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72/R/SB/1 Sugar Beet Effects of Collembola on Seedlings

Rothamsted Research

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72/R/SB/1

SUGAR BEET

EFFECTS OF COLLEMBOLA ON SEEDLINGS

Object: To study the effects of insecticides on seedling damage by Collembola and on final yield of sugar beet.

Sponsor: C.A. Edwards.

Design: 4 randomised blocks of 5 plots.

Whole plot dimensions: 6.40 x 4.58. Area harvested: 0.00146.

Treatments (T):

None	(O)
Chlorfenvinphos at 4.5 kg	(C)
Diazinon at 4.5 kg	(DN)
DDT at 6.7 kg and 11.2 kg	(DT)
Parathion at 4.5 kg	(P)

Treatments were applied to soil and worked in in December, 1971 with the exception of the second amount of DDT which was applied in May.

Basal applications: Chalk: 7.5 tonnes. 750 kg (20:15:15).
Weedkiller: Paraquat at 0.42 kg ion in 220 l.

Seed: Amono sown at 13 kg.

Cultivations, etc.: Chalk applied: 3 Sept, 1971. Weedkiller applied: 30 Sept. Ploughed: 13 - 15 Nov. Treatments applied and spring-tine cultivated in: 16 Dec. NPK applied: 6 Apr, 1972. Power harrowed: 17 Apr. Seed drilled: 18 Apr. Tractor hoed: 30 May. Lifted: 18 - 20 Oct. Previous crops: Wheat 1970, barley 1971.

NOTES: (1) Soil cores were taken before applying treatments and monthly through the growing season for counts of soil fauna.

(2) Plants were counted three times during the season.

Standard error per plot.

Roots (washed), tonnes/hectare: 3.34 or 17.3% (12 d.f.)
Total sugar, tonnes/hectare: 0.609 or 18.1% (12 d.f.)

72/R/SB/1

2

TABLES OF MEANS

T					
O	C	DN	DT	P	Mean
ROOTS (WASHED): TONNES/HECTARE					
18.4	18.0	19.4	21.4	19.5	19.3

STANDARD ERROR OF DIFFERENCES

T 2.37

SUGAR %					
17.0	17.1	17.4	17.6	17.4	17.3

TOTAL SUGAR: TONNES/HECTARE

3.12	3.09	3.38	3.79	3.40	3.35
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STANDARD ERROR OF DIFFERENCES

T 0.430