. They indicate a definite and increasing demand for more locally grown peas.

Year	Value
1959-60	£221,406
1960-61	£227,163
1961-62	£345,097

METHODS OF APPLICATION

Two types of weed control can be effectively used in peas—pre-emergence and post-emergence application.

A well established, clean crop offers good competition to later germinations of weed seeds. Weed control up to this stage of growth is important



PRE-EMERGENCE

In pre-emergence weed control a layer of chemical is placed on the soil surface after the crop is planted but before it emerges. Shallow rooted weed seeds then absorb the chemical as they germinate and are killed. Deeper rooted crop seeds remain unaffected and later grow through the toxic chemical layer.

Pre-emergence weed control should be considered where, even after a good seed-bed has been prepared, it is felt that weeds could still be a problem. The crop should be sown at a depth of not less than $1\frac{1}{2}$ inches for successful results.

Results of Trials

The three most satisfactory treatments were 1 lb. Diuron, 2 lb. Prometone or 2 lb.



The value of crop competition in weed control can be seen by the density of weeds in the section of the paddock which was not sown

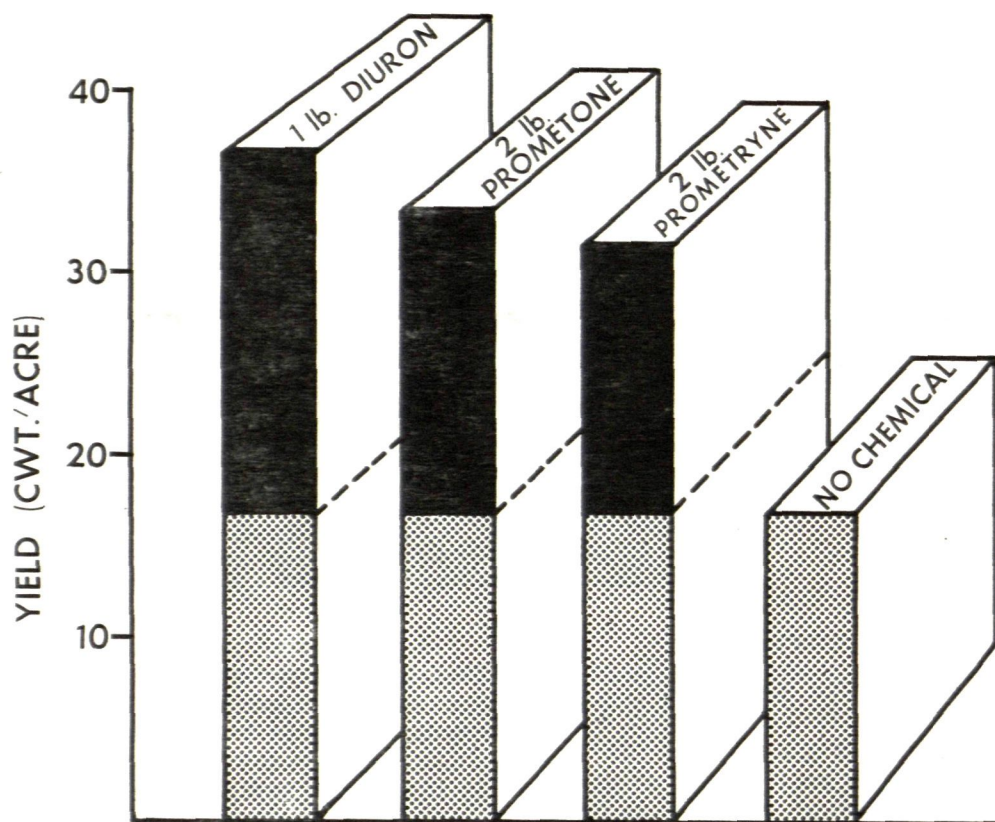


Fig. 1.—The increase in yield of processing peas following pre-emergence chemical weed control treatment is illustrated. The actual weight of shelled peas per acre was doubled as compared to the unsprayed plots

Prometryne per acre. Relative yields from these are illustrated in Fig. 1.

