

# SMALL FARM WEED CONTROL PROGRAMME

By R. V. GORDON

Good Hope, Mtunzini

## Abstract

The detrimental effect of weeds on cane yields and the fact that the most serious weed problems occur during the peak growing periods, are problems of concern. The management policies and practices adopted by a cane grower to combat this problem and the results achieved will be described.

## Introduction

A farm of 140 ha of registered cane land was purchased in August 1986. There was an obvious weed problem that needed serious attention, but because of limited capital the grower could not afford to employ and house the extra labour required to combat the problem. From past experience it was realized that an integrated programme of herbicide and labour was the cheapest form of weed control. The solution was to introduce an effective herbicide programme with a follow up hand weeding at the correct time. A post-emergent spraying programme was decided upon using the following criteria:

- \* Weather conditions needed to be optimum for the chemicals used. As diuron, Sencor and Actril DS were the chemicals selected, wet soil conditions were preferable.
- \* Timing of application would affect results significantly. Grass needed to be less than the four leaf stage of growth.

The season was divided into periods of either short term post emergent or long term post emergent spray. The short term herbicide of diuron at about 2,5 l/ha plus Actril DS at 1,25 l/ha was sprayed from mid-July to the end of August on fields harvested up to mid July. With the voluntary ban on Actril DS imposed in the 89/90 season this chemical was replaced with Gramoxone at 0,5 l/ha.

All cane cut from mid July to November is sprayed with Sencor at 2,3 l/ha and diuron at 2,3 l/ha and 0,4 l/ha of Gramoxone. The cane cut from mid November to the end of the season is sprayed with the short term mixture of diuron and Gramoxone. After mid January spot spraying with Gramoxone is carried out as required. If necessary a diuron-Gramoxone spraying of the plant cane is catered for in April.

Two men were trained to apply both herbicide and fertilizer. Fertilizer was applied first to avoid soil disturbance in the field once the herbicide had been applied. The two men apply 50 bags of fertilizer per day but when weather conditions are suitable for herbicide application, the area already fertilized is sprayed with herbicide. The men spray 900 l of mixture per day at the rate of 300 l/ha. They walk together at all times to keep the pace as constant as possible. As all the mixtures have Gramoxone it is important to avoid herbicide contact with the cane leaves as far as possible, to prevent scorching.

## Method

Of the 140 ha under cane about 125 ha is cut each year, 12 ha is replanted and 3 ha is carried over each year to start the following season. The planting is planned for January and February to use labour normally used for harvesting, as

well as to use the haulage tractor to cart seed and other planting requirements.

Plant cane is kept clean by hand labour (because of availability) but if necessary an application of diuron at 2,5 l and 0,4 l of Gramoxone per ha would be applied in March or April. The plant cane would have had two hand weedings by the end of May followed by a third weeding in July. In October a spot spraying with Gramoxone at 0,5 l/ha would be the final operation before harvesting in June the following season.

By mid July about 30 ha would be harvested. After applying fertilizer diuron at 2,5 l and Gramoxone at 0,4 l/ha would be sprayed on this area in August, using optimum weather conditions and before the grasses are more than the four leaf stage. To spray this area takes 10 days. A hand weeding (10 labourers per hectare) would follow five weeks after spraying. This would be followed by a second hand weeding using the same labour requirements in January or February, and a third hand weeding in June or July. The total cost of this operation would be:

Herbicide material and spraying	R 77.00
Three hand weedings at R60.00/ha	R180.00
Total	R257.00/ha

The 70 ha cut from mid July to the end of October is sprayed with Sencor at 2,3 l/ha plus diuron at 2,3 l and Gramoxone at 0,4 l/ha. This area would be sprayed from September to the end of November. With the available resources it is required to spray only eight days a month, making it fairly easy to spray at the optimum period.

