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65/W/WBE/C/16 Trefoil and Ryegrass Green Manures - Sugar Beet

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65/c/16.1

GREEN MANURES FOR SUGAR BEET

(WBE)

Effects of trefoil and ryegrass green manures and N - Woburn
Great Hill Bottom I 1965, sugar beet after barley.

Design: Two replicates of 4 x 2 x 4 in 4 blocks of 16 plots.

Area of each plot: 0.0159. Area harvested: 0.0106.

Treatments: All combinations of:-

1. Green manures undersown in barley 1964: None (O), trefoil (T), ryegrass (R), ryegrass with 0.6 cwt N as 'Nitro-Chalk' applied after barley harvest (RN).
2. Time of ploughing: Autumn (A), spring (S).
3. Nitrogen: None (NO), 0.6 (N1), 1.2 (N2), 1.8 (N3) N as 'Nitro-Chalk'.

Basal applications:

To barley: 3 cwt (17:11:22) combine drilled. Weedkiller: MCPB/MCPA (New Legumex at 5 pints in 40 gals).

To green manures: None.

To sugar beet: 5 cwt agricultural salt, 0.45 cwt K2O as muriate of potash in winter, 0.45 cwt P2O5 and 0.45 cwt K2O as (0:20:20) in seedbed.

Cultivations, etc.: Ploughed: Oct 22, 1963. Rotary cultivated twice: Mar 9 and Apr 1, 1964. Barley drilled at 140 lb: Apr 7. Trefoil undersown at 30 lb and ryegrass at 40 lb: Apr 9. Sprayed: May 15. Combine harvested: Aug 27. 'Nitro-Chalk' applied to RN plots: Sept 11. A plots ploughed: Nov 13. S plots ploughed: Feb 5, 1965. Salt and muriate of potash applied: Feb 9. Rotary cultivated: Apr 1. Rotary cultivated, basal PK compound applied: Apr 14. 'Nitro-Chalk' applied, seed drilled at 5 lb: Apr 15. Singled: May 25. Lifted: Nov 11. Varieties: Barley - Proctor, ryegrass - English Leafy Italian, trefoil - English (inoculated), sugar beet - Klein E. Previous crops: Potatoes 1961, spring wheat 1962.

NOTES: (1) Green manures were sampled for weight of dry matter and percentage N just before ploughing.

(2) There was severe frost during lifting and roots on some plots were damaged. Sugar % was estimated for two plots.

Standard errors per plot.

Roots:	1.318 or 6.3% (29 d.f.)
Total sugar:	4.94 or 6.9% (27 d.f.)
Tops:	1.200 or 7.0% (29 d.f.)

65/C/16.2

SUMMARY OF RESULTS

	NO	N1	N2	N3	Mean
ROOTS					
(±0.329)					
Mean	17.45	21.49	21.95	22.59	20.87
(±0.659)					
O	16.95	20.76	21.12	23.00	20.46
T	17.21	21.33	22.48	23.24	21.06
R	16.21	21.27	22.50	22.28	20.56
RN	19.42	22.59	21.70	21.86	21.39
(±0.466)					
A	17.74	21.77	22.85	22.41	21.19
S	17.15	21.20	21.05	22.77	20.54
(±0.233)					
	O	T	R	RN	
(±0.466)					
A	20.76	21.34	20.78	21.88	
S	20.15	20.79	20.35	20.89	

65/C/16.3

	NO	N1	N2	N3	Mean
	SUGAR %				
Mean	17.5	17.4	17.1	16.9	17.3
O	17.3	17.5	16.9	15.9	16.9
T	18.0	17.3	17.1	17.7	17.5
R	16.8	17.8	17.5	17.0	17.3
RN	18.1	17.2	17.0	16.8	17.3
A	17.5	17.3	17.0	16.9	17.2
S	17.6	17.6	17.2	16.8	17.3
	O	T	R	RN	
A	16.7	17.4	17.1	17.5	
S	17.1	17.6	17.4	17.0	

65/c/16.4

	NO	N1	N2	N3	Mean
	TOTAL SUGAR				
	(±1.23)				
Mean	61.0	75.0	75.1	75.9	71.7
	(±2.47)				(±1.23)
O	58.6	72.7	71.4	73.2	69.0
T	62.2	73.7	76.8	82.0	73.7
R	53.3	75.6	78.7	74.7	70.6
RN	69.9	78.0	73.4	73.7	73.7
	(±1.75)				(±0.87)
A	62.0	75.5	77.8	75.3	72.7
S	59.9	74.5	72.4	76.5	70.8
	O	T	R	RN	
	(±1.75)				
A	69.4	74.2	70.6	76.4	
S	68.5	73.2	70.6	71.0	

65/c/16.5

	NO	N1	N2	N3	Mean
	TOPS				
	(±0.300)				
Mean	11.58	15.63	19.41	22.12	17.18
	(±0.600)				(±0.300)
O	10.71	16.12	18.52	21.68	16.76
T	11.81	14.40	17.64	22.88	16.68
R	10.38	14.14	18.12	20.98	15.91
RN	13.41	17.85	23.36	22.94	19.39
	(±0.424)				(±0.212)
A	12.30	16.26	19.35	22.58	17.62
S	10.85	15.00	19.47	21.66	16.74
	O	T	R	RN	
	(±0.424)				
A	17.16	16.69	17.23	19.41	
S	16.35	16.67	14.58	19.36	