Asparagus - Herbicides for Module Transplants and for Perennial Weed Control

HDC FV/30b/C/88/0314

HDC CONTRACT R & D - EXPERIMENT REPORT Date:

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ASPARAGUS - HERBICIDES FOR MODULE TRANSPLANTS AND FOR PERENNIAL WEED CONTROL

Experiment Leader: A C W Davies, Luddington Experimental Horticulture Station, Stratford-on-Avon, Warwickshire CV37 9SJ. Tel: 0789 750601 Fax: 0789 750957

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Status of work: Owing to the closure of Luddington EHS this work cannot now be completed.

Year of experiment: 2

Report Number: 2

Period covered: 1989

1. ASPARAGUS - HERBICIDES FOR MODULE TRANSPLANTS

Abstract

All treatments applied did very little damage to the asparagus plants. Two applications of Karmex 80 (diuron) and of Linuron at 2.2 kg/ha 50% gave a reduced vigour. Brasoran had no effect at all. Weed assessments showed several spray applications to be effective, including Karmex 80 (twice), three low rate Linuron, Tribunil + Sencorex and Butisan. The single high rate linuron was less effective.

Objective

To evaluate herbicides for use on newly planted asparagus seedlings raised in cell trays.

Introduction

In 1989 there are still no herbicides approved for seedling asparagus and the interim arrangement for Brasoran (aziprotryne) ceased in December 1988. 'Off label' approval has been sought for both Brasoran and Goltix (metamitron), but in September 1989 these had not yet come through. Results from this trial may lead to further 'off label' approvals to the benefit of the industry. Owing to the closure of Luddington EHS trial trial cannot be carried to its conclusion and the results and discussion recorded here can only be of an incomplete nature.

Materials and Methods

The plantation for this trial was established in 1988 using the cv. Franklim, raised in Hassy 104 cell trays. The first series of treatments were applied between 13 June and 27 July 1988. In the spring of 1989 plots were split. Half the plots received a commercial simazine treatment prior to spear emergence. The other half received the same treatments as those

applied in 1988, but were applied 3 weeks after spear emergence. Vigour assessments were made at the same time as the final weed count. Plant stand counts were assessed. There were three replicates of each treatment arranged in randomised blocks.

Treatments

These are given in the following list with the quantity of the product applied:

A. diuron (Karmex 80%) at 1.5 kg/ha	3 weeks post planting
B. simazine at 1.5 kg/ha, 50% product	3 weeks post planting
C. simazine (split dose) at 0.75 kg/ha, 50% product	3 and 9 weeks post planting
D. linuron (split dose)at 0.75 kg/ha, 50% product	3, 6 and 9 weeks post planting
E. diuron (Karmex 80%) + metrabuzin (Sencorex) at 1.5 + 1.0 kg/ha	3 weeks post planting
G. methabenzthiazuron (Tribunil) + metribuzin (Sencorex) at 2.8 + 1.0 kg/ha	3 weeks post planting
H. linuron at 2.2 kg/ha 50% product	3 weeks post planting
J. metamitron (Goltix) at 2.8 kg/ha	3 and 6 weeks post planting
K. aziprotryne (Brasoran) at 3.4 kg/ha	3 weeks post planting
L. metazachlor (Butisan S) at 3.0 l/ha	3 weeks post planting
M. Control, handweeded regularly	
N. Control, no weeding for first 2½ months of growth.	

Results and discussion

i) Percentage stand counts

Survival of plants has been extremely good with no losses between 1988 and 1989, when 98 per cent established. None of the treatments actually killed plants in either year but there has been an effect on the vigour.

ii) Vigour scores

These were based on a visual estimate of 1-5 with 5 being considered unaffected and 1 being virtually dead. The 1988 and 1989 estimates are shown in Table 1.

Table 1 Vigour scores 1988 and 1989

Treatment	Vigour scores (means of 3 replicates) 1988	1989 Treated with 2nd series of sprays	Simazine only 2nd year
A	3.3	3.0	3.5
B	3.3	3.7	3.8
C	3.5	3.5	3.7
D	3.3	3.2	3.5
E	2.9	3.5	3.3
G	2.9	3.7	3.7
H	2.9	3.0	3.2
J	3.8	3.8	3.8
K	3.9	3.8	4.3
L	3.6	3.5	3.7
M	3.9	3.7	3.7
N	3.4	4.2	3.5
Means	3.39	3.55	3.64

The figures show very little variation. The plots that had received two applications of Karmex 80 (diuron) and Linuron 2.2 kg/ha 50% (treatments A and H) showed a slightly lower score. Treatment H Linuron applied only once in 1988 still showed a low score in 1989. Application of Brasoran (aziprotryne) (treatment K) produced figures as good as the controls. Generally only very limited damage was caused by any of the treatments.

iii) Weed counts

Two weed assessments were made in 1989, the first prior to the second application of sprays, and the second following the treatment applications on 2 August. Successful treatments were A, the two annual applications of Diuron, D, three sprays of Linuron, G, Tribunil + Sencorex and L, Butisan. Treatment H, single high rate of Linuron, was less effective than the three

applications at a lower rate. The first year applications, followed by simazine in the following winter, were also effective.

