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Yields of the Field Experiments 1966

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66/W/WGM/B/3 Green Manuring

Rothamsted Research

Rothamsted Research (1967) *66/W/WGM/B/3 Green Manuring* ; Yields Of The Field Experiments 1966, pp 65 - 74 - DOI: <https://doi.org/10.23637/ERADOC-1-158>

66/B/3.1

GREEN MANURING EXPERIMENT

(WGM)

Woburn Stackyard 1966.

For history, treatments, etc., see 'Details' 1962 and 'Results' 64/B/3 and 65/B/3.

Area of each sub plot: 0.0195. Area harvested: 0.0146.

Treatments:

A new arrangement of the N levels was used on both halves in 1966, allowing the estimation of the residual effects of N applied in 1965.

Levels of N: None (N0), 0.3 (N1), 0.6 (N2), 0.9 (N3), 1.2 cwt N (N4), as 'Nitro-Chalk'.

Plots were grouped according to their previous treatment:-

A: no green manures since 1936

B: green manures 1936 - 63

C: green manures 1936 - 65

(dates are of crops testing direct effects)

Upper Half

Plots fallow under old scheme: N1, N2, N3, N4 (A).

Remainder: N0, N1, N2, N3 (B and C).

No green manures were undersown and this part of the experiment ended at harvest 1966.

Lower Half

A new arrangement of the green manuring treatments was begun in 1966.

1966 treatments

A plots: All combinations of:-

1. Green manures undersown 1966: Trefoil (T), ryegrass (R).
2. Nitrogen: N1, N3.

B plots:

1. Green manures undersown 1966: None (O), trefoil (T), ryegrass (R).
2. Nitrogen: to plots undersown: N1, N3.
to plots not undersown: N0, N1, N2, N3.

C plots:

(No green manures undersown 1966)

Nitrogen: N0, N1, N2, N3.

NOTE: On the B plots the green manures undersown in 1966 were applied as a new factor in all combinations with those applied in 1963.

66/B/3.2

Cultivations, etc.: Ground chalk applied at 18 cwt: Sept 13, 1965.
Ploughed (plots not undersown): Oct 19. Green manure plots
ploughed: Feb 2, 1966. Basal PK and seed at 140 lb combine
drilled: Mar 8. 'Nitro-Chalk' applied: Mar 10. Upper Half
sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in 35 gals):
May 10. Lower Half sprayed with Morfamquat at 1 lb in 35 gals:
May 11. Trefoil sown at 30 lb, ryegrass at 40 lb: May 13. Lower
half sprayed with MCPB/MCPA (Tropotox plus at 5 pints in 35 gals):
June 10. Combine harvested: Aug 23. Variety: Maris Badger.

66/B/3.3

SUMMARY OF RESULTS

ESTIMATES OF PRODUCE (ROOTS AND TOPS) OF GREEN MANURE CROPS: CWT PER ACRE
TO BARLEY 1965

	NO	N1	N2	N3	Mean
UPPER HALF					
DRY MATTER					
T	15.6	9.6	8.2	4.2	9.4
R	24.2	21.6	25.6	23.0	23.6
Mean	19.9	15.6	16.9	13.6	16.5
NITROGEN					
T	0.481	0.279	0.244	0.106	0.278
R	0.230	0.207	0.264	0.322	0.256
Mean	0.356	0.243	0.254	0.214	0.267
LOWER HALF					
DRY MATTER					
T	15.9	14.8	6.5	4.4	10.4
R	34.4	19.9	26.6	21.4	25.6
Mean	25.2	17.3	16.6	12.9	18.0
NITROGEN					
T	0.492	0.474	0.200	0.140	0.327
R	0.358	0.214	0.298	0.260	0.283
Mean	0.425	0.344	0.249	0.200	0.305

66/B/3.4

UPPER HALF
BARLEY, GRAIN
A PLOTS
1966

	N1	N2	N3	N4	Mean
1965					
N1	18.0	32.0	33.7	40.2	31.0
N2	17.1	29.0	29.9	35.0	27.8
N3	14.1	32.6	34.4	38.3	29.8
N4	16.5	18.0	29.7	40.8	26.2
Mean	16.4	27.9	31.9	38.6	28.7

