



68/c/38.1

N-RELEASE FROM GREEN MANURES

(WCO)

The effect of green manures on the yield of succeeding crops -  
Woburn, Great Hill Bottom I, 1968 - sugar beet and barley.

Design (each crop): 2 blocks of 5 plots, split into 4.

Area of each sub plot:	Area harvested:
Sugar beet: 0.0067	0.0027
Barley: 0.0083	0.0036

Treatments: All combinations of:-

Whole plots 1967: 1. Green manures: None (F), ryegrass with 0.6 cwt N as 'Nitro-Chalk' (R), ryegrass with 0.6 cwt N as 'Nitro-Chalk', cut in autumn 1967 (RC), trefoil (T), clover (Dorset Marl) (C).

Blocks 1968: 2. Crops: Barley (B), sugar beet (Sb).

Quarter plots 1968: 3. Nitrogen to barley: None (NO), 0.4 (N1), 0.8 (N2), 1.2 (N3) cwt N as 'Nitro-Chalk'.  
Nitrogen to sugar beet: None (NO), 0.5 (N1), 1.0 (N2), 1.5 (N3) cwt N as 'Nitro-Chalk'.

NOTE: F plots (only) received paraquat at 1 lb ion.

1967. The experiment began with the planting of early potatoes in spring 1967. These were lifted in July and followed by the green manures.

Basal applications: 40 cwt ground chalk, 1200 lb compound (6:15:15).

Cultivations, etc.: Ploughed: 5 Aug, 1966. Ground chalk applied: 9 Jan, 1967. Deep-tine cultivated: 8 - 14 Feb. NPK compound applied: 20 Mar. Rotary cultivated, potatoes planted: 21 Mar. Earthed up: 10 May. Lifted: 18 July. Variety: Arran Pilot. Harrowed, spring-tine cultivated: 18 July. 'Nitro-Chalk' applied to 'R' and 'RC' plots, Ryegrass sown at 40 lb and trefoil, clover at 30 lb: 19 July. 'F' plots rotary cultivated: 18 Aug. 'RC' plots cut: 30 Oct. 'F' plots weedkiller sprayed: 10 Nov. Previous crops: Sugar beet 1965, fallow 1966.

1968. Basal applications:

Barley: 390 lb (0:14:28). Weedkiller: Ioxynil/mecoprop (Actril C at 5 pints in 25 gals).

Sugar beet: 390 lb (0:14:28) on the plough furrow. Salt at 5 cwt. 200 lb (0:14:28) in the seedbed. Insecticide: demeton-s-methyl at 3.5 oz in 37 gals.

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Cultivations, etc.:

Barley: Ploughed: 19 Feb, 1968. Basal PK applied: 21 Feb.  
Seed drilled at 140 lb: 7 Mar. 'Nitro-Chalk' applied: 12 Mar.  
Weedkiller applied: 3 May. Combine harvested: 22 Aug.  
Variety: Maris Badger.  
Sugar beet: Ploughed: 16 Feb. 1st part of basal PK applied: 21 Feb.  
Salt applied: 22 Feb. 2nd part of basal PK applied: 20 Mar.  
'Nitro-Chalk' applied, seed drilled at 8 lb: 25 Mar. Singled:  
22 - 24 May. Insecticide applied: 17 June. Lifted: 13 Dec.  
Variety: Klein E.

- NOTES: (1) The green manures were sampled before ploughing-in for dry matter and N. Soil samples were taken in April and June for mineral-N.- Samples of green barley were taken in June for dry matter and N.  
(2) Barley grain from one of the plots (R3) was carried over on to an adjoining plot (C2). Estimated yields were used in the analysis.

Standard errors per plot. Barley, Grain:

Whole plot: 2.35 or 8.7% (4 d.f.)

Sub plot: 3.80 or 14.0% (13 d.f.)

Sugar beet:

Roots (washed): Whole plot: 0.337 or 1.6% (4 d.f.)

Sub plot: 0.998 or 4.9% (15 d.f.)

Total sugar: Whole plot: 1.61 or 2.6% (4 d.f.)

Sub plot: 2.62 or 4.1% (15 d.f.)

Tops: Whole plot: 0.943 or 4.9% (4 d.f.)

Sub plot: 1.578 or 8.0% (15 d.f.)

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SUMMARY OF RESULTS

BARLEY

GRAIN

	NO	N1	N2	N3	Mean
	(1) and (2)				(±1.66)
F	25.8	33.1	25.2	25.2	27.3
R	32.1	33.4	26.3	19.2	27.7
RC	28.7	33.7	24.8	27.6	28.7
T	32.4	29.7	24.3	22.9	27.3
C	31.0	29.4	18.5	19.1	24.5
Mean (±1.20)	30.0	31.9	23.8	22.8	27.1

Mean D.M. %: 84.4

- (1) (±2.86) For use in vertical and diagonal comparisons only  
 (2) (±2.69) For use in horizontal and interaction comparisons only

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SUGAR BEET					
	NO	N1	N2	N3	Mean
ROOTS (WASHED)					
(1) and (2)					
					(±0.238)
F	17.61	22.47	22.31	23.00	21.35
R	19.98	20.22	19.77	20.51	20.12
RC	17.49	19.85	20.92	19.08	19.33
T	18.71	21.28	21.37	21.08	20.61
C	19.65	22.35	21.04	19.45	20.62
Mean (±0.316)	18.69	21.24	21.08	20.62	20.41

(1) (±0.656) For use in vertical and diagonal comparisons only  
 (2) (±0.706) For use in horizontal and interaction comparisons only

SUGAR %					
F	15.7	15.5	15.5	15.3	15.5
R	15.8	15.8	15.2	15.0	15.4
RC	15.7	15.7	15.5	15.1	15.5
T	15.8	15.6	15.4	15.3	15.5
C	15.9	15.5	15.3	15.2	15.5
Mean	15.8	15.6	15.4	15.2	15.5

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SUGAR BEET					
	NO	N1	N2	N3	Mean
TOTAL SUGAR					
(1) and (2)					
					(±1.14)
F	55.4	69.6	69.4	70.1	66.1
R	63.2	63.7	59.9	61.5	62.1
RC	54.8	62.4	64.7	57.5	59.9
T	59.0	66.2	65.9	64.6	63.9
C	62.5	69.2	64.2	59.3	63.8
Mean (±0.83)	59.0	66.2	64.8	62.6	63.2

(1) (±1.97) For use in vertical and diagonal comparisons only

(2) (±1.85) For use in horizontal and interaction comparisons only

TOPS					
	(1) and (2)				(±0.667)
F	10.54	18.63	19.12	24.10	18.10
R	13.24	17.81	23.53	25.08	19.92
RC	12.42	16.01	20.43	26.15	18.75
T	13.81	19.20	21.65	24.59	19.81
C	12.50	17.81	24.02	24.76	19.77
Mean (±0.499)	12.50	17.89	21.75	24.94	19.27

(1) (±1.174) For use in vertical and diagonal comparisons only

(2) (±1.116) For use in horizontal and interaction comparisons only

