ROTHAMSTED RESEARCH

Yields of the Field Experiments 1977

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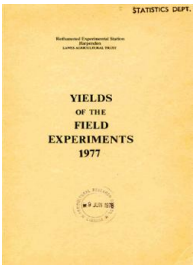

Experiments - Classicals

Rothamsted Research

Rothamsted Research (1978) *Experiments - Classicals ;* Yields Of The Field Experiments 1977, pp 8 - 45 **- DOI: https://doi.org/10.23637/ERADOC-1-29**

77/R/BK/1

BROADBALK

Object: To study the effects of organic and inorganic manures on continuous winter wheat. Since 1968 two three-year rotations have been included: potatoes, beans, wheat and fallow, wheat, wheat.

The 134th year, wheat, potatoes, beans. The tenth year of the revised scheme.

For previous years see 'Details' 1967 & 1973, Station Report for 1966, pp. 229-231, Station Report for 1968, Part 2, and 74-76/R/BK/1.

Areas harvested:

	Section	
Wheat:	0	0.00434
	1	0.00798
	3, 4 and 5	0.00659
	8 and 9	0.00694
Potatoes:	7	0.00659
Beans:	2	0.00741

Treatments:

Whole plots

PLOT	Plot	Fertilisers and organic manures:- Treatments until 1967	Treatments from 1968
01DN2PK	01	-	D N2 P K
21DN2	21	D	D N2
22D	22	D	D
03O	03	None	None
05MIN	05	P K Na Mg	P K (Na) Mg
06N1MIN	06	N1 P K Na Mg	N1 P K (Na) Mg
07N2MIN	07	N2 P K Na Mg	N2 P K (Na) Mg
08N3MIN	08	N3 P K Na Mg	N3 P K (Na) Mg
09N4MIN	09	N*1 P K Na Mg	N4 P K (Na) Mg
10N2	10	N2	N2
11N2P	11	N2 P	N2 P
12N2PNA	12	N2 P Na	N2 P Na
13N2PK	13	N2 P K	N2 P K
14N2PKMG	14	N2 P Mg	N2 P K Mg
15N3MIN	15	N2 P K Na Mg	N3 P K (Na) Mg
16N2MIN	16	N*2 P K Na Mg	N2 P K (Na) Mg
17N2MINH	17	+N2	N2 1/2(P K (Na) Mg)
18N2MINH	18	+ P K Na Mg	N2 1/2(P K (Na) Mg)
19C	19	C	C
20NKMG	20	N2 K Na Mg	N2 K (Na) Mg

+ Alternating

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N1,N2,N3,N4: 48, 96, 144, 192 kg N (as sulphate of ammonia until 1967, except N* which was nitrate of soda. All as 'Nitro-Chalk' from 1968).
P: 35 kg P as single superphosphate (triple superphosphate in 1974)
K: 90 kg K as sulphate of potash
Na: 55 kg Na as sulphate of soda
(Na): 16 kg Na as sulphate of soda until 1973
Mg: 30 kg Mg annually to Plot 14, 35 kg Mg every third year to other plots since 1974. All as kierserite since 1974, previously as sulphate of magnesia annually
D: Farmyard manure at 35 tonnes
C: Castor meal to supply 96 kg N
MIN: P K (Na) Mg

Strips of sub-plots: Until 1967 wheat alone was grown on the experiment, with some bare fallowing on strips of sub-plots. From 1968, ten sub-plots were started with the following cropping:-

SECTION		1968	69	70	71	72	73	74	75	76	77
SC0/W26	Section 0	W (last fallowed 1951)	W	W	W	W	W	W	W	W	W
SC1/W11	Section 1	W (last fallowed 1966)	W	W	W	W	W	W	W	W	W
BEANS	Section 2	BE	W	P	BE	W	P	BE	W	P	BE
SC3/W1F	Section 3	W (fallowed 1967)	W	F	W	W	F	W	W	F	W
SC4/W1BE	Section 4	W (fallowed 1965)	P	BE	W	P	BE	W	P	BE	W
SC5/W2F	Section 5	W (fallowed 1965)	F	W	W	F	W	W	F	W	W
-	Section 6	F	W	W	F	W	W	F	W	W	F
POTATOES	Section 7	P	BE	W	P	BE	W	P	BE	W	P
SC8/W5	Section 8*	W (fallowed 1963)	W	W	W	F	W	W	W	W	W
SC9/W19	Section 9	W (last fallowed 1958)	W	W	W	W	W	W	W	W	W

W = wheat, P = potatoes, BE = beans, F = fallow

* No weedkillers

NOTE: For a fuller record of treatments see 'Details' etc.