When net returns were calculated allowance was made for the cost of the chemical and its application. An additional allowance was made for losses involved in harvesting and processing. On this basis 1 lb. Diuron gave an increase in net return of approximately £20 per acre. The other two chemicals gave lower increases.

Good control of capeweed, subterranean clover, annual grasses and wild turnip was obtained with these three chemicals.

Technical Details

The following 15 treatments were applied in replicated blocks three days after planting, each in 50 gallons of water per acre:

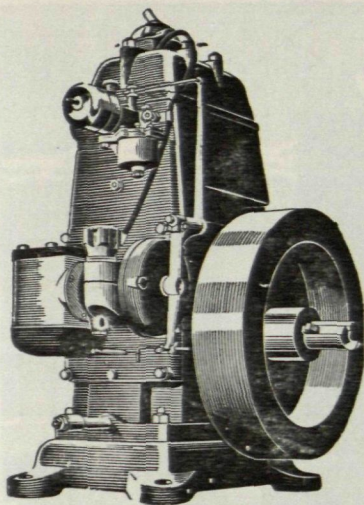
- (1) 1 lb. Diuron (80 per cent.).
- (2) 2 lb. Diuron (80 per cent.).
- (3) 3 lb. C.D.E.C. (active ingredient).
- (4) 6 lb. C.D.E.C. (active ingredient).

- (5) 2½ lb. Amiben (active ingredient).
- (6) 5 lb. Amiben (active ingredient).
- (7) 2 lb. Atraton (50 per cent.).
- (8) 4 lb. Atraton (50 per cent.).
- (9) 2 lb. Prometone (50 per cent.).
- (10) 4 lb. Prometone (50 per cent.).
- (11) 2 lb. Prometryne (50 per cent.).
- (12) 4 lb. Prometryne (50 per cent.).
- (13) 2 lb. Propazine (50 per cent.).
- (14) 4 lb. Propazine (50 per cent.).
- (15) Control—no treatment.

Monarch 39 nozzles spaced 14 inches apart were used to deliver 50 gallons per acre at 60 p.s.i. and 2 m.p.h.

POST-EMERGENCE

In post-emergence weed control the weedicide is applied after either the crop or the weeds, or both, have appeared above the ground.



