

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Code: R8 ETv1/87

Cat No: 1628

TITLE : Fusilade Super rates on N14 - late season.

1. PARTICULARS OF THE CROP

<u>This crop</u> : Ratoon	<u>Spray method</u> : CP <sub>3</sub> knapsack & overhead boom fitted with 2 x TK 1,0 floodjets
<u>Site</u> : Mhlati TSB	<u>Pressure</u> : 150 kPa
<u>Region</u> : Northern irrigated	<u>Volume/ha</u> : 49l/ha <sup>-1</sup>
<u>Soil system</u> : Komatipoort	<u>Weather at spray</u> : Warm & clear
<u>Soil form</u> : Shortlands	<u>Condition of cane at spray</u> : Purity % = 88, 9 to 10 green leaves
<u>Design</u> : Randomised block	<u>Sampling technique</u> : See sampling procedure
<u>Plot size</u> : 4 rows x 9m x 1,5m	
<u>Varieties</u> : N14	
<u>Date &amp; age at spraying</u> : 9,5 months	
<u>Sampling dates</u> : 6 Oct; 26 Nov; 4 Dec; 11 Dec.	
<u>Irrigation</u> : 42mm on 6 day cycle	
<u>Rainfall</u> : 570mm	

2. OBJECTIVES

1. To continue assessing the response of N14 to Fusilade Super.
2. To determine the optimum time between spraying and harvesting during summer months (October to December).
3. To assess the residual effects of Fusilade Super on the following crop.

3. TREATMENTS

1. Control (no ripener)
2. Fusilade Super at 300ml/ha<sup>-1</sup>
3. Fusilade Super at 400ml/ha<sup>-1</sup>
4. Fusilade Super at 600ml/ha<sup>-1</sup>

4. SAMPLING PROCEDURE

3 stalks from each plot were taken randomly and composited for each treatment on the day of spraying (5 October) - the uppermost leaf with a visible dewlap (TVD) were marked with paint. The sheath attachment of these leaves were within a few centi-

metres below the apical meristem.

Seven weeks after spraying 4 stalks were taken from 4 predetermined points in the net rows of each plot in reps 1 to 5. The stalks were topped by hand at the natural breaking point. Ten stalks with marked TVD's (at spraying) were taken from each plot in rep 6. Various measurements were recorded before topping stalks by hand at the NBP. The stalks were then sectioned into 3 equal lengths which were analysed separately.

Eight weeks after spraying (4 December) eight stalks with marked TVD were taken from Control and Fusilade Super 400m<sup>3</sup>/ha<sup>-1</sup> plots in reps 1 to 4. Each internode above and also below the point at which the marked leaf was attached to the stalk were marked, sectioned and analysed separately.

Nine weeks after spraying samples were taken from all the reps in the same way as were taken from rep 1 to 5 seven weeks after spraying.

5. RESULTS FROM SAMPLING

Dates + wks after spray Treatments	<u>POL % CANE</u>			<u>STALK MASS (G/STALK)</u>		
	6/10 0	26/11 7	11/12 9	6/10 0	26/11 7	11/12 9
Control	13,6	13,5	13,6	1139	1181	1276
Fus S 300ml	13,9	14,5*	15,7**	1139	1200	1172
Fus S 400ml	12,9	15,9**	15,8**	1069	1163	1135*
Fus S 600ml	13,3	16,2**	15,9**	1069	1169	1099**
MEAN	13,4	15,0	15,2	1104	1178	1171
C.V. %		4,6	7,1		8,2	8,7
S.E.D.		0,43	0,62		61,0	59,1
LSD(P=0,05)*		0,94	1,3		133	126
LSD(P=0,01)**		1,3	1,8		186	174
Dates + wks after spray Treat- ment	<u>POL G/STALK</u>			<u>PURITY %</u>		
	0	7	9	0	7	9
Control	154,9	159,7	172,9	87,8	87,3	86,8
Fus S 300ml	158,3	174,2	184,0	90,0	87,5	91,0*
Fus S 400ml	137,9	185,1*	178,6	87,2	90,6*	90,5*
Fus S 600ml	142,2	189,4*	176,0	87,7	90,9*	90,6*
MEAN	147,9	177,1	177,9	88,2	89,1	89,8
C.V. %		9,9	11		1,5	2,3
S.E.D.		11,1	11,3		0,85	1,2
LSD(P=0,05)*		24,3	24,1		1,8	2,55
LSD(P=0,01)**		34,0	33,3		2,6	3,5

6. DATA FROM SECTIONED STALKS

6.1. 7 weeks after spraying (sectioned by lengths)