66/B/3.5

UPPER HALF
BARLEY, GRAIN
B PLOTS

	NO	N1	N2	N3
1966				
1965				
NO	10.2	22.3	33.2	41.0
N1	11.6	19.0	33.6	38.8
N2	13.2	19.7	33.6	38.2
N3	11.2	19.9	33.3	36.9
Green manure 1955 - 63				
T	13.4	15.0	33.8	36.5
R	9.7	21.8	32.9	39.2
TU	13.2	20.2	33.9	39.9
FU	10.0	23.9	33.0	39.1
Mean	11.5	20.2	33.4	38.7

1965					
	NO	N1	N2	N3	Mean
T	23.5	26.1	23.7	25.5	24.7
R	31.6	20.9	29.5	21.7	25.9
TU	31.7	24.3	28.4	22.8	26.8
FU	19.8	31.8	23.1	31.3	26.5
Mean	26.7	25.8	26.2	25.3	26.0

66/B/3.6

UPPER HALF
BARLEY, GRAIN
C PLOT

	NO	N1	N2	N3	
Undersown 1964 - 65	1966				
T	22.7	30.8	37.8	42.4	
R	12.5	22.6	32.6	40.8	
	Undersown 1964 - 65				
	T	R	Mean		
1965					
NO	36.3	28.2	32.2		
N1	34.1	24.4	29.3		
N2	33.0	27.6	30.3		
N3	30.4	28.4	29.4		
Mean	33.5	27.2	30.3		
1965					
	NO	N1	N2	N3	Mean
1966					
NO	21.0	15.7	19.3	14.6	17.6
N1	26.9	27.3	23.8	28.9	26.7
N2	38.9	33.6	36.4	32.1	35.2
N3	42.2	40.5	41.8	42.0	41.6

Mean D.M. %: 79.1

66/E/3.7

LOWER HALF
BARLEY, GRAIN
A PLOTS

1966

	N1	N3
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Undersown
1966

T	14.6	34.2
R	14.1	31.1

1965

	N1	N2	N3	N4	Mean
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Undersown
1966

T	25.9	25.0	23.8	22.9	24.4
R	25.0	21.2	21.0	23.2	22.6

1966

N1	15.2	12.4	15.8	13.8	14.3
N3	35.6	33.7	29.0	32.3	32.7
Mean	25.4	23.1	22.4	23.1	23.5

66/B/3.8

LOWER HALF
BARLEY, GRAIN
B PLOTS WITH T & R

1966

	N1	N3
Undersown 1966		
T	17.0	33.6
R	16.8	34.7

1965

	NO	N1	N2	N3	Mean
Undersown 1966					
T	28.3	25.7	20.3	27.0	25.3
R	26.0	25.8	23.0	28.2	25.8
1966					
N1	18.2	18.6	13.6	17.3	16.9
N3	36.2	32.9	29.7	37.8	34.2
Mean	27.2	25.7	21.7	27.6	25.5

66/E/3.9

LOWER HALF

BARLEY, GRAIN

B PLOTS WITHOUT T & R

	1966				
	NO	N1	N2	N3	Mean
1965					
NO	9.4	23.7	27.1	40.9	25.3
N1	9.2	12.4	24.5	31.5	19.4
N2	11.7	14.8	33.7	41.7	25.5
N3	7.3	12.6	24.0	33.2	19.3
Mean	9.4	15.9	27.3	36.8	22.4

C PLOTS

1966

	NO	N1	N2	N3
Undersown 1964 - 65				
T	22.5	29.8	38.9	39.0
R	11.7	20.9	31.7	35.1

66/B/3.10

LOWER HALF
BARLEY, GRAIN
C PLOTS

Undersown 1964 - 65			
	T	R	Mean
1965			
NO	38.6	23.7	31.1
N1	33.0	25.3	29.2
N2	31.3	24.3	27.8
N3	27.1	26.1	26.6
Mean	32.5	24.8	28.7

1966				
	NO	N1	N2	N3
1965				
NO	20.7	31.4	37.2	35.3
N1	18.6	24.8	34.6	38.6
N2	15.1	24.1	34.1	37.9
N3	14.0	20.9	35.3	36.1
Mean	17.1	25.3	35.3	37.0

Mean D.M. %: 78.7