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WEED CONTROL IN LINSEED

By J. G. PATERSON, B.A., B.Sc.(Agric.), Biological Services Division

In 1967, almost 7,000 acres of linseed were planted in Western Australia. The area increased to more than 25,000 acres in 1968 and it is expected that some 40,000 to 50,000 acres will be planted in 1969.

FOR MANY years linseed has been a comparatively unimportant crop. Its value has recently been highlighted both as a "cleaning" and as a "cash" crop.

Linseed is resistant to many cereal root-rots, particularly take-all and when this crop is sown before wheat the incidence of these diseases is greatly reduced. While oats are also resistant to take-all linseed has the added advantage of being resistant to cereal eelworm attack.

Where climate and soil type favour the growth of linseed it can be incorporated easily into the farming system. Its value as a cash crop is high, repaying the extra time and effort required for its establishment and growth.

Linseed must be sown about half an inch deep and it generally emerges at about the same time as many of the common weeds. For this reason extra effort should be made to ensure that a linseed crop is free of weeds, particularly in the early stages of growth.

Three approaches should be taken if good weed control is to be obtained. They are pasture management, cultural treatments and chemical control.

Pasture management

Annual weeds rely for survival on seed produced each year. Any reduction in the amount of seed formed in the year before planting will greatly reduce the likelihood of a heavy weed infestation. This can be obtained by a combination of grazing, mowing, burning and herbicide use.

Grazing

Continuous grazing with sheep should be maintained at a high rate during the year before planting and particularly in



A young crop of linseed offers little competition to weeds. The upright growth habit and the sparsity of crop leaves enables weeds to thrive, particularly during the important first few weeks of growth

the spring, when weed seeds are being formed.

Mowing

Pasture should be mown during the spring, before seed is formed. This treatment is useful where insufficient sheep prevent adequate grazing.

Burning

A late summer burn will destroy much of the weed seed remaining on the soil surface before the break of the season.

Herbicides

The application of $\frac{1}{2}$ pint of paraquat and diquat per acre just before weed seeds are formed in the spring will also prevent further build up of weeds. Paraquat is suitable for grass weeds and diquat should be used where broadleaved weeds predominate. One half pint per acre of a suitable wetting agent should be added to the mixture.

Cultural treatment

Ploughing and cultivation

Linseed is particularly susceptible to weed competition and every effort should be made to ensure that the first ploughing kills all weeds. Mouldboard ploughs give far better weed control than either disc ploughs or scarifiers. While mould-

boards will be slower and more costly to operate their use will repay the extra time and money spent.

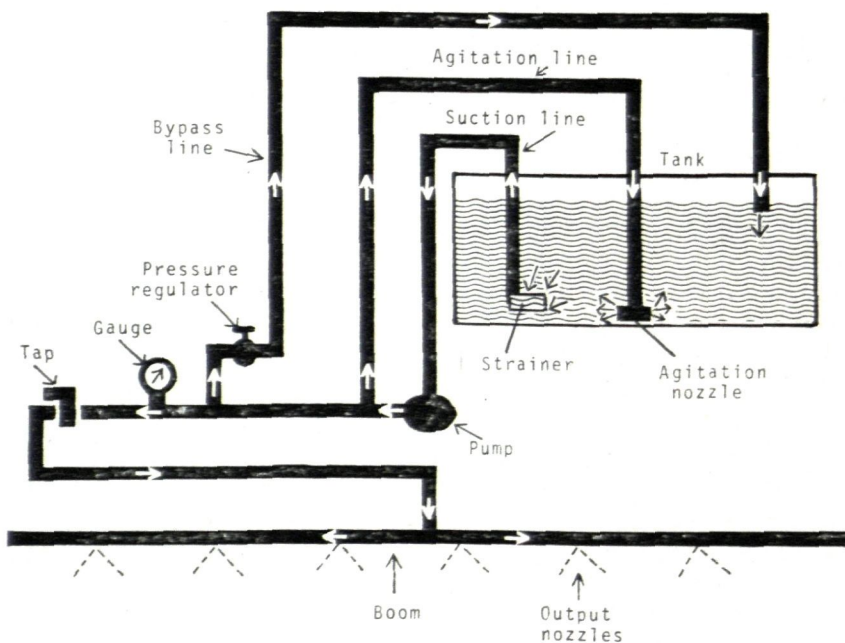
The degree of weed control obtained with this first ploughing will determine the need for further cultivations. These additional cultivations are more likely to be needed where annual ryegrass and capeweed are the dominant weeds. In addition to obtaining good weed control cultural treatments should be designed to produce a level seed bed so that the linseed may be sown evenly at a shallow depth.