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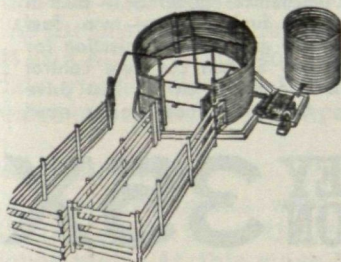
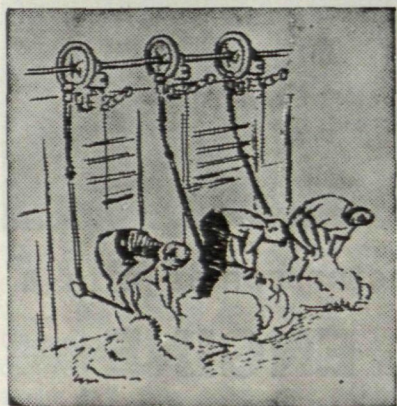
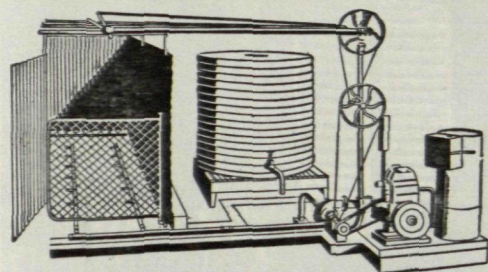
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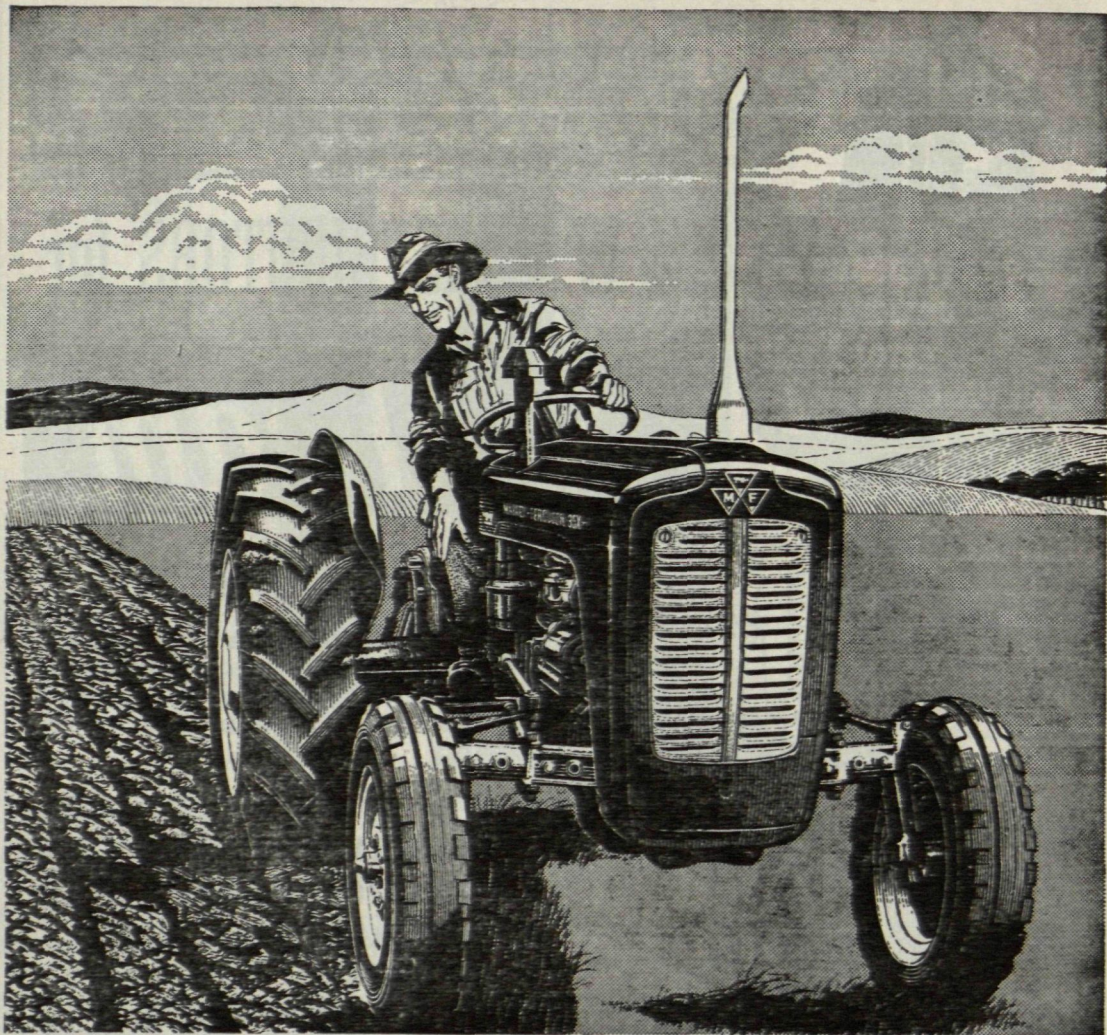
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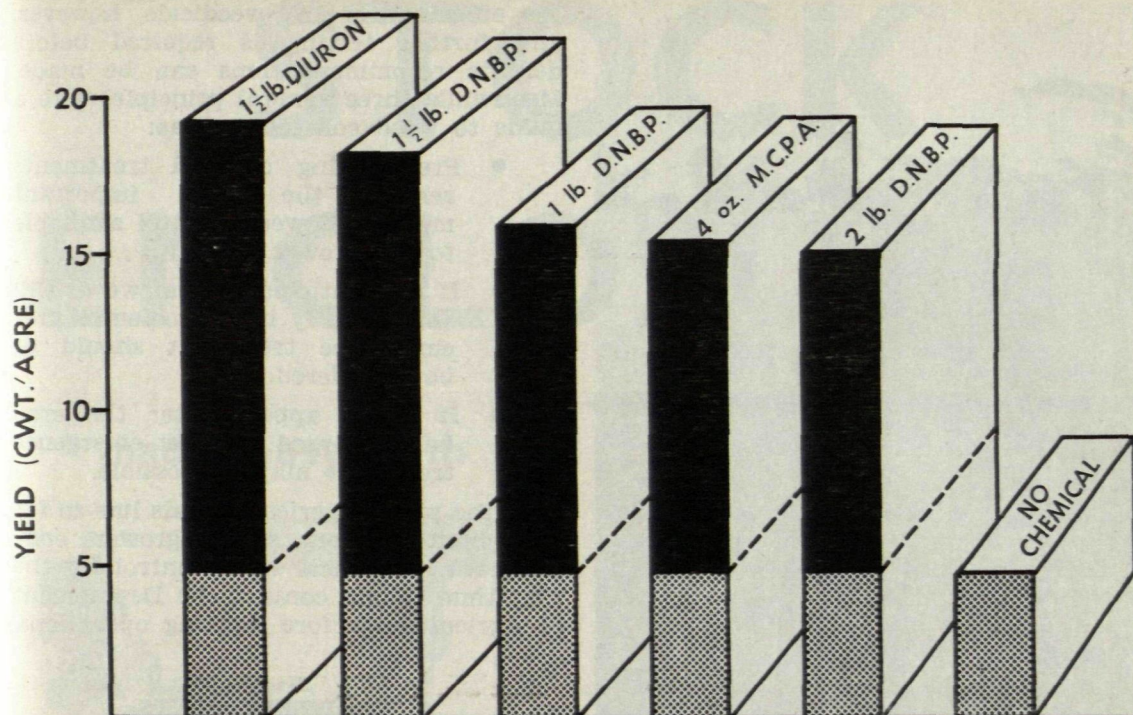