Future work

Unfortunately, owing to the closure of Luddington EHS, it will not now be possible to obtain the yields from this trial that had been planned to commence in 1990.

2. ASPARAGUS : HERBICIDES FOR CONTROL OF PERENNIAL WEEDS IN ESTABLISHED PLANTATIONS

Abstract

Treatments including Sinbar alone at 1.0 kg/ha and 2.0 kg/ha and Sinbar in combination with Clout at 3 kg/ha, Checkmate at 4.5 l/ha and Dalapon at 11 kg/ha gave good weed control in a one year old asparagus plantation. Applications including Roundup at 5 l/ha, Garlon at 6.0 l/ha and aminotriazole caused considerable damage to the asparagus and poor weed control. Shield, MCPA and Dalapon alone also caused some damage.

Objective

To evaluate herbicides for the control of perennial weeds in established plantations.

Introduction

The treatments listed below were applied in 1989 in order to obtain results earlier than planned. This was necessary because the closure of Luddington EHS makes it unlikely that any further results will be obtained from the trial.

Treatments

A. terbacil (Sinbar) at 1.0 kg/ha) Pre-emergence of spears
B. terbacil (Sinbar) at 2.0 kg/ha)
C. fluazifop-P-butyl (Fusilade) at 3 l/ha)
D. alloxydim-sodium (Clout) at 3 kg/ha) 3 weeks post spear
E. sethoxydim (Checkmate) at 4.5 l/ha) emergence
G. dalapon (Dalapon) at 11.0 kg/ha)
H. terbacil at 1.0 kg/ha + fluazifop-P-butyl at 3 l/ha) terbacil pre-
J. terbacil at 1.0 kg/ha + alloxydim-sodium at 3 kg/ha) emergence of spears.
K. terbacil at 1.0 kg/ha + sethoxydim at 4.5 l/ha) Others 3 weeks post
L. terbacil at 1.0 kg/ha + dalapon at 11 kg/ha) spear emergence
M. glyphosate (Roundup) at 5.0 l/ha)
P. aminotriazole (Weedazol) at 2.0 l/ha)
Q. triclopyr (Garlon) at 6.0 l/ha) applied late June and
S. MCPA (MCPA) at 2.8 l/ha) applied to base of spears
T. chlorpyralid (Shield) at 1.0 l/ha) only (where possible)

Materials and Methods

There were four replicates of each treatment.

Plots were scored for vigour (where 5 was very good and 1 virtually dead), post spraying for all treatments. An estimate of the percentage weed cover in the plots was then made on 1 August 1989.

Results and discussion

Table 1 Weed cover and vigour scores (see text)

Treatment	% weed cover 1 August	Vigour score 3 July
A	20	3.3
B	15	3.0
C	88	3.5
D	70	2.8
E	75	3.3
G	88	2.5
H	58	3.3
J	20	3.3
K	9	3.0
L	23	3.3
M	55	2.0
P	58	2.5
Q	48	1.8
S	70	2.5
T	90	2.5
Mean	53	2.8

All figures means of four replicates.

Treatments A (Sinbar 1.0 kg/ha), B (Sinbar 2.0 kg/ha), J (Sinbar 1 kg/ha + Clout 3 kg/ha), K (Sinbar 1.0 kg/ha + Checkmate 4.5 l/ha) and L (Sinbar 1.0 kg/ha + Dalapon 11 kg/ha) gave very good control of weeds without a corresponding decrease in the vigour of asparagus. Treatments including M (Roundup), Q (Garlon) and P (Weedazol) resulted in poor weed control and considerable damage to the asparagus. Other chemicals causing damage were S (MCPA), T (Shield), G (Dalapon alone) and, to a lesser extent, D (Clout). Treatments giving virtually no weed control were C (Fusilade), G (Dalapon alone) and T (chlorpyralid).

The weed cover % counts included both perennial and annual weeds as there was insuffient time to rid the plots of annuals. (The main treatments were not meant to be applied until 1990). Of major interest was the effectiveness of the Sinbar (terbacil) treatments, both alone and as mixtures with other herbicides. These applications gave good weed control with only limited damage to the asparagus. The results indicate that the application of several of the herbicides listed above will cause damage to one year old asparagus and weaken the crop.

Future work

It is not expected that any further results will be obtained from this trial, following the closure of Luddington in November 1989.

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