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83/W/CS/66 Dazomet and Nitrogen - Maize

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83/W/CS/66

DAZOMET AND NITROGEN

Object: To study the cumulative effects of dazomet and nitrogen on pathogens and yield of maize grown continuously - Woburn Butt Furlong.

Sponsors: A.J. Barnard, D. Hornby.

The 13th year, forage maize.

For previous years see 71/W/CS/66(t), 72/W/CS/66(t) and 73-82/W/CS/66.

Design: 2 blocks of 4 plots split into 4.

Whole plot dimensions: 2.13 x 16.5.

Treatments: All combinations of:-

Whole plots

1. DAZOMET(79) Dazomet (kg per annum) cumulative 1971-79, none since:

0
450

2. DAZOMET(83) Dazomet (kg) in 1982 and 1983:

0
450

Sub plots

3. N+FUNG Nitrogen fertilizer as 'Nitro-Chalk' and fungicide cumulative to 1982:

| | |
|----------|---|
| NONE | None |
| N78+N120 | 78 kg N on 29 Mar, 120 kg N to seedbed on 6 June |
| N120 | 120 kg N to seedbed on 6 June |
| N120+CYP | 120 kg N to seedbed + 50 kg cyprofuram to seedbed |

NOTE: Sub plot treatments were superimposed on previous cumulative N treatments 1971-81.

Basal applications: Manures: (0:18:36) at 490 kg. Weedkiller: Atrazine at 1.1 kg in 280 l.

Seed: Fronica, sown at 103,000 seeds per hectare.

Cultivations, etc.:- Ploughed: 19 Nov, 1982. Spring-tine cultivated with crumbler attached: 9 Mar, 1983. Dazomet applied, rotary cultivated twice: 16 Mar. Early N applied: 29 Mar. Spring-tine cultivated with crumbler attached, weedkiller applied, PK applied: 16 May. Fungicide treatment applied: 17 May. Spring-tine cultivated with crumbler attached, seed sown: 25 May. Seedbed N applied: 6 June. Hand harvested: 4 Oct.

83/W/CS/66

- NOTES: (1) Soil samples were taken for estimates of total biomass.
 (2) Plant samples were taken for assessments of bacteria and fungi on roots.
 (3) Plant heights were measured at weekly intervals during July and August.
 (4) Soil samples were taken before sowing, mid season and after harvest for counts of ectoparasitic nematodes.

FORAGE DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

| DAZOMET(83) | 0 | 450 | MEAN | | |
|-------------|-------------|----------|----------|----------|----------|
| DAZOMET(79) | | | | | |
| 0 | 15.36 | 17.21 | 16.29 | | |
| 450 | 14.63 | 18.07 | 16.35 | | |
| MEAN | 15.00 | 17.64 | 16.32 | | |
| N+FUNG | NONE | N78+N120 | N120 | N120+CYP | MEAN |
| DAZOMET(79) | | | | | |
| 0 | 10.50 | 18.16 | 19.30 | 17.19 | 16.29 |
| 450 | 10.59 | 17.65 | 18.73 | 18.43 | 16.35 |
| MEAN | 10.55 | 17.90 | 19.01 | 17.81 | 16.32 |
| N+FUNG | NONE | N78+N120 | N120 | N120+CYP | MEAN |
| DAZOMET(83) | | | | | |
| 0 | 7.61 | 17.25 | 18.40 | 16.72 | 15.00 |
| 450 | 13.49 | 18.55 | 19.62 | 18.90 | 17.64 |
| MEAN | 10.55 | 17.90 | 19.01 | 17.81 | 16.32 |
| DAZOMET(79) | N+FUNG | NONE | N78+N120 | N120 | N120+CYP |
| | DAZOMET(83) | | | | |
| 0 | 0 | 7.74 | 17.85 | 19.25 | 16.61 |
| | 450 | 13.27 | 18.46 | 19.35 | 17.78 |
| 450 | 0 | 7.49 | 16.65 | 17.55 | 16.83 |
| | 450 | 13.70 | 18.64 | 19.90 | 20.02 |

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

| TABLE | N+FUNG | DAZOMET(79)* N+FUNG | DAZOMET(83)* N+FUNG | DAZOMET(79)* DAZOMET(83) N+FUNG |
|-------|--------|------------------------|------------------------|---------------------------------------|
| SED | 0.646 | 0.913 | 0.913 | 1.291 |

* WITHIN SAME LEVEL OF DAZOMET(79) OR DAZOMET(82) OR BOTH

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

| STRATUM | DF | SE | CV% |
|-------------|----|-------|-----|
| BLOCK.WP.SP | 12 | 1.291 | 7.9 |

FORAGE MEAN DM% 28.0 SUB PLOT AREA HARVESTED 0.00039