Fig. 2.—The increase in yield of processing peas following post-emergence chemical weed control is illustrated. Treatments gave an increase in yield of 400 per cent. as compared to the unsprayed plots

Post-emergence treatments should be considered when cultural control has been unsatisfactory and pre-emergence treatment was not carried out. In this case the chemical must be toxic to the weeds present, but not to the crop.

Results of Trials

The chemicals giving the greatest yield increases were Diuron, DNBP and MCPA. This is illustrated in Fig. 2.

Calculations of net returns in this case indicated that an increase of approximately £12 per acre had been obtained from the use of 1 1/2 lb. of Diuron per acre.

As the post-emergence trials were carried out at a different site to the pre-emergence trials, yields following the two methods of treatment cannot be compared.

Technical Details

Twelve treatments were applied in replicated blocks when the peas were 3 to 4 inches high. At this stage the weeds were between one half inch and 3 inches in diameter. The crop contained a dense

stand of wild turnip and capeweed even though the area was given several pre-planting cultivations. This was undoubtedly due to the high weed seed content in the soil.

The treatments tested were—

- (1) 1 lb. DNBP per acre.
- (2) 1 1/2 lb. DNBP per acre.
- (3) 2 lb. DNBP per acre.
- (4) 5 oz. Barban per acre.
- (5) 10 oz. Barban per acre.
- (6) 1 1/2 lb. Diuron per acre.
- (7) 3 lb. Prometryne per acre.
- (8) 7 1/2 fluid ounces Diquat per acre.
- (9) 19 fluid ounces Diquat per acre.
- (10) 4 oz. M.C.P.A. per acre.
- (11) 8 oz. M.C.P.A. per acre.
- (12) Control—no treatment.

