PRELIMINARY TRIALS WITH BENTAZON ON PASTURE

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The results presented indicate that bentazon shows promising selectivity for paspalum (*Paspalum dilatatum*), perennial ryegrass (*Lolium perenne*), and white clover (*Trifolium repens*). It is particularly effective against certain "daisy" weeds and shows some activity against various thistles.

INTRODUCTION

THE chemical and herbicidal properties of bentazon have been described by Fisher (1968) and its use in cereals, peas, soya beans and rice has been reported by various authors (Behrendt 1970; King and Handley 1972; Luib and van der Weerd 1972; Luib *et al* 1973; May and Taylor 1972).

Bentazon was reported to be active against certain weeds, notably may-weeds and chamomiles (*Anthemis* spp. and *Matricaria* spp.), and oxeye daisy (*Chrysanthemum leucanthemum*) some species of which can be a problem in New Zealand pasture. Consideration of the crop/weed spectrum also suggested that tolerance for pasture species was likely.

Trials were established to investigate pasture tolerance and to screen for activity against various weeds.

(a) PASTURE TOLERANCE — Method:

Randomised block design trials were established using plots of 2 m x 10 m. Sprays were applied by a CO₂ powered knapsack sprayer using hollow cone nozzles delivering 337 litres/ha. The treatments were applied to short grazed pasture and the area was maintained under grazing for the duration of the trial. Bentazon was applied as BAS 3510 H (50% W.P.) and alkylaryl polyglycol ether was added to the spray mixture at 0.025% as an additional wetter.

Pasture composition was assessed by the point analysis method recording 200 points per replicate.

Site Details:

	Trial No.	
	A5057	A5059
Soil type	Clay loam	Clay loam
Applied	13/9/72	28/9/72
Replicates	2	3
Temp. °C	17	17
Rain *(mm)		
1 day	0	4
7 days	10	4
14 days	32	47
Assessed	15/1/73	1/2/73

* cumulative

Problem Pasture Weeds

Results:

At site A5057 no visible effect was noticed on pasture species and at site A5059 bentazon (3.36 kg/ha) and the mixtures with MCPB caused slight to moderate scorch of white clover foliage in the period 5 to 10 days after spraying (Table 1).

TABLE 1: PASTURE COMPOSITION
(mean % calculated from 200 points/rep.)

Treatment	kg/ha	<i>Paspalum</i>	Rye- grass	White clover	Oxeye daisy	Other weeds & B	L*
A5057							
control		53.0	3.0	15.75	18.0	1.0	9
bentazon	1.12	61.5	2.5	18.50	7.5	1.0	9
bentazon	2.24	64.0	2.5	24.25	1.75	1.0	7
A5059							
control		34.8	10.0	19.3	18.7	2.2	15
bentazon	2.24	49.7	12.3	19.3	4.2	1.8	12
bentazon	3.36	48.0	11.0	18.5	3.7	1.7	16
bentazon	1.12	37.5	13.0	23.2	6.8	4.0	14
MCPB	1.12						
bentazon	2.24	45.2	13.8	21.3	3.2	2.2	14
MCPB	1.12						

Differences are not statistically significant at 5%

* Litter and bare ground.

(b) WEED CONTROL:

Several screening trials were established on various weeds of pasture. Treatments were applied as before to duplicate plots of 2 m x 10 m. The plots were arranged in areas of uniform weed density. In these trials bentazon was applied as BAS 3517 (48% w/v non aqueous concentrate).

Oxeye daisy:

In trials A5057 and A5059 reported here, bentazon substantially reduced the incidence of oxeye daisy. The data on percentage cover are included in Table 1.

Mayweeds and Chamomiles:

Rates of 0.56 kg/ha and above completely killed all stages of stinking mayweed (*Anthemis cotula*) in one trial, and rayless chamomile (*Matricaria matricarioides*) in four trials.

Thistles:

Rates of 1.12 kg/ha and above completely desiccated Scotch thistle (*Cirsium vulgare*) in the rosette stage (2 trials). Larger plants were incompletely desiccated. Bentazon alone (2.24 kg/ha) and in combination with MCPB severely desiccated Californian thistle (*Cirsium arvense*). Effect on regrowth has yet to be determined.

Problem Pasture Weeds

Other Weeds:

Bentazon alone at 2.24 kg/ha had no substantial effect on seedlings or established plants of ragwort (*Senecio jacobaea*) or Australian fireweed (*Erechtites atkinsoniae*).

DISCUSSION

In the pasture tolerance trials the only visible effect was a transitory scorch to the leaf margins of white clover. There was no evident effect on general vigour or growth. Although the differences recorded are non-significant, the trends suggest that the reduction of oxeye daisy was compensated by the increase of pasture species, particularly paspalum. The reduction of oxeye daisy in trial A5057 was superior to A5059. Oxeye daisy is a perennial and it is possible that the more vigorous growth of paspalum at site A5057 suppressed root stock regrowth from established plants. The time and conditions of application will also require further investigation.

Excellent results against mayweeds and chamomile spp. in the trials are in line with results already published.

The results against thistles are encouraging but further investigations will be necessary, particularly with respect to regrowth.

REFERENCES

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