SOUTH AFRICAN SUGAR INDUSTRY AGRONOMISTS' ASSOCIATION

3500/6 CONTROL OF HETERONYCHUS LICAS IN YOUNG RATOON CANE

TERMINAL REPORT

Catalogue: 1179

Object : To investigate the effectiveness of dieldrin and monocrotophos for controlling Heteronychus licas in ratooning cane.

Location : Hippo Valley Estates, Section 18 Field 1D.

Soil type : PE.1 sandy clay loam derived from gneiss.

Design : Randomised blocks, 6 replications.

Treatments :

Control
N1 - Monocrotophos @ 1 litre product/ha.
N2 - " @ 2 " " "
N3 - " @ 3 " " "
D1 - Dieldrin @ 1 kg/ha a.i.
D2 - " @ 2 " "
D3 - " @ 3 " "
D4 - " @ 4 " "

Conduct :

1. The trial was superimposed on a field of ratoon cane where severe damage had caused loss of stand with poor and uneven regrowth.

2. The field was harvested on 24th October 1978, and treatments were applied 6 weeks later on 6th December, 1978.

3. Treatments were applied by knapsack in a 0,75m band over the cane row, at an application rate of 224 l/ha.

4. The formulations used were Nuvacron 60% E.C. and Dieldrin 50% W.P.

Records : At the time of application of treatments all damaged cane shoots ("dead-hearts") were cut off at ground level and removed from the plots. Thereafter dead-hearts per plot were recorded weekly to provide a measure of beetle activity.

Insect populations were checked by screening soil samples taken from within the cane rows, each sample being 60cm x 30cm x 15cm deep. Twenty samples were taken at random over the trial area before treatments were applied in order to provide an estimate of the initial population level. Thereafter the plots were sampled at weekly intervals by taking 2 samples per plot and 30 samples as controls from surrounding unsprayed areas.

RESULTS

Insect collection data and dead-heart counts are summarised in the attached table, where cumulative totals are shown for the respective sampling periods, represented also as percentages of control values.

Insects were counted weekly until soil sampling was terminated on 20th March, when adult beetles were no longer evident. Dead-heart counts were also made weekly up until 15th March when insect-damaged tillers could no

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longer be effectively separated from those dying back as a result of natural competition.

(a) Effects of monocrotophos The data from the plots treated with monocrotophos were variable and erratic and did not reveal any consistent trend of effective control. There was evidence of a short-term effect on both adults and larvae, but insect counts returned to control levels within 2 - 3 weeks of treatment. The intermediate concentration (2 l/ha) appeared to be better than the others, but this was more likely a reflection of high sampling variation than of true treatment response. This probably also accounted for the fact that dead-heart counts were higher on average in the treated plots than in the controls.

(b) Effects of dieldrin Good control of adults, larvae, and eggs was afforded by dieldrin. A concentration of 3kg/ha a.i. was best on average, although it was apparent that a lower concentration gave equally good control of larvae. Dead-heart counts also revealed a marked reduction in insect activity after dieldrin treatment, even at the lower concentrations.

CONCLUSIONS

Results indicated that monocrotophos was an unsuitable insecticide for H. licas control, mainly because of its short residual effect. Dieldrin sprayed on the surface over the cane rows provided good control in the short-term, but the trial was terminated before long-term effects could be studied.

The trial site was ploughed after harvest in 1979, when beetle damage was so severe that replanting was necessary.

KEC/Jan'80

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Cumulative insect totals per 12 samples, expressed as % of control values.

Treatment	ADULTS		LARVAE		EGGS	
	Total	% control	total	% control	total	%control
Control	106	100,0	538	100,0	176	100,0
Monocrotophos						
1,0 litres/ha	118	111,3	544	101,1	176	100,0
2,0 " "	84	79,3	450	83,6	150	85,2
3,0 " "	103	97,2	436	81,0	171	97,2
Mean	102	95,9	477	88,7	166	94,1
Dieldrin						
1,0 kg/ha a.i.	85	80,2	251	46,7	170	96,6
2,0 " "	68	64,2	239	44,4	133	75,6
3,0 " "	49	46,2	171	31,8	77	43,8
4,0 " "	51	48,1	210	39,0	61	34,7
Mean	63	59,7	218	40,5	110	62,6

Cumulative dead-hearts per ha, expressed as % of control value.

Treatment	DEAD-HEARTS	
	per ha x 10^{-3}	% control
Control	119,64	100,0
Monocrotophos		
1.0 litres/ha	119,04	99,5
2,0 " "	152,43	127,4
3,0 " "	126,48	105,7
Mean	132,65	110,9
Dieldrin		
1.0 kg/ha a.i.	89,65	74,9
2,0 " "	74,96	62,7
3,0 " "	82,40	68,9
4,0 " "	70,22	58,7
Mean	79,31	66,3