

SELECTIVE WEED CONTROL IN VEGETABLE CROPS

G.R. Edwards,
Research Officer, Vegetable Crops,
S.A. Department of Agriculture.

Position in South Australia.

Little work on weed control in vegetables has been carried out in this State over the last few years.

Onions. Several trials on onions under the wet conditions prevailing in the South East failed to give good results from treatments found satisfactory elsewhere, viz. H_2SO_4 , Dinoc and Potassium Cyanate. Dinoc was most satisfactory but a problem of grass control (*Poa annua*) still exists. Many growers are using Kerosene pre-emergence sprays and some are using Dinoc after emergence.

Carrots. Various mixtures of power and lighting Kerosene are being used with good results.

Celery. Carrot mixtures are being used in celery with variable success.

Peas. River Murray growers are having remarkable success in controlling wild turnip in peas with the amine salt of 2-4D, using Weedar 77 at 6 oz. per acre. It is felt that this practice is a dangerous one and some attention has been given to alternatives.

Dinitro ortho secondary butyl phenol as Sevtox was found very effective against quite mature turnip without causing permanent injury to peas.

The Position in U.S.A.

The two outstanding advances in weed control in vegetable crops encountered in U.S.A. were the chemicals C.M.U. and Cl.I.P.C.

C.M.U. (Chloro phenyl di methyl urea). At the rate of 2 lb. per 100 galls. per acre pre-emergence, 9 weeks after emergence, or later in the season as a directed base spray, this material has given good control of broad leaved weeds in onions in Minnesota.

At 2-3 lb. pre-emergence it has controlled all weeds in onions on muck soils in Florida.

At $1\frac{1}{2}$ -2 lb. pre-emergence in asparagus in New Jersey and California, it controlled all weeds except large grasses and large clovers.

W/80/Edwards

It has given promising results in beet and carrot seed crops in California.

Cl.I.P.C. (3 chloro iso propyl N phenyl carbamate). This material applied as a pre-emergence broadcast treatment has given sufficient control of weeds, especially grasses, to permit many vegetables to grow from seeding to maturity free of weeds.

Recommendations are as follows:

Onions 10-12 lb. per acre, Florida.
Spinach $1\frac{1}{2}$ -2 lb. per acre; New Jersey, California.
Lettuce 2 lb. per acre, Massachusetts, California.
8-10 lb. per acre, Florida.

It has caused injury to direct seeded cabbage.

Other developments worthy of note.

Phthamic Acid and derivatives. These materials have shown promise as selective weedicides for cucurbit crops.

Capryl esters of 2-4D and 245T. Rhom and Haas Chemical Co. are expanding their programme on these esters which show promise because of their low volatility, persistence, and low toxicity.

Dinitro ortho secondary butyl phenols. NH_4 , and alkanol-amine salts of ethanol, and iso propanol series in this group are being used extensively, particularly in legume crops.

Factors of environment affecting selectivity and effectiveness.

Research at many stations is emphasizing the importance of investigations along these lines. A notable example is work of R.D. Sweet at Cornell.

Typical findings include:-

1. Potassium cyanate is dependent on dry conditions for success.
2. Cl.I.P.C. and I.P.C. are markedly influenced by temperature and moisture. $\frac{1}{2}$ " rain following treatment is essential.
3. C.M.U. is dependent on a high level of soil organic matter. It works well on muck soils but poorly on mineral soils.
4. Selectivity in some instances is dependent on root excretions which break down the toxic chemicals.