Standard applications:
Winter wheat: Manures: Sections 8 and 9: Chalk at 2.9 t. Weedkillers: Section 4: Diquat at 0.59 kg ion in 450 l. Sections 0, 1 and 9: Glyphosate at 1.7 kg in 220 l. Sections 0, 1, 3, 4, 5 and 9: Ioxynil at 0.53 kg with mecoprop at 1.6 kg in 220 l applied in spring. Insecticide: Pirimicarb at 0.14 kg in 280 l.
Potatoes: Manures: Chalk at 2.9 t. Weedkillers: Linuron at 1.3 kg plus paraquat at 0.42 kg ion in 340 l. Fungicide: Mancozeb at 1.3 kg in 340 l. Insecticide: Pirimicarb at 0.14 kg applied with the fungicide.
Beans: Insecticide: Pirimicarb at 0.14 kg in 280 l.
Fallow: Chalk at 2.9 t.

Seed: Wheat: Cappelle, dressed with chlorfenvinphos, sown at 200 kg.
Potatoes: Pentland Crown.
Spring beans: Minden sown at 220 kg.

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Cultivations, etc.:-

ALL SECTIONS: Superphosphate, sulphate of potash applied: 5 Oct, 1976. Sulphate of soda, kieserite, castor meal applied: 8 Oct. FYM applied: 11 Oct. Ploughed: 11-13 Oct.

CROPPED SECTIONS:

Winter wheat: Diquat applied: 6 Aug. Glyphosate applied: 6 Sept. Chalk applied: 7 Sept. Sections 8 and 9 rotary harrowed: 3 Nov. Sections 0 and 1 rotary harrowed: 4 Nov. Sections 3, 4 and 5 heavy spring-tine cultivated: 4 Nov. Sections 3, 4 and 5 rotary harrowed: 22 Nov. Seed sown, spring-tine cultivated: 24 Nov. N applied: 18 Apr, 1977. Spring weedkillers applied to Sections 3, 4, 5 and 9: 10 May. Spring weedkillers applied to Sections 0 and 1: 23 May. Insecticide applied: 12 July. Combine harvested: 8 Sept.

Potatoes: Chalk applied: 6 Sept, 1976. Spring-tine cultivated and N applied: 18 Apr, 1977. Spike rotary cultivated and potatoes machine planted: 19 Apr. Grubbed: 21 Apr, 21 June. Weedkillers applied: 23 May. FYM plots rotary ridged: 22 June. Fungicide applied: 23 June, 5 July. Remaining plots grubbed and rotary ridged: 30 June. Fungicide with insecticide applied: 26 July, 10 Aug. Lifted: 14 Sept.

Spring beans: N applied: 7 Mar. Rotary harrowed: 9 Mar. Seed sown: 10 Mar. Tractor hoed: 18 May. Insecticide applied: 19 July. Combine harvested: 15 Sept.

FALLOW SECTION: Chalk applied: 6 Sept, 1976. Spring-tine cultivated: 29 Apr, 11 Aug. Ploughed: 25 May, 20 July.

