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67/S/DE/1 Sugar Beet - Soil Compaction

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67/De/1.1

SUGAR BEET

Effect of soil compaction on growth of sugar beet, Saxmundham Grove Plot, 1967, the first year.

Design: 4 randomised blocks of 3 plots, split into 4.

Area of each sub-plot: 0.0145. Area harvested: 0.0015.

Treatments: All combinations of:-

- Plots 1. Soil preparation: Soil worked down in winter and allowed to compact (A), soil worked down in spring and compressed (B), soil kept as open as possible when working seedbed (C).
- Sub-plots 2. Fertilisers: 0.6 cwt (N1), 1.2 cwt (N2), 1.8 cwt (N3) 1.2 cwt N plus, 1.6 cwt P2O5 applied as triple superphosphate, half in winter, half in spring (N2P). All N applied in seedbed as 'Nitro-Chalk'.

Basal applications: 0.8 cwt P2O5, 1.0 cwt K2O as triple superphosphate and muriate of potash. Insecticide: Demeton-s-methyl at 3 oz in 37 gals on 2 occasions.

Cultivations, etc.: Ploughed: Nov 29 - Dec 16, 1966. A plots rotary cultivated twice, half phosphate dressing applied to NP sub-plots: Feb 15, 1967. B and C plots worked 3 times with a heavy spring-tine cultivator: Mar 29. All plots harrowed four times with light drag-harrows (twice in each direction), basal PK, 'Nitro-Chalk' and second half phosphate dressing (NP sub-plots) applied, seed drilled at 7 lb. B plots compressed by rolling four times with Cambridge roller: Mar 30. Singled: May 17. Insecticide applied: June 12 and July 7. Lifted: Oct 4. Variety: Sharp's Klein E. Previous crops: Barley 1965 and 1966.

Standard errors per plot.

Roots (washed):	Whole plot:	1.083	or	7.0%	(6 d.f.)
	Sub-plot:	2.053	or	13.3%	(27 d.f.)
Total sugar:	Whole plot:	4.02	or	7.7%	(6 d.f.)
	Sub-plot:	7.37	or	14.1%	(27 d.f.)

67/De/1.2

SUMMARY OF RESULTS

	N1	N2	N3	N2P	Mean
ROOTS (WASHED)					
(1) and (2)					
A	10.66	14.98	17.18	15.20	14.50
B	13.86	14.76	17.79	14.87	15.32
C	13.79	17.03	16.03	19.27	16.53
Mean (± 0.593)	12.77	15.59	17.00	16.45	15.45
SUGAR %					
A	16.9	17.1	16.7	17.3	17.0
B	17.0	16.7	16.4	16.8	16.7
C	17.3	17.2	16.7	16.5	16.9
Mean	17.1	17.0	16.6	16.9	16.9

- (1) (± 1.041) For use in vertical and diagonal comparisons
 (2) (± 1.027) For use in horizontal and interaction comparisons