		<u>ers &amp; c</u>		<u>g/stalk</u>		<u>ers g/stalk</u>		<u>Purity %</u>	
		<u>Segment</u>	<u>Cumulative</u>	<u>Seg</u>	<u>Cum</u>	<u>Seg</u>	<u>Cum</u>	<u>Seg</u>	<u>Cum</u>
Control	bottom	13,1	13,1	473	473	61,7	61,7	84,5	84,5
	middle	13,3	13,2	479	952	63,6	125,3	85,5	85,0
	top	3,7	10,1	444	1396	16,2	141,5	56,7	78,2
Fus.S 300	bottom	12,7	12,7	393	393	50,0	50,0	82,7	82,7
	middle	13,1	12,9	372	765	48,8	98,8	84,0	83,3
	top	10,1	12,0	376	1141	37,9	136,8	77,7	81,6
Fus S 400	bottom	13,0	13,0	389	389	50,7	50,7	84,0	84,0
	middle	12,8	12,9	385	774	49,3	100,1	82,9	83,5
	top	7,6	11,2	387	1161	29,5	129,5	69,6	79,4
Fus S 600	bottom	12,9	12,9	348	348	45,0	45,0	82,9	82,9
	middle	13,1	13,0	355	703	46,4	91,4	83,3	83,1
	top	10,6	12,2	337	1040	35,9	127,3	79,4	82,0

6.1.1. Stalk measurements 7 weeks after spraying

<u>Lengths to:</u>	<u>CONTROL</u>	<u>FUSILADE SUPER</u>		
		<u>300ml</u>	<u>400ml</u>	<u>600ml</u>
Apical meristem on 5/10	<u>193</u>	193	193	193
Apical meristem on 25/11(7 weeks)	218			
NBP on 25/11	207	202	187	181
<u>Mass g/stalk</u> after topping	1396	1141	1161	1040

6.2. 8 weeks after spraying (sectioned by internodes)

Internode		<u>ers &amp; c</u>		<u>g/stalk</u>		<u>ers g/stalk</u>		<u>purity</u>	
		<u>Seg</u>	<u>Cum</u>	<u>Seg</u>	<u>Cum</u>	<u>Seg</u>	<u>Cum</u>	<u>Seg</u>	<u>Cum</u>
Rest (9-12)	Control	14,6	14,5	821	821	119,4	119,4	93,2	93,2
	F S 400	15,8	15,8	874	874	138,3	138,3	93,8	93,8
8	Control	12,8	14,4	50	871	6,5	125,9	91,0	93,1
	F S 400	14,9	15,8	54	928	8,1	146,4	92,1	93,7
7	Control	12,6	14,4	42	913	5,2	131,1	89,8	93,0
	F S 400	14,6	15,7	40	968	5,8	152,2	91,2	93,6
6	Control	11,7	14,2	43	956	5,0	136,1	88,5	92,8
	F S 400	13,8	15,6	44	1012	6,0	158,2	90,6	93,5
5	Control	10,4	14,1	48	1004	5,0	141,2	84,3	92,4
	F S 400	13,0	15,5	52	1063	6,7	165,0	88,9	93,3
4	Control	8,5	13,8	52	1056	4,4	145,6	78,9	91,9
	F S 400	11,9	15,3	55	1119	6,6	171,6	86,4	93,0
3	Control	6,2	13,4	51	1107	3,1	148,7	70,6	91,2
	F S 400	9,7	15,1	55	1174	5,3	176,9	80,8	92,6
2	Control	2,4	13,0	42	1149	1,0	149,7	53,9	90,4
	F S 400	No data		27	1201	No		data	
1	Control	-0,7	12,6	40	1189	-0,3	149,5	34,5	90,1
	F S 400	—No data—		7	1208	—No		data—	
A	Control	-1,95	12,0	49	1238	-1,0	148,5	16,8	88,9
	F S 400	—		—No data—		—		—	
B	Control	-2,7	11,5	42	1280	-1,1	147,4	11,6	88,0
	F S 400	—		—No data—		—		—	

## COMMENTS

- \* The similar responses to Fusilade Super applied at  $400\text{m}\ell\text{ha}^{-1}$  and  $600\text{m}\ell\text{ha}^{-1}$  in terms of cane quality were significantly ( $P=0,01$ ) greater than that from  $300\text{m}\ell\text{ha}^{-1}$  seven weeks after spraying. Nine weeks after spraying the highly significant ( $P=0,01$ ) responses to Fusilade Super were no different for the three rates applied.
- \* The effects of Fusilade Super on stalk mass at the three applied rates were negligible seven weeks after spraying. Sucrose yields (Pol g/stalk) were only significant ( $P=0,05$ ) for the two higher rates.
- \* Nine weeks after spraying stalk mass of treated cane was substantially less than that of untreated cane. The improvement in cane quality was negated by the reduced stalk mass and sucrose yields of treated cane was little different from that of untreated cane. The effect of  $300\text{m}\ell$  and  $600\text{m}\ell\text{ha}^{-1}$  on stalk mass nine weeks after spraying was significantly ( $P=0,05$ ) different.
- \* Sectioning data seven weeks after spraying indicates that the quality of only the upper 1/3rd of the stalk is affected by Fusilade Super while that from 8 weeks after spraying suggest that cane quality of the upper half of the stalk is improved by Fusilade Super.

RAD/lp

15/7/88