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WHEAT

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

SECTION PLOT	SC4/W1BE	SC3W1F	SC5/W2F	SC1/W11	SC9/W19	SC0/W26	SC8/W5	MEAN
01DN2PK	5.68	4.17	7.26	*	*	*	*	5.70
21DN2	5.78	5.89	6.03	3.92	4.62	3.20	3.84	4.75
22D	5.16	4.58	5.97	5.38	5.88	5.17	4.64	5.25
030	2.54	2.27	1.78	1.64	1.94	1.79	2.00	1.99
05MIN	2.99	2.92	1.69	1.24	1.38	2.50	2.57	2.18
06N1MIN	4.40	2.84	3.41	2.98	2.53	2.78	3.02	3.14
07N2MIN	5.57	4.03	5.51	4.23	3.94	4.69	4.09	4.58
08N3MIN	5.58	4.67	4.78	4.99	5.42	4.73	4.50	4.95
09N4MIN	5.77	3.27	5.33	4.96	4.01	4.96	4.73	4.72
10N2	4.98	2.20	0.78	3.63	3.07	2.86	3.86	3.05
11N2P	5.46	1.99	3.27	2.19	1.14	3.49	2.45	2.86
12N2PNA	5.12	1.85	3.84	3.75	1.88	3.79	2.87	3.30
13N2PK	5.44	2.35	5.00	4.44	2.84	4.28	2.91	3.89
14N2PKMG	6.12	2.95	5.15	4.42	3.11	4.03	3.25	4.15
15N3MIN	5.47	2.87	5.70	4.89	4.16	4.42	4.43	4.56
16N2MIN	5.87	2.99	4.64	4.27	3.70	4.15	4.10	4.25
17N2MINH	6.00	3.89	5.49	4.35	2.73	5.20	4.23	4.56
18N2MINH	5.90	4.16	5.10	4.62	3.89	4.49	3.10	4.47
19C	5.17	4.41	4.33	4.03	2.72	4.20	2.99	3.98
20NKMG	*	*	*	4.87	*	4.37	*	4.62

GRAIN MEAN DM% 81.3

STRAW TONNES/HECTARE

***** TABLES OF MEANS *****

SECTION PLOT	SC4/W1BE	SC3W1F	SC5/W2F	SC1/W11	SC9/W19	SC0/W26	SC8/W5	MEAN
01DN2PK	4.93	4.39	5.55	*	*	*	*	4.96
21DN2	5.26	5.55	5.03	5.83	5.17	5.89	5.00	5.39
22D	4.22	3.67	4.44	4.13	3.79	4.16	4.08	4.07
030	1.34	0.89	0.90	1.23	1.01	1.26	1.07	1.10
05MIN	1.18	1.25	0.73	1.23	0.92	1.64	2.60	1.36
06N1MIN	3.96	2.66	2.47	3.15	2.38	2.86	2.83	2.90
07N2MIN	4.94	4.36	4.60	3.49	3.64	4.69	4.21	4.27
08N3MIN	4.69	4.57	3.41	4.22	4.64	4.06	5.06	4.38
09N4MIN	4.65	3.73	3.54	4.21	4.07	4.56	4.63	4.20
10N2	2.51	2.06	1.45	2.05	1.64	2.23	2.87	2.12
11N2P	2.95	2.34	1.75	2.03	1.80	2.46	2.64	2.28
12N2PNA	2.84	2.31	2.22	2.64	2.11	3.25	2.73	2.59
13N2PK	3.98	3.20	3.22	4.48	3.38	4.48	3.80	3.79
14N2PKMG	3.99	3.25	3.89	4.57	3.34	4.98	3.34	3.91
15N3MIN	4.19	3.87	4.18	4.04	4.44	4.06	4.47	4.18
16N2MIN	4.29	3.83	3.58	4.27	4.49	4.29	4.81	4.22
17N2MINH	4.94	4.15	3.91	4.47	3.89	4.39	4.93	4.38
18N2MINH	4.61	4.48	4.39	4.15	4.68	5.04	4.72	4.58
19C	3.24	2.79	2.23	2.77	1.99	2.75	3.01	2.68
20NKMG	*	*	*	3.02	*	2.89	*	2.96

STRAW MEAN DM% 88.2

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	POTATOES		SPRING BEANS	
	TOTAL TUBERS TONNES/ HECTARE	% WARE 3.81 CM (1.5 INCH) RIDDLE	GRAIN TONNES/ HECTARE	STRAW TONNES/ HECTARE
PLOT				
01DN2PK	25.0	90.0	3.17	3.73
21DN2	30.2	92.6	3.04	3.39
22D	26.9	92.4	3.34	3.74
030	7.0	88.4	2.38	1.18
05MIN	8.8	81.5	3.87	2.94
06N1MIN	14.6	84.9	3.45	3.25
07N2MIN	19.3	88.5	3.26	3.44
08N3MIN	26.1	92.8	3.52	3.60
09N4MIN	34.9	94.1	3.81	3.27
10N2	6.4	83.3	1.41	0.36
11N2P	4.3	43.3	0.63	1.66
12N2PNA	5.0	56.8	0.56	1.26
13N2PK	14.8	75.3	2.68	3.09
14N2PKMG	20.1	88.5	2.77	1.99
15N3MIN	28.6	94.8	2.81	3.24
16N2MIN	24.0	90.8	2.95	2.69
17N2MINH	20.7	92.7	2.82	2.62
18N2MINH	23.0	90.0	2.76	2.52
19C	17.8	87.4	2.43	1.91
MEAN DM%			81.7	89.0

