CONTROL OF MUSKY STORKSBILL IN PASTURE

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Summary

A number of herbicides were tested for control of musky storksbill (*Erodium moschatum*) in pasture in Waikato. Bentazone (0.5-2.0 kg/ha) proved very effective applied in winter with no apparent pasture damage. 2,4-D and 4-CPA also gave satisfactory control of musky storksbill but caused some check to white clover (*Trifolium repens*). Triclopyr was too damaging to white clover while 2, 4-DB and MCPB were ineffective.

INTRODUCTION

For some years storksbill (*Erodium cicutarium*) and musky storksbill (*E. moschatum*) have been recognised as problem weeds in lucerne (*Medicago sativa*). Now, either through greater awareness or an increase in the storksbill population, they are becoming recognised weeds of pasture, particularly in drought prone areas. However the weed status of *Erodium* spp. is debatable. It has moderate food value (Hoffman 1970), is eaten readily by stock and grows in winter. On the other hand its presence in hay impairs drying, the seeds are damaging to lamb pelts (Loughnan 1964, Hartley and Atkinson 1973) and it can cause photosensitivity in calves (Ford 1965).

There is some published information on selective control of *Erodium* spp. in lucerne (Leonard 1974; Forgie 1973; Meeklah and McRobb 1973) but little work appears to have been done in pasture. This paper reports on the examination of some herbicides for selective control of musky storksbill in a ryegrass (*Lolium perenne*) white clover pasture in the Waikato. In September 1975 a preliminary screening trial was conducted testing the activity of 14 herbicides or herbicide combinations on musky storksbill. Of these seven were chosen for further investigation in more fully replicated trials.

MATERIALS AND METHODS

The four most promising herbicides; 2, 4-D (amine), 4-CPA (phenoxy-ethanol ester), triclopyr and asulam were applied to poor, weed infested pasture at two rates in May (two sites), July and September (Table 1). Three marginal materials; 2, 4-DB (sodium and potassium salts), MCPB (sodium salts) and bentazone were applied in May only (Table 2). However, the May trial showed bentazone to be worthy of further testing so this material was subsequently applied at three rates in July and September (Table 2) and the effect of spray volume examined by applying 1.0 kg/ha bentazone at three dilutions (190, 380 and 760 litres/ha) in July.

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All herbicides were applied on three to five replications with a modified Oxford Precision sprayer applying 380 litres/ha at 200 kPa except where noted. No wetting agents were used and plant sizes were variable with size being related to pasture height (see Tables 1 and 2).

RESULTS

On further investigation asulam had no effect on musky storksbill and has been omitted from all the tabled results. Triclopyr significantly reduced the musky storksbill population, when the plants were small, but was very damaging to white clover (Table 1). Both 2, 4-D and 4-CPA were effective against musky storksbill, showing some reduction after 5 weeks and almost complete control, at the higher rates, by December. They were equally effective against large and small plants (c.f. two sites in May) and were unaffected by time of application from May to September. Both herbicides caused some initial check to white clover but there was little evidence of damage by September, from the earlier treatments (Table 1).

TABLE 1: Effect of 2,4-D, 4-CPA and triclopyr on musky storksbill and white clover

		Musky storksbill				Clover
		VR	No. plants/10 m ²	12.5.76	23.7.76	VR
Application date		12.5.76	12.5.76†	23.7.76	9.9.76	May & July
Treatment	Rate kg/ha					
Untreated		8.0	169	6.7	7.5	8.3 aA
2,4-D	0.5	0.4**	2**	1.1**	0.2**	7.1 bcAB
2,4-D	1.0	0.6**	0**	0.2**	0 **	6.8 bcB
4-CPA	2.0	0.4**	0**	0.4**	0.9**	7.7 abAB
4-CPA	4.0	0 **	0**	0 **	0.2**	6.5 cB
triclopyr	0.25	1.0**	60	1.8**	1.3**	2.6 dC
triclopyr	0.5	0 **	27*	0 **	0.2**	1.5 eC
pasture ht. at treatment (cm)		2-10	5-20	5	15	2-10

† Different paddock from other three trials.

VR = visual rating (10 = high plant No., 0 = none) by two observers in September

* Significantly less than control (P< 0.05)

** Significantly less than control (P< 0.01)

The butyric formulated hormone herbicides, 2,4-DB and MCPB, were ineffective (Table 2). However bentazone, at 1 and 2 kg/ha applied in May, gave complete control of musky storksbill within 3 weeks and the plots remained free for the rest of the year. When

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applied later in the season bentazone considerably reduced the musky storks-bill population but the higher rate was necessary in September when the herbicide was applied to large, mature plants (Table 2). The different water volumes did not affect the level of control. Bentazone had no visible effect on white clover or ryegrass.

TABLE 2: Effect of bentazone, 2,4-DB and MCPB on musky storks-bill (No. plants /m² on 2.12.76)

Treatment	Rate kg/ha	Date applied		
		12.5.76	23.7.76	9.9.76
Untreated		5.2	25.3	18.0 aA
bentazone	0.5		0 **	8.0 abAB
bentazone	1.0	0 *	1.6**	3.4 bcAB
bentazone	2.0	0 *	0.3**	1.4 cB
2,4-DB	1.0	6.1		
2,4-DB	2.0	4.6		
MCPB	1.0	1.3		
MCPB	2.0	1.4		
pasture ht. at treatment (cm)		2-10	10-20	15

* Significantly less than control (P<0.05)

** Significantly less than control (P<0.01)

No buttercup (*Ranunculus* spp) were seen to flower on any plots treated with 2,4-D, 4-CPA, 2,4-DB, MCPA or bentazone in May.

DISCUSSION

Of the herbicides used in these trials bentazone appears the most promising herbicide for the control of musky storks-bill in pasture. It had no apparent effect on desirable pasture species and may also control buttercups. The known tolerance of lucerne to bentazone (unpublished data) suggests it could be used to control musky storks-bill in lucerne. Its effect on storks-bill should be tested.

For control of mayweeds (*Anthemis* and *Cotula* spp) a surfactant is recommended but this does not appear necessary for musky storks-bill. Bentazone has given erratic results on some weeds and weather conditions at application are thought to be important. In these trials (one season only) bentazone performed consistently; either its action on musky storks-bill is less weather dependent or we are fortunate. The weather at each time of application was suitable for spraying but conditions were generally unsettled.

Both 2,4-D and 4-CPA gave satisfactory control of musky storks-bill though with some check to white clover. However, if these herbicides are being used to control buttercups or docks (*Rumex* spp) they should control musky storks-bill also.

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