Herbicides

Sometimes weather conditions following the break of the season make cultural weed control almost impossible. Under wet conditions weeds are only transplanted, remaining alive even after several cultivations. When this occurs paraquat or diquat can be applied to kill persistent weeds a few days before planting the crop. These herbicides have no effect on the soil.

Chemical treatment

Paraquat and diquat sprays as a pre-sowing method of weed control have already been mentioned. These herbicides are post-emergence chemicals which should only be applied to growing weeds.



Some herbicides are formulated as wettable powders. These must be kept in suspension and applied with efficient equipment. The diagram shows the basic plan for suitable spray apparatus

They are absorbed through the leaves and only affect those plants with which they come in contact.

Another group of chemicals is applied to bare soil, generally after the crop has been sown but before the weeds emerge. These chemicals are called pre-emergence herbicides.

Pre-emergence herbicides should be considered as insurance, as they must be applied before the weeds appear above the ground. Post-emergence types of herbicides, on the other hand, can be considered as follow-up treatments for immediate use on existing weed problems.

Two pre-emergence and two post-emergence herbicides are recommended for use in linseed crops. These, together with their correct rate of application are shown in the Table.

Pre-emergence

Both pre-emergence herbicides are wettable powders. This means that they do not completely dissolve in water and have to be applied as suspended particles of chemical. They are also applied to linseed crops at relatively high rates. Two precautions have to be taken to ensure that they do not settle-out in the spray tank. Firstly, 25 to 30 gallons of water per acre should be used. This is about three times the normal amount needed for the more common herbicides such as 2,4-D.

Secondly, an adequate agitation system must be incorporated into the spray equipment. This can be either mechanical, such as a moving paddle, or hydraulic where the reserve output from the pump is returned to the tank through agitation nozzles. These cause turbulence of the spray mixture in the tank.

A 50-100 mesh filter should be fitted to the suction line to minimise the risk of blocked nozzles. The filter should not be finer as it would not allow the chemical particles to pass through. The pump should be capable of supplying at least 10 gallons per minute at a pressure of about 50 lb. per square inch. The layout of typical spray rig is shown in the illustration.

Pre-emergence herbicides should be applied within three days after the linseed is planted. Light rain during or just after treatment has a beneficial effect as it tends to distribute the chemical evenly within the surface layer of the soil.

Post-emergence

Under some conditions weeds germinate and emerge before the linseed. This occurs particularly with annual ryegrass. Paraquat or diquat can be used to control this type of weed germination but it is important to realise that the timing of the application is critical. The crop will be damaged if the chemical is applied after the linseed has emerged. This cannot be overstressed.

Herbicides recommended for controlling weeds in linseed crops

Type of treatment	Weeds controlled	Herbicide	Rate per acre	Price per acre	Distributors	Remarks
Pre-emergence	Turnip Radish Wireweed Capeweed	Propazine	1½ lb.	\$4.60	Barrow Linton	Approximately 50 per cent. control of grasses obtained
		Linuron	1½ lb.	\$5.70	Amalgamated Chemicals Dalgety N.Z.L. David Gray Elders G.M. Patersons Shell Chemical Wesfarmers	
Post-emergence	Broadleaved weeds	Diquat	½ pint	\$1.55	Dalgety N.Z.L. Elders G.M. Wesfarmers	Apply in at least 10 gallons of water with ½ pint of wetting agent per acre. Correct timing is essential
	Annual grasses	Paraquat	½ pint	\$1.90		