https://doi.org/10.23637/ERADOC-1-29

77/R/HB/2

HOOSFIELD

Object: To study the effects of organic and inorganic manures on continuous spring barley. Since 1968 a rotation of potatoes, beans and barley has been included.

The 126th year, barley, potatoes and beans. The tenth year of revised scheme.

For previous years see 'Details' 1967 & 1973, Station Report for 1966, and 74-76/R/HB/2.

Treatments to barley: All combinations of:-

1. MANURE Fertilisers, organic manures and frequency of barley cropping:-

	Form of N 1852-1966	Additional treatments 1852-1977	
---CON	None	-	Continuous
-P-CON	None	P	Continuous
--KCON	None	K (Na) Mg	Continuous
-PKCON	None	P K (Na) Mg	Continuous
A--CON	A	-	Continuous
AP-CON	A	P	Continuous
A-KCON	A	K (Na) Mg	Continuous
APKCON	A	P K (Na) Mg	Continuous
N--CON	N	-	Continuous
N--SICON	N	- Si	Continuous
NP-CON	N	P	Continuous
NP-SICON	N	P Si	Continuous
N-KCON	N	K (Na) Mg	Continuous
N-KSICON	N	K (Na) Mg Si	Continuous
NPKCON	N	P K (Na) Mg	Continuous
NPKSICON	N	P K (Na) Mg Si	Continuous
C--CON	C	-	Continuous
C--RTN	C	-	In rotation (P,BE,B)
CP-CON	C	P	Continuous
CP-RTN	C	P	In rotation (P,BE,B)
C-KCON	C	K (Na) Mg	Continuous
C-KRTN	C	K (Na) Mg	In rotation (P,BE,B)
CPKCON	C	P K (Na) Mg	Continuous
CPKRTN	C	P K (Na) Mg	In rotation (P,BE,B)
DCON	None	D	Continuous
(D)CON	(D)	-	Continuous
(A)CON	(Ashes)	-	Continuous
-CON	None	-	Continuous

Form of N: A, sulphate of ammonia: N, nitrate of soda - each to supply 48 kg N. C, castor meal to supply 96 kg N.
P: 35 kg P as single superphosphate (triple superphosphate in 1974).
K: 90 kg K as sulphate of potash.
(Na): 16 kg Na as sulphate of soda until 1973.
Mg: 35 kg Mg, as kieserite every third year, since 1974 (sulphate of magnesia annually until 1973).
Si: Silicate of soda at 450 kg.
D: Farmyard manure at 35 tonnes. (D): until 1871 only.
(Ashes): Weed ash 1852-1916, furnace ash 1917-1932. None since.

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2. N Nitrogen fertiliser (kg N), as 'Nitro-Chalk', since 1968 (cumulative N applications until 1973, on a cyclic system since 1974):

0
48
96
144

There are four extra plots testing all combinations of:-

1. MANURE Fertilisers other than magnesium:

551AN2PK	Plot 551	A	N2	P	K	Continuous
561--PK	Plot 561		-	P	K	Continuous
571NN2--	Plot 571	N	N2			Continuous
581NN2--	Plot 581	N	N2			Continuous

N2: 96 kg N as 'Nitro-Chalk' since 1968. Other symbols as above.