DISCUSSION

The results of the 1962 tests indicate that a high degree of control can be expected from the use of appropriate chemical herbicides. Seasonal and soil factors can have a marked influence on



The density of the wild radish can be seen in the crop on the right. Correctly timed spraying gave excellent control resulting in a weed free crop of peas on the left

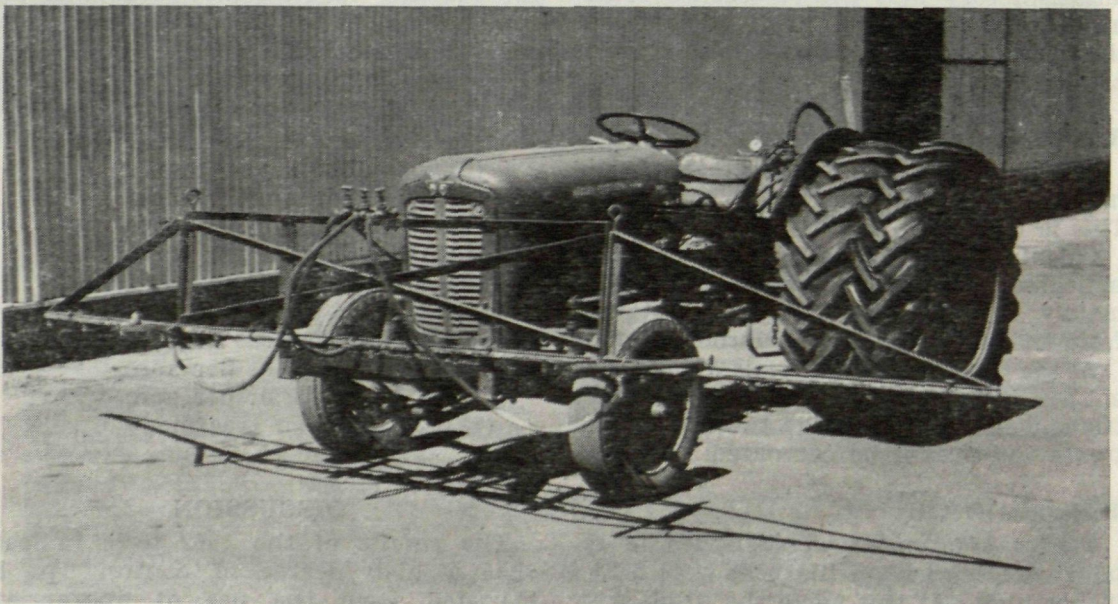
the efficiency of any weedicide, however, and further testing is required before definite recommendations can be made. Meanwhile three general principles give a guide to weed control in peas:

- Pre-planting cultural treatments remain the most important method of weed control available to the grower.
- If it is anticipated that weeds will subsequently be a problem a pre-emergence treatment should be considered.
- If weeds appear after the crop has emerged a post-emergence treatment may be possible.

As the present series of trials has so far been limited to one season growers contemplating chemical weed control for the first time should contact the Department of Agriculture before starting operations.

ACKNOWLEDGMENTS

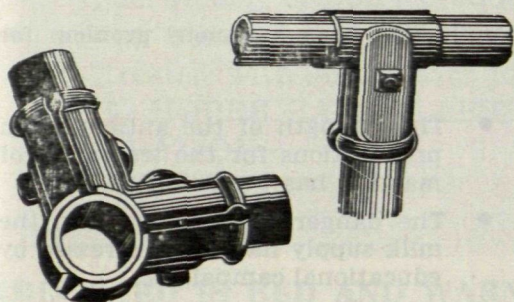
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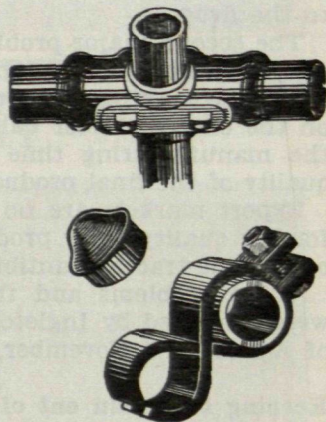


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