



### 3. Treatments

#### 3.1 Chemical formulation

<u>Product</u>	<u>Chemical name</u>	<u>Formulation</u>	
Lexone	metribuzin	750	df <sup>1</sup>
Classic	sulphonyl urea	250	df
Sencor	metribuzin	700 g/kg	wp <sup>2</sup>
Diuron	diuron	800 g/l	sc <sup>3</sup>
Basta	glufosinate	200 g/l	sl <sup>4</sup>
Gramoxone	paraquat	200 g/l	ec <sup>5</sup>
Lasso	alachlor	384 g/l	ec
Atrazine	atrazine	500 g/l	sc
Actril DS	2,4-D/ionymil	600/100 g/l	ec

1 - dry flowable; 2 - wettable powder; 3 - soluble concentrate;  
4 - soluble liquid; 5 - emulsifiable concentrate

#### 3.2 Rates

See results.

### 4. Experimental

Single-eyed cane setts were planted at 50 mm depth at a rate of 8 setts per tray. All setts were dipped in benlate fungicide at a rate of 0,75 g/l. Temik was placed at the same depth as setts (in the sand trays only).

Shoot, heights and counts were taken during the experiment period and the foliage mass was recorded at harvest, which occurred 45 days after spraying.

Results

Table 1 - Ratings of stunting and foliar scorch symptoms in clay and sandy soils 21 days after treatments were applied.

Treatments	Rate in kg or $\ell$ product $ha^{-1}$	Clay		Sand	
		Stunting <sup>1</sup>	Scorching <sup>2</sup>	Stunting	Scorching
1. Control (unsprayed)	-	4	9	4,3	8
2. Control (unsprayed)	-	4,2	7	4,2	9
3. Lexone	2,4	4	10	4,8	7
4. Lexone + classic	1,9 + 0,3	4	9	4,2	10
5. Sencor	2,5	4,3	9	4	9
6. Sencor + diuron	2 + 2	4,5	6	4,8	8
7. Basta	4	3,2	15	2,7	21
8. Basta + diuron	4 + 2,5	3	15	3,2	18
9. Paraquat	2	3	9	4	11
10. Lasso	6	5,3	8	4,5	8
11. Lasso + atrazine	6 + 2	4,2	8	4,6	7
12. Diuron + Actril DS	2,5 + 1,25	4,5	6	4,8	6

1. Stunting ratings : 1 = very poor growth  
5 = very good growth
2. Scorching ratings: 0 = not scorched  
100 = dead

Comments on Table 1:

1. Both Basta treatments caused stunting and scorching in the clay and sandy soils. The paraquat treatment appeared to stunt cane in the clay soil only.

Table 2 - Crop measurements at harvest

Treatments	Clay			Sand		
	Length (cm)	Counts		Length (cm)	Counts	
		Shoots	Tillers		Shoots	Tillers
1. Control (unsprayed)	34	5	18	36	5	12
2. Control (unsprayed)	36	6	16	36	6	12
3. Lexone	33	5	19	37	6	11
4. Lexone + classic	37	6	17	35	7	15
5. Sencor	36	6	16	35	6	9
6. Sencor + diuron	39	6	15	36	6	12
7. Basta	33	5	17	27	4	17
8. Basta + diuron	23	4	18	24	4	17
9. Paraquat	35	6	14	30	6	11
10. Lasso	36	6	17	37	6	14
11. Lasso + atrazine	35	6	12	36	6	14
12. Diuron + Actril DS	39	5	11	36	6	10

Clay:

1. Only the Basta + diuron treatment appeared to cause a decrease in shoot length. The number of germinated shoots were also low in trays treated with Basta + diuron.

Sand:

1. Both Basta treatments appeared to cause a decrease in shoot length.
2. Similar to the occurrence in clay pots, the number of germinated shoots was relatively low in the Basta treated trays compared to other treatments.

Table 3 - Dry mass of above ground plant parts expressed as a percent of that in unsprayed control plots.

Treatments	Clay		Sand	
	Dry Mass(g)	% Control	Dry Mass(g)	% Control
Control (unsprayed)	118	100	121	100
Lexone	128	109	127	105
Lexone + classic	134	114	136	112
Sencor	140	119	116	95
Sencor + diuron	151	128	120	99
Basta	92	78	86	71
Basta + diuron	77	66	87	72
Paraquat	138	118	97	80
Lasso	122	104	134	110
Lasso + atrazine	112	95	135	111
Diuron + Actril DS	132	112	129	106
C.V.%	14,2	-	17,7	-
LSD (0,05)	20,05	-	23,99	-
LSD (0,01)	26,74	-	31,99	-
S.E. of treatment mean	7,07	-	8,46	-

Comments on Table 3:

1. The mixture, Basta + diuron, reduced yield to a statistically significant degree ( $P = 0,01$ ), in both soil types. Basta, on its own, again reduced yield significantly at the same level in sand but yield reduction in clay was significant at the 0,05 level.
2. Paraquat, on sand, reduced yields significantly ( $P = 0,05$ ). There was however, a greater yield from paraquat-treated cane in the heavy soil, than from the unsprayed control.
3. No other treatments caused statistically significant reductions in yield. The lower number of cane shoots in the Basta treatments was due to poor germination and is not a result of the treatment. Comparing the dry mass/shoot germinated in the Basta treatments to that in the unsprayed control, it is only marginally lower in the clay soils and it is similar in the sandy soil. However, this may not be a fair comparison as it does not take into account the decreased competitive effect from a lower number of shoots. Also the obvious stunting of growth indicates that some definite damage occurred from treatment with Basta.

Conclusions

1. Basta, on its own, or mixed with diuron, significantly reduced cane yield in sand and clay soils.
2. The depressed yield, obtained in the sandy soil from the paraquat treatment was expected but did not show up in the heavier soil, although severe stunting and scorching were recorded during earlier growth.
3. Lexone, a new metribuzin formulation, did not cause any yield reduction and neither stunting, nor scorching were evident at any stage after the treatments were applied. No phytotoxicity was recorded when Lexone was mixed with classic. Yields were similar to those from the commonly used formulations of metribuzin Sencor.

GW/SN  
27 February 1987