Pasture Herbicide Tolerance

Summary: Herbicide options were investigated on newly sown pastures at three sites. Lathyrus stood out as a good producer of dry matter when sown early. It also appears to be less affected by insects and more tolerant to post emergent herbicides compared to Morava vetch.

Controlling broadleaf weeds in newly sown pastures is not straight forward. Many new pasture types (species and varieties) are coming on the market and herbicide tolerance information is limited. The BCG undertook pasture herbicide tolerance work at Charlton in 2000.

Methods

Pastures types were direct drilled in long strips and herbicides were applied at right angles to sowing.

The pastures used were lathyrus, morava vetch, parragio medic, early paradana balansa clover, nitro Persian clover, genesis lucerne and arrowleaf clover.

Herbicides were applied pre-sowing, post sowing pre-emergent (PSPE) and early post emergent (EPE). Early post emergent applications were applied when the pastures had between 3 and 5 true leaves. Herbicide effects were assessed as damage scores on pastures. Pastures were assessed 2 months after application.

Results

Herbicide assessment scores are presented (Table 1). The main weeds at the site were mustard, shepherds purse, white iron weed, hares ears, barley grass, rye grass and wild oats.

Table 1. Herbicide assessment scores taken 6 weeks post spraying.

Herbicide	Rate	Time	Lathyrus	Vetch Morava	Paraggio	Balansa Para.	Nitro Persian	Luc. Genesis	Arrow. clover
Triflur480	1.0L	Pre-sow	1	1	1	1	1	1	1
Simazine	1.0L	PSPE	3	1	6	5	5	5	5
Diuron	1.0L	"	3	1	1	2	2	2	2
Dual	0.5L	"	3	2	3	1	1	2	3
Simazine	1.0L	EPE	2	3	5	2	3	5	4
Simazine + Gramoxone	1.3 + 0.15L	"	3	4	5	3	3	4	4
Spinnaker + Diuron	0.15 + 0.3L	"	2	7	3	5	3	2	3
MCPA250	1.0L	"	7	7	5	4	3	3	4
Brodal	0.15L	"	2	3	4	2	2	1	1
Tigrex	0.5L	"	6	7	7	1	4	5	3
Jaguar	0.5L	"	7	7	6	1	3	2	3
Propon + DCTrate	3kg	"	3	8	7	6	6	5	5
Buctril200	1.2L	"	5	6	4	2	5	2	3
Buticide	3L	"	4	8	6	2	4	2	5
Igran	0.55L	"	4	1	2	1	1	2	2
MCPA500 + Diuron	0.3 + 0.5L	"	4	6	4	2	2	2	2

Herbicide assessment: 1=no effect, 5=damage, 9=dead

Interpretation

Vetch: there were no safe early post emergent herbicides in Morava vetch (Broadstrike may become registered in Popany vetch). Vetch is not tolerant to the phenoxy based herbicides (eg. MCPA).

Lathyrus: few more options with Simazine, Spinnaker, Brodal and Propon all appearing quite safe. Lathyrus had reasonable early growth and was not affected by red legged earthmite and lucerne flea, compared to vetch. Lathyrus needs to be sown early April to optimise growth.

Parragio Medic: less tolerant to herbicides and only Spinnaker plus Diuron and Igran resulted in minimal damage

Balansa: not quite as tolerant as the sub-clovers and the best options were Simazine, Dual, Spinnaker, Brodal, Tigrex, Jaguar, Buctril200, Buticide, Igran and the MCPA500 and Diuron mix.

Nitro Persian: performed very well. The safest herbicide options were Dual, Spinnaker, Brodal, MCPA500 and Diuron mix and Igran . Bromoxynil based products can cause significant damage.

Lucerne: Simazine plus gramoxone is often used in established lucerne pastures but this proved to be quite damaging to newly sown lucerne. The best options in lucerne were with Spinnaker, Brodal, MCPA250 and Jaguar.

Arrowleaf: was less tolerant to herbicides and Brodal, Igran and MCPA500 plus Diuron mix appeared relatively safe.

Commercial Practice

The selection of a herbicide in newly sown pasture is a matter of required weed control, level of acceptable damage to the pasture and cost. The following list of herbicides have been observed to cause minimal damage over two years of trial results. Careful consideration of weed type and numbers need to be made before deciding which herbicide to use. Some of these products are not registered and for unregistered herbicides the results can be damaging and variable. The results from these trials were from one season only and more severe crop effects can be expected in different seasonal conditions.

Pasture	Herbicide	Regist.	Cost	Herbicide	Regist.	Cost
Balansa and sub-clover	Tigrex 0.5L#	R	$9	Jaguar 0.5L	R	$12
	Broadstrike 25g	R	$18	MCPA250 1L#	NR	$6
	Brodal 0.15L	NR	$22	Bromoxynil 1.2L	NR	$17
	Brodal 0.1L + Diuron 0.3L	NR	$18	Spinnaker 0.15L	NR	$17
Nitro Persian	Tigrex 0.5L#	R	$9	Brodal 0.15L	NR	$22
	Spinnaker 0.15L	NR	$17			
Lucerne	Jaguar 0.5L	R	$12	Spinnaker 0.15L	R	$17
Medic	Broadstrike 25g	R	$18	Spinnaker 0.15L	NR	$17
Arrowleaf	Brodal 0.15L	NR	$22	Igran 0.55L	NR	$8
	Tigrex 0.5L#	R	$9			
Lathyrus	Brodal 0.15L	NR	$22	Igran 0.55L	NR	$8
	Broadstrike 25g	NR	$18	Spinnaker 0.15L	NR	$17

these herbicides caused a low to moderate level of damage to the pasture

In these trials there were no safe options found for the early post emergent control of weeds in Morava vetch. Propon will provide useful suppression or control of many grasses – this may be an option when the grasses are resistant to group A herbicides.