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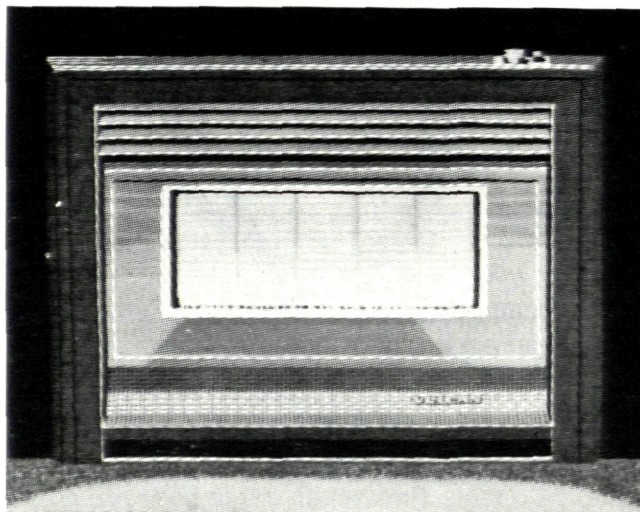
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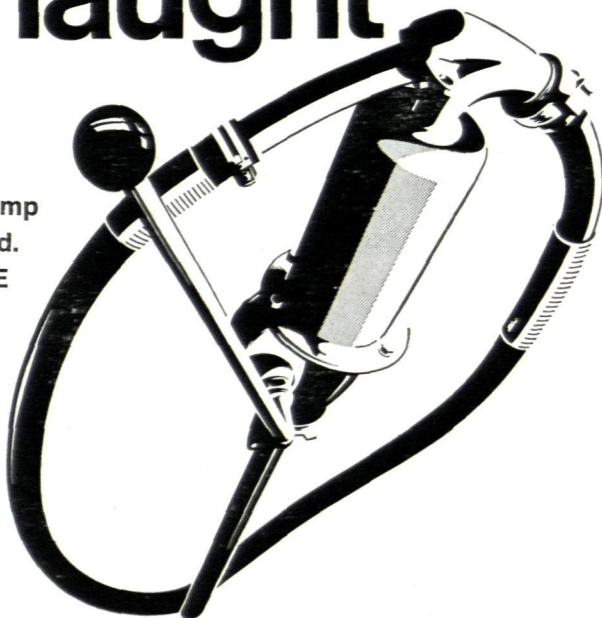
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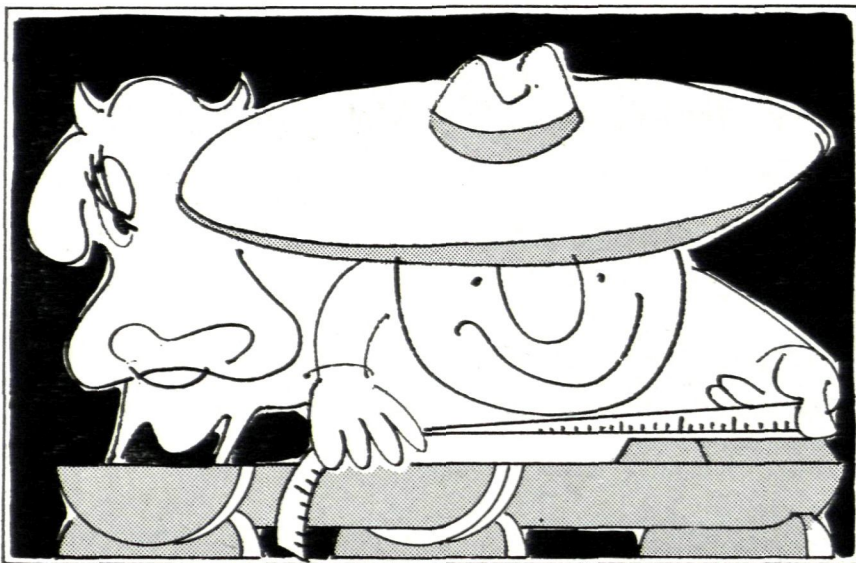


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