



DEPARTMENT OF AGRICULTURE AND FISHERIES, SOUTH AUSTRALIA

## Agronomy Branch Report

SOUTH EAST SEED INDUSTRY WEED CONTROL

ACTIVITIES - 1976

E.S. Hogg,  
Seed Production Adviser.

I.H. Simons,  
Seed Production Adviser.

South East Regional Headquarters,  
Struan.

Report No. 77

## SOUTH EASTERN PASTURE SEED INDUSTRY

### WEED CONTROL ACTIVITIES, 1976

The following is a summary of the significant weed control activities in the South East during the 1976 growing season. Suggestions for further extension and experimental work are given.

#### 1. LEGUME SEED CROPS:

##### 1.1 Grass Weed Control

###### 1.1.1 Trifluralin (Treflan(R))

This is still the most widely used herbicide for grass control in annual crops, and is almost always used during the establishment of irrigated lucerne. Paravivo and Luna cultivars were established without crop toxicity, as were annual legume cultivars.

Annual ryegrass (Lolium rigidum) control on land which has been treated with trifluralin over a number of years continues to deteriorate, but in the absence of other satisfactory wireweed (Polygonum aviculare) herbicides, growers will continue to use this herbicide. The high incidence of uncontrolled annual ryegrass and other weeds in irrigation channels and on check banks aggravates the problem of satisfactory weed control.

###### 1.1.2 Propham I.P.C., Propyzamide, Carbetamide

Propham I.P.C. (marketed as Impact(R)), was the most widely used post-emergent grass herbicide in the annual crops. It was particularly useful in crops which had been sod seeded (because of the late start to the season), and where annual ryegrass, Bromus spp. and barley grass, Hordeum spp., had escaped trifluralin (Treflan(R)) treatments. The treatments of approximately 6 kg/ha product Impact(R), were used as late as September, but were only successful where sprayed on a damp soil surface, and best results were gained when applied during rain.

Propyzamide (marketed as Kerb(R)), because of its high cost was not widely used. However, where a grower used the above three herbicides for comparative purposes it performed better than carbetamide, including E.C. and W.P. formulations and gave poorer control than the cheaper Propham I.P.C. These results were consistent with field experiments.

Carbetamide (marketed as Carbetamex(R)), was successfully used to control perennial grasses, particularly Yorkehsire fog (Holcus lanatus), in established strawberry clover (cv. O'Connors).

1.1.3 HOE 23408, an experimental pre- and post-emergent herbicide, appears to be the most useful new herbicide since trifluralin was marketed. Although it gives poor control of Bromus spp and barley grass, it will be useful for other grass weeds such as ryegrass and wild oats.

Many other grass weeds, e.g. Setaria spp. and Echinochloa spp., e.g. Japanese millet, which become troublesome in irrigated areas, are controlled with this herbicide.

Weather conditions and weed size are not as critical at time of application as other herbicides, and the possibility of tank mixes (e.g. broad leaf herbicides) makes the herbicide a valuable addition to the range of herbicides available.

Rates up to 6 l/ha on seedling lucerne (cv. Paravivo), giant shaftal clover (cv. Maral) and annual medic (cv. Harbinger), and 3 l/ha on established subterranean clover (cv. Clare), did not retard normal growth of these crops.

## 1.2 Broad Leaf Control

### 1.2.1 Wild radish (Raphanus raphanistrum)

After several years of poor to nil control with high rates of 2,4-DB in annual legume crops, an experiment which included an autumn and a spring treatment of methabenzthiazuron (marketed as Tribunil(R)), demonstrated that 98-100% control of radish can be expected with this herbicide.

The first treatment was applied when the crop (Clare subterranean clover) had 1-2 trifoliolate leaves, and radish 3-6 leaves. Rates up to 1 kg/ha of the product Tribunil(R) did not kill crop plants, however, at this rate the treated area remained pale green for six to eight weeks and crop growth was retarded. At 0.5 kg/ha, 95% control of radish was achieved and at 0.75 and 1.0 kg/ha, 100% achieved.