Using this mixture only two hand weedings at 5 labourers per hectare are required, the first seven weeks after spraying and the second in March or April. The very light weedings are mainly to remove grass that survived the spraying. The weeds are removed from the field and dumped on the cane breaks to avoid possible seeding or regrowing. The grass is pulled out by the roots and by hand or using a small sharp implement.

Cost herbicide spray	R190.00
2 weedings at R30.	R 60.00
Total	R250.00/ha

Of the 25 ha cut from November to the end of the season about 12 ha are replanted. The cane in the area for replanting is cut at the beginning of November to begin land preparation for the January/February planting.

The 13 ha to be ratooned are sprayed with diuron at 2,5 l and Gramoxone at 0,4 l/ha. By mid January all spraying is complete, other than spot spraying with Gramoxone at 0,5 l/ha to prevent grasses from the verges encroaching into the cane fields.

## Discussion and Conclusion

Using this programme, summarised in Table 1, such good weed control has been achieved that in both the 88/89 and 89/90 seasons the cane crop was not affected by weeds. Large areas of the industry had severe weed problems in these two

seasons. The use of long term expensive mixtures was originally introduced as an insurance policy against serious weed problems at crucial periods, but it has now become evident that the total cost of weed control is almost the same for both programmes.

**Table 1**  
**Weed Control Programme**

	Plant Area 12 ha	Cut May-July 30 ha	Cut July-Oct 70 ha	Cut Nov-Dec 13 ha
Aug		(Spray 30 ha - ie. 10 days)		
Sept		Weed 17 ha	(Spray 24 ha - ie. 8 days)	
Oct		Weed 13 ha	Weed 7 ha (Spray 24 ha - ie. 8 days)	
Nov		Weed 5 ha	Weed 25 ha (Spray 22 ha - ie. 8 days)	
Dec		Weed 5 ha	Weed 25 ha	(Spray 6 ha - ie. 2 days)
Jan	Plant 5 ha	Weed 12 ha	Weed 13 ha	(Spray 7 ha - ie. 3 days)
Feb	Plant 7 ha Weed 5 ha	Weed 8 ha	Weed 7 ha	Weed 5 ha
Mar	Weed 2 ha		Weed 20 ha	Weed 8 ha
Apr	Weed 5 ha	Weed 15 ha		Weed 10 ha
May	Weed 12 ha	Weed 4 ha	Weed 11 ha	Weed 3 ha
June		Weed 5 ha	Weed 25 ha	
July	Weed 12 ha	Weed 6 ha	Weed 7 ha	
Aug				Weed 13 ha

The discontinued use of Actril D.S has not affected weed control but in effect the cost of herbicide has been reduced. (Table 2.)

**Table 2**  
**Herbicide Cost Comparison**

70 ha Sencor @ 2.31 = 1611 = R 8211	70 ha Sencor @ 2.31 = 1611 = R 8211
70 ha diuron @ 2.31 = 1611 = R 4186	70 ha diuron @ 2.31 = 1611 = R 4186
70 ha Gramoxone @ 0,41 = 281 = R 325	70 ha Gramoxone @ .41 = 281 = R 325
43 ha diuron @ 2.51 = 1081 = R 2795	43 ha diuron @ 2.51 = 1081 = R 2795
43 ha Actril DS @ 1.251 = 541 = R 1512	43 ha Gramoxone at .41 = 171 = R 198
Gramoxone for spot Spraying = R 209	Gramoxone for spot spraying = R 209
<u>R17238</u>	<u>R15924</u>

### Discussion and Conclusion

Using this programme, summarised in Table 1, such good weed control has been achieved that in both the 88/89 and 89/90 seasons the cane crop was not affected by weeds. Large areas of the industry had severe weed problems in these two seasons. The use of long term expensive mixtures was originally introduced as an insurance policy against serious weed problems at crucial periods, but it has now become evident that the total cost of weed control is almost the same for both programmes.

The discontinued use of Actril D.S has not affected weed control but in effect the cost of herbicide has been reduced. (Table 2.)