2. MGNESIUM Magnesium fertiliser (kg Mg) as kieserite every third year since 1974:

0
35

Treatments to potatoes and beans:- All combinations of:-

1. MANURE Fertiliser and organic manures:

	To potatoes and beans: 1852-1966	1852-1977
C---	C	-
CP--	C	P
C-KMG	C	K (Na) Mg
CPKMG	C	P K (Na) Mg
	To potatoes only:	
N----	N	-
N---SI	N	Si
NP---	N	P
NP--SI	N	P Si
N-KMG-	N	K (Na) Mg
N-KMGSI	N	K (Na) Mg Si
NPKMG	N	P K (Na) Mg
NPKMGSI	N	P K (Na) Mg Si

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2. NRES(76) N Nitrogen fertiliser (kg N), as 'Nitro-Chalk':

Beans	Potatoes	Beans (residual effects, applied to previous potatoes)	Potatoes (applied 1977)
0	0		
96	96		
192	192		
288	288		

NOTE: For a fuller record see 'Details' etc.

Standard applications:
Barley: Weedkillers: Diquat at 0.59 kg ion in 450 l applied in autumn, (to MANURE C--RTN, CP-RTN, C-KRTN and CPKRTN plots only). Dicamba with mecoprop and MCPA ('Banlene Plus' at 4.9 l in 220 l) applied in spring.
Potatoes: Manures: Chalk at 2.9 t. Weedkiller: Linuron at 1.2 kg in 340 l. Fungicide: Mancozeb at 1.3 kg in 340 l applied on four occasions. Insecticide: Pirimicarb at 0.14 kg applied with the last two fungicide sprays.
Beans: Insecticide: Pirimicarb at 0.14 kg in 280 l.

Seed: Barley: Julia, dressed ethirimol, sown at 160 kg.
Potatoes: Pentland Crown.
Beans: Minden, sown at 220 kg.

Cultivations, etc.:-
All plots: P, K, Mg and silicate of soda applied: 25 Oct, 1976. FYM applied: 26 Oct. Ploughed: 28 Oct. Spring-tine cultivated: 7 Mar, 1977.
Barley: Autumn weedkiller applied: 6 Aug, 1976. Seed sown: 8 Mar, 1977. N applied: 14 Apr. Spring weedkillers applied: 24 May. Combine harvested: 23 Aug.
Potatoes: Chalk applied: 6 Sept, 1976. N applied: 14 Apr, 1977. Spike rotary cultivated, potatoes planted: 19 Apr. Grubbed twice: 21 Apr, 21 June. Rotary ridged twice: 26 May, 22 June. Weedkiller applied: 28 May. Fungicide applied: 23 June, 5 July. Fungicide with insecticide applied: 26 July, 10 Aug. Haulm mechanically destroyed: 3 Oct. Lifted: 3 Nov.
Beans: Seed sown: 9 Mar. Tractor hoed: 18 May. Insecticide applied: 19 July. Combine harvested: 21 Sept.

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BARLEY

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

N	0	48	96	144	MEAN
MANURE					
---CON	1.69	2.68	2.75	2.77	2.47
-P-CON	1.99	3.56	4.83	4.81	3.80
-KCON	1.78	3.03	3.75	4.24	3.20
-PKCON	1.80	4.57	5.32	5.84	4.38
A--CON	1.68	2.00	2.72	2.82	2.31
AP-CON	2.33	3.31	3.42	2.87	2.98
A-KCON	1.72	2.73	3.20	3.31	2.74
APKCON	2.28	4.38	5.62	5.98	4.56
N--CON	1.75	2.52	2.99	2.68	2.48
N--SICON	2.44	3.76	3.92	4.36	3.62
NP-CON	2.61	4.06	4.29	4.22	3.79
NP-SICON	2.54	4.48	5.74	5.65	4.60
N-KCON	1.94	2.76	3.16	3.66	2.88
N-KSICON	2.09	3.78	5.19	4.75	3.95
NPKCON	2.07	4.64	5.28	6.02	4.50
NPKSICON	2.07	4.35	5.38	5.68	4.37
C--CON	2.30	4.31	5.09	5.39	4.27
C--RTN	2.19	4.44	5.20	5.26	4.27
CP-CON	2.58	4.87	5.77	5.16	4.59
CP-RTN	2.73	4.88	5.77	5.86	4.81
C-KCON	2.43	3.81	4.99	4.79	4.01
C-KRTN	2.15	3.99	4.49	4.54	3.79
CPKCON	2.51	4.61	5.83	5.72	4.67
CPKRTN	3.60	