BROMOXYNIL/MCPA FOR WEED CONTROL IN LINSEED

K. B. MILES AND J. W. BLEASE

May & Baker (New Zealand) Ltd.

Summary

During the 1967-8 season, one replicated crop tolerance trial was conducted to confirm overseas work that linseed is tolerant to applications of bromoxynil plus MCPA. The results from applications made when the linseed was 3 to 4 in. high show that this crop is tolerant to rates as high as 8 + 8 oz a.i./acre. Some scorch to the crop was recorded 3 to 4 days after spraying but this had disappeared 7 days later.

INTRODUCTION

THERE is not a large area of linseed grown in New Zealand and until recently MCPA was the standard herbicide employed for general weed control.

Over the last 3 to 4 years there has been an increase in the incidence of MCPA-resistant weeds such as wireweed (*Polygonum aviculare*) and cornbind (*Polygonum convolvulus*). Trials in wheat and barley crops have shown that a mixture of bromoxynil and MCPA give good control of these weeds. Following the successful results with this mixture in linseed (flax) in Canada (Molberg, 1966, 1967), it was decided to test the mixture in New Zealand.

EXPERIMENTAL WORK

Scope of programme: One site was chosen to investigate the tolerance of linseed to bromoxynil + MCPA in comparison with standard treatments of MCPA and dicamba/MCPA. This site was in a relatively weed-free crop, there being considerable evidence already available on the susceptibility of weeds to this mixture.

Plot sizes: 6 ft × 132 ft; three replicates.

Formulations used: One experimental formulation was used — a mixture of 32 oz bromoxynil octanoate and 32 oz MCPA iso-octyl ester per gallon (all rates in oz a.i./acre). This was applied at rates of 4 + 4 oz, 5 + 5 oz and 8 + 8 oz bromoxynil/MCPA. For the standard treatment, a commercial formulation of MCPA was used. A commercial formulation of dicamba/MCPA was also included in the trial.

Application: The treatments were applied to plots running across the rows with a single-wheeled experimental sprayer applying 17.5 gal/acre.

Crop: Variety Redwood.

Growth stage at spraying: 3 to 4 in. Two shoots developing from plant base each 1½ in. in length.

ASSESSMENTS

Observations were made of the effect of all treatments on the crop 8 days after spraying and the plots treated with bromoxynil/MCPA were scored by two observers on a 0 to 5 scale.

Plots were harvested with a header-harvester and the yields weighed.

RESULTS

TABLE 1: MEAN SCORE OF CROP DAMAGE 8 DAYS AFTER SPRAYING

<i>Treatment (oz a.i./acre)</i>	<i>Score</i>
bromoxynil 4/MCPA 4	0
bromoxynil 5/MCPA 5	1
bromoxynil 8/MCPA 8	2
dicamba 1½/MCPA 9	Severe epinasty and flattening of crop.
MCPA 12	Epinasty
Control	—

0 — no scorch. 5 — all leaves severely scorched and little green colour remains.

TABLE 2: YIELD DATA

<i>Treatment (oz a.i./acre)</i>	<i>Mean Yield (lb/plot)</i>
bromoxynil 4/MCPA 4	32.0
bromoxynil 5/MCPA 5	30.3
bromoxynil 8/MCPA 8	28.0
dicamba 1½/MCPA 9	33.0
MCPA salt 12	28.2
Control	32.0
CV	6.86%

Treatment differences not significant.

Table 1 lists the average score of crop damage after spraying. The 0 to 5 scale is designed as a scoring system to record the degree of scorch only. This type of effect is typical on cereals treated with mixtures containing members of the hydroxybenzotrile chemical group. Effects caused by the application of the growth-regulating chemicals are recorded separately.

Table 2 lists the mean yield obtained and shows that none of the treatments caused any significant increase or decrease in yield compared to the unsprayed control.

DISCUSSION

The tolerance of linseed to bromoxynil/MCPA in the one trial reported is excellent and the results from a limited number of commercial applications confirm this. As the mixture has little effect on the crop after spraying, there would also appear to be little danger of yield depression with this mixture when drought conditions follow spraying. This has been reported after applications of dicamba/MCPA but seasonal conditions

favoured good growth during the period of this trial and this did not occur.

During the course of limited marketing of bromoxynil/MCPA for weed control in linseed during 1968-9, results were obtained from 5 sites. Good results were obtained from all areas sprayed and farmers reported that the mixture had not had any effect on the crop. Three farmers reported that bromoxynil/MCPA appeared to cause the linseed plants to produce extra flowering stems. This could result in an increase in yield.

The following weeds were reported to be well controlled at the following growth stages after applications of bromoxynil/MCPA at 4 + 4 oz:

wireweed (*Polygonum aviculare*), 3 to 4 leaf
willowweed (*Polygonum persicaria*), 2 in.
fathen (*Chenopodium album*), 4 to 5 in.
cornbind (*Polygonum convolvulus*), 2 to 3 leaf
mayweed (*Matricaria* sp.), 1 to 4 in. across

Control of docks (*Rumex obtusifolius*) and Californian thistle (*Cirsium arvense*) was reported as satisfactory.

CONCLUSIONS

Bromoxynil/MCPA is safe to apply to linseed 3 in. high at standard rates of 4 + 4 oz and 5 + 5 oz.

At these rates, good control of most of the commonly occurring annual weeds was obtained. Applications should always be made when weeds are at a seedling growth stage.

ACKNOWLEDGEMENTS

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