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Weed Research...



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1.—WEED CONTROL IN PEAS

THE control of weeds in both field and canning peas has been of great interest to growers for many years. Despite the testing of a wide range of materials it is not possible to recommend the use of a completely safe and effective chemical capable of being applied in low volumes of water to all varieties of peas.

Experience has shown that the susceptibility of peas to weed-killing chemicals varies with the variety of pea. Two trials were undertaken in 1958, one at York on the canning variety Cannons 75 and one at Southern Brook on Dunn's field peas. All treatments caused damage to the canning peas while with field peas the only treatment not causing damage was D.N.B.P.

The control of weeds by cultivation before the crop is sown remains the most practical method of weed control in peas. In many districts sufficient control can be obtained in this way to enable a comparatively weed-free crop to be grown.

The fact that peas are a somewhat slow-germinating crop enables a pre-emergence treatment to be applied to quick-germinating weeds such as wild turnip or radish before the peas have emerged. Peas take 10-14 days to emerge from the soil while wild radish and turnip often appear within 7 days. Weed seedlings this size are extremely easy to kill and such a treatment allows the peas to establish themselves without competition. Later germinations of weed seeds will of course cause concern, particularly if the crop is to be harvested.

WEED CONTROL PROGRAMME

When contemplating growing a pea crop, farmers intending to plant in paddocks normally considered to be "weedy"

are advised to follow a set weed control programme. The following comments, based on experimental trials and field observations, should be considered.

1. The initial cultivation programme is most important in preparing the seed-bed. As many successive germinations as possible should be killed before planting the peas.

2. Where there is an early germination of weeds, useful results have been obtained by applying a chemical treatment two to three days before the peas emerge. Four ounces of acid equivalent of either M.C.P.A. or 2,4-D amine, plus one half gallon of 16 per cent. D.N.B.P. per acre will give good control of most weeds in this early seedling stage. The D.N.B.P. greatly assists in the control of the harder to kill weeds, such as cape-weed, and has some residual value for later-germinating weeds. This treatment can be applied with low-volume spray equipment in 5 to 10 gallons of water per acre. Such an application should enable the pea crop to compete favourably with any weeds which germinate after the peas have emerged for a considerable period.

3. Where it is intended to harvest the crop it may be necessary to consider the need of a second spray treatment. This should be undertaken when the pea crop is from 4 in. to 8 in. tall. The only chemical which can be used with safety



Fig 1.—The density of the wild radish in this paddock at Southern Brook is seen in the oat crop on the right. The pea crop on the left was sprayed before the peas emerged by Messrs. Dwyer Bros. who have shown great ingenuity in overcoming weed problems on their property

on field peas is D.N.B.P. and this must be applied in at least 50 gallons of water per acre. The nozzles normally fitted to a boom unit are not suitable for this high volume application. A nozzle such as the Monarch 39 at a pressure of 60 pounds and travelling at 2 m.p.h. will apply 50 gallons per acre.

To undertake this later treatment effectively it is necessary to use one gallon 16 per cent. D.N.B.P. in 50 gallons water per acre.

Farmers will realise that such a treatment will be very tedious and it is suggested only for crops which are to be harvested or where the presence of weeds is seriously affecting the growth of the peas.

TECHNICAL DETAILS

Treatments.

The following treatments were applied to Cannors 75 and Dunn's Field peas on randomised replicated plots:—

(1) 24 oz. D.N.B.P. in 60 gals. water per acre.

- (2) 6 oz. acid equivalent M.C.P.A. sodium in 7 gals. water per acre.
- (3) 6 oz. acid equivalent 2,4-D amine in 7 gals water per acre.
- (4) 6 oz. acid equivalent 2,4-D P.E.G. ester in 7 gals. water per acre.
- (5) 16 oz. acid equivalent M.C.P.B. sodium in 7 gals. water per acre.
- (6) 16 oz. acid equivalent 2,4-DB sodium in 7 gals. water per acre.
- (7) 16 oz. acid equivalent 2,4-DB amine in 7 gals. water per acre.
- (8) 16 oz. acid equivalent M.C.P.P. in 7 gals. water per acre.
- (9) 24 oz. acid equivalent M.C.P.B. sodium in 7 gals. water per acre.
- (10) 24 oz. acid equivalent 2,4-DB sodium in 7 gals. water per acre.
- (11) 24 oz. acid equivalent 2,4-DB amine in 7 gals. water per acre.
- (12) 24 oz. acid equivalent M.C.P.P. in 7 gals. water per acre.
- (13) Control.

Results.

A—*Canners 75*. — All treatments severely affected the growth of the peas. Owing to the late season in 1958, many of the plants on the plots recovered and flowered approximately two to three weeks later than the peas on the control plots. Treatment 9 caused least damage to the peas while Treatments 2 and 4 were the most harmful.

B—*Dunn's Field Peas*.—Treatment 1 gave complete control of the wild radish without any damage to the peas. All other treatments caused varying amounts of damage to the crop. Apart from Treatment 1, Treatments 5, 6 and 7 caused the least damage to the peas but the control of wild radish with these treatments was poor. Along with Treatment 1 Treatments 4 and 8 gave the best weed control but the latter two were the severest on the peas.

Overall, the results suggest that under the conditions of the two trials, D.N.B.P. was the only successful treatment on the field peas while for the canning variety all treatments caused damage to the peas. Although the lower rates of the butyrics only caused slight damage to the peas the higher rates were required for reasonable weed con-

trol and these were just as harmful to the peas as the M.C.P.A. and P.E.G. treatments.

SUMMARY

- (1) Two trials were undertaken for the control of weeds in peas, one on the canning variety *Canners 75* and one on *Dunn's field peas*.
- (2) No low-volume chemical treatment tested could be used indiscriminately on peas.
- (3) Early germinating weeds can be controlled by spraying two to three days before the peas emerge at the rate of 4 oz. of acid equivalent of M.C.P.A. or 2,4-D amine, plus one half gallon of 16 per cent. D.N.B.P. per acre.
- (4) A later spray treatment can be applied when the peas are 4-8 inches tall. One gallon of 16 per cent, D.N.B.P. should be applied in at least 50 gallons water per acre.
- (5) Under the conditions of the two trials undertaken the butyric derivatives only controlled the weeds present at levels which were detrimental to the pea crop.

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