Hard winter-early spring grazing permitted a dense spring germination of radish to more or less negate the early benefits of treatment, however, a spring treatment of 0.75 kg/ha maintained the 0.75 to 1.0 kg/ha treated plots free of radish to harvest.

Giant shaftal clover at the 3 trifoliolate leaf stage in an adjoining paddock was treated with approximately 0.75 kg/ha Tribunil(R) without serious crop damage, although where the boom turned at headlands, the crop suffered major damage on the inside of the turn, thus indicating crop tolerance to be marginal.

This area had been treated with Spray Seed(R) approximately 3-4 days after sowing, but before crop emergence, to control wild radish and other emerged weeds.

Although some wild radish flowered during spring, crop yield would not have been affected. The Spray Seed(R) treatment had permitted the Tribunil(R) treatment to be delayed long enough for the crop to develop adequate tolerance. Crop vigour suppressed later germinations.

Paravivo lucerne seedlings at the 2 trifoliolate leaf stage withstood 0.5 kg/ha Tribunil(R) in an experiment. However, seedlings less advanced succumbed to the treatment.

1.2.2 Lesser loosestrife (Lythrum hyssopifolia) has become a major weed in some areas, and although this weed only generally thrives in poorly drained soils, its effect on crop yield is significant. Tribunil(R) in the above wild radish experiment controlled seedling lesser loosestrife.

### 1.2.3 Dock, sorrel and wireweed control

Barban (marketed as Neoban(R)), has been suggested as an alternative herbicide to 2,4-D and 2,4-DB for Rumex spp. (e.g. dock, sorrel) and Polygonum spp. (e.g. wireweed) control in legume seed crops. Seedling lucerne (cv. Paravivo), annual medic (cv. Harbinger) and giant shaftal clover (cv. Maral), all showed tolerance to Neoban(R) at 1 l/ha. There was nil control of wireweed in annual medic, but grower reports indicate that Neoban(R) is useful for dock (Rumex crispus) and sorrel (Rumex angiocarpus) control in shaftal clover at 0.75 l/ha.

Asulam (marketed as Asulox(R)) was used for dock control in strawberry clover (cv. O'Connors). Good control was gained. Approximately 3 l/ha Asulox(R) was successful, but severe yellowing of crops cast doubts that crop tolerance is adequate.

#### 1.2.4 General broad leaf weed control

Growers in the Mundalla area have been using mixtures of bromoxynil and 2,4-D or Tribunil(R) and 2,4-D for broad leaf weed control in subterranean clover. The addition of small quantities of 2,4-D, e.g. 100 ml/ha has made possible the selective removal of weedy legumes, e.g. melilotus, burr medic.

MCPA at approximately 2 l/ha was useful in controlling wild charlock in annual legumes, particularly shaftal clover.

#### 1.2.5 Terbutryne (marketed as Igran(R))

Igran(R) used at 0.5 kg/ha in seedling Paravivo lucerne was found to be more toxic to the crop and less effective on wild radish than Tribunil(R). Nevertheless, in subterranean clover and shaftal clover crops, terbutryne may prove useful for other weeds, such as wild charlock and possibly milk thistle, which is tolerant to Tribunil(R).

1.2.6 Etazine(R) is widely used in the Keith lucerne seed growing areas for grass and broad leaf control, particularly wireweed and fat hen. The successful use of this combi triazine herbicide has contributed greatly to the expansion of the industry (worth \$500,000 plus) in the area.

### 2. GRASS SEED CROPS:

#### 2.1 Carbon Banding

One crop of Seedmaster phalaris was sown under the carbon banding technique of crop establishment. Results were satisfactory. Only one or two other grass seed crops were established during the year.

In the event of increased interest in grass seed crops, most professional seed growers would still use this method.

2.2 Diuron was the most widely used herbicide for broad spectrum weed control in established crops. There were no reports of crop toxicity, probably due to the very dry autumn.

At the beginning of the growing season the seed market, particularly for Demeter fescue, was depressed and some major growers of this crop decided not to use herbicides. Annual ryegrass flourished in these crops, and at least one crop has been rejected from certification following seed laboratory analysis. Control of the untreated weeds will now be much more difficult during the 1977 season.

