

FREQUENCY OF CULTIVATION

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|--|--|---------------|-------------|---------------|--|-----|---|---|--|--------------|--|--|--|---|---|----|----|-----|----|-----|-------|
| <p><u>Catalogue No.</u>: 1303 <u>Code No.</u>: A6/69/RL <u>This crop</u>: Ratoon 4 <u>Site</u>: Shaka's Kraal Expt. Farm <u>Altitude</u>: 137 m <u>Soil series</u>: Williamson: fine sandy loam <u>Design</u>: Randomized block <u>Variety</u>: NCo376 <u>Fertilizer</u>: N P K 123 30 185 <u>Water regime</u>: Irrigated</p> | <p><u>Soil Analysis</u>:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>pH</u></td> <td style="text-align: center;"><u>OM %</u></td> <td style="text-align: center;"><u>Clay %</u></td> <td></td> </tr> <tr> <td style="text-align: center;">6,1</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td></td> </tr> <tr> <td colspan="4" style="text-align: center;"><u>p.p.m</u></td> </tr> <tr> <td style="text-align: center;">P</td> <td style="text-align: center;">K</td> <td style="text-align: center;">Ca</td> <td style="text-align: center;">Mg</td> </tr> <tr> <td style="text-align: center;">104</td> <td style="text-align: center;">49</td> <td style="text-align: center;">690</td> <td style="text-align: center;">Ample</td> </tr> </table> <p><u>Age</u>: 12,9 m (8.10.69-5.1170) <u>Rainfall</u>: 1087 mm <u>Irrigation</u>:</p> | <u>pH</u> | <u>OM %</u> | <u>Clay %</u> | | 6,1 | - | - | | <u>p.p.m</u> | | | | P | K | Ca | Mg | 104 | 49 | 690 | Ample |
| <u>pH</u> | <u>OM %</u> | <u>Clay %</u> | | | | | | | | | | | | | | | | | | | |
| 6,1 | - | - | | | | | | | | | | | | | | | | | | | |
| <u>p.p.m</u> | | | | | | | | | | | | | | | | | | | | | |
| P | K | Ca | Mg | | | | | | | | | | | | | | | | | | |
| 104 | 49 | 690 | Ample | | | | | | | | | | | | | | | | | | |

Object

To assess the effect of inter-row cultivations on cane growth using duckfoot and straight-tip cultivator tines at different depths, where weeds will be controlled completely by herbicides, and where necessary by hand.

Treatments

1. Control: no tractor cultivation
2. Cultivate at 3 weekly intervals with straight-tip cultivator tines.
3. Cultivate at 6 weekly intervals with straight-tip cultivator tines.
4. Cultivate at 3 weekly intervals with duckfoot cultivator tines.

Notes on treatments:

a) Types of cultivator used

(1) Straight-tip tines cultivator

This implement has 8 tines (i.e. 4 tines per inter-row). The tines are 18 cm apart and the two sets of tines are 60 cm apart. The whole length of the implement is 1,98 m. The shanks are mounted on a common tool-bar and are coiled.

(2) Duckfoot tines cultivator

This implement has 6 tines (i.e. 3 tines per inter-row). The tines are 18 cm apart and the two sets of tines are 60 cm apart. Each duckfoot is 30 cm wide. The whole length of the implement is 1,98 m. The shanks are mounted on a common tool-bar and are spring-loaded.

b) CULTIVATION DATES

| Treatment | Dates |
|--|--|
| Straight-tip tines at approximately 3 week intervals | 13.10.69 8.11.69 5.12.69 24.12.69 |
| Straight-tip tines at approximately 6 week intervals | 13.10.69 5.12.69 |
| Duckfoot tines at approximately 3 week intervals | 13.10.69 8.11.69 5.12.69 24.12.69 |

c) Weeds were controlled by herbicides and hand hoeing where necessary

RESULTSYield Data

| Treatment | t Cane/ha | ERS % | t ERS/ha |
|-----------------------|-----------|-------|----------|
| Control | 86 | 12,9 | 11,0 |
| 3 weekly straight-tip | 84 | 13,2 | 11,0 |
| 6 weekly straight-tip | 88 | 13,2 | 11,6 |
| 3 weekly duckfoot | 84 | 12,5 | 10,4 |
| Mean | 85 | 12,9 | 11,0 |
| SE of Treatment Mean | ±1,80 | ±0,12 | ±0,25 |
| L.S.D. (0,05) | 5 | 0,3 | 0,7 |
| (0,01) | 7 | 0,5 | 1,0 |
| C.V. % | 5,2 | 2,2 | 5,5 |

COMMENTS

- i) The treatments had no effect on yield of cane in this very precise experiment. Shoot counts and stalk height were monitored throughout the period of the experiment and at no time were any treatment differences apparent.
- ii) The statistically significant differences in ERS % C and t ERS/ha cannot be explained, and it is considered unlikely that quality of cane could have been influenced by these treatments.

- iii) The depth of penetration of tines varied according to the dryness of the soil, but on average it was 8-10 cm for both the straight-tip and duckfoot tines. Roots were brought to the surface by the tines in some quantity.
- iv) On this fine sandy loam excessive inter-row cultivation has not adversely affected cane yield. However, because of different root development patterns in different soils, these results cannot be extrapolated to all soil types.

PKM/DB/25th January, 1972.