#### 2.3 Dock & Lesser Loosestrife

The standard mixture of dicamba and 2,4-D was again successful. However, some growers did not use this treatment because of the depressed seed market until it was quite late when a recovery in the market was evident.

### 3. SUGGESTED EXTENSION & EXPERIMENTAL ACTIVITIES, 1977 SEASON:

#### 3.1 Legume Seed Crops

##### 3.1.1 HOE 23408

The safety of this herbicide in legume seed crops appears to have been established during 1976, however, there is always wisdom in testing new herbicides over several seasons.

This herbicide should be reasonably well known to seed growers as field experiments in the Mundalla, Koppamurra and Kalangadoo areas were conducted during the year. An article which discussed this herbicide was in the December, 1976 Seed Industry Newsletter.

Growers should be encouraged to try this herbicide as soon as it becomes available, possibly during the 1977 growing season. However, the herbicide's limitations, e.g. poor control of Bromus spp. and barley grass, must be stressed to growers. It appears that HOE 23408 and Propham I.P.C. will need to be "rotated" unless a broader spectrum herbicide which is easily used becomes available. "Evaluation of tank mixes" with broad leaf herbicides is needed.

### 3.1.2 Tribunil(R)

The efficacy of this herbicide for wild radish control has been established, however, shaftal clover tolerance is still doubtful and hence tolerance experiments are needed to validate earlier reports.

Evaluation of lesser loosestrife control with this herbicide is also needed.

Cautions should be given that very early treatments, e.g. unifoliate to 1 trifoliate leaf stage may prove toxic to the crop.

The wisdom of using a desiccant treatment post-sowing pre-crop emergence followed by later treatments of Tribunil(R) or other similar herbicides to control fast germinating troublesome weeds needs to be discussed with growers. An article for an autumn edition of the Seed Industry Newsletter would be appropriate.

### 3.1.3 Asulam (marketed as Asulox(R))

The tolerance of strawberry clover to this herbicide should be examined before recommendations are given. Also, the susceptibility of the various dock species should be determined, even though Asulox(R) at approximately 3 l/ha is known to prevent Rumex crispus seeding, and gives a high kill.

### 3.1.4 Barban (marketed as Neoban(R))

The usefulness of barban for the control of sorrel and dock in legume seed crops needs further evaluation, particularly in shaftal clover which appears to be sensitive to amine 2,4-D between the seventh trifoliate leaf stage and a poorly defined established crop stage.

### 3.1.5 Propham I.P.C., Propyzamide, Carbetamide

There is no pressing need for further experimental or extension work with these herbicides. The general knowledge of these herbicides held by the Department and growers seems adequate.

### 3.1.6 Bromoxynil, Tribunil(R) & 2,4-D mixtures

Growers have reported good results in subterranean clover seed crops during the last few years, and recording of their results is needed to ascertain crop tolerance and weed spectrum controlled.

### 3.1.7 Keith lucerne area

Similarly, lucerne seed growers' use of knockdown/residual herbicides in the Keith area need to be recorded, and methods of controlling weeds which escape the present treatments, particularly Etazine(R), e.g. Erodium spp. must be demonstrated or found.

### 3.1.8 General weed farm hygiene

The general standard of hygiene on farms remains low. Irrigation check banks continue to be infested with "other crop" and "objectionable weeds", particularly annual ryegrass, docks and thistles, which give a heavy seed burden to the cropping area. A Seed Industry Newsletter article could discuss this further and suggest herbicides and equipment to control these weeds.

Low level infestations of other objectionable weeds which are known to densely invade cropping areas are permitted to set seed without check. From an extension point of view one can only diplomatically suggest to growers to control these weeds.

## 3.2 Grass Seed Crops

3.2.1 No urgent extension or experimental work is apparent.

3.2.2 HOE 23408 may prove useful during the establishment year, however, there is no reliable information regarding seedling or established crop tolerance. This herbicide may be particularly useful for post-emergent control of annual ryegrass in some established crops.

## 4. SEED GROWER/DEPARTMENT RELATIONS:

Sharing of weed control knowledge remains high and is of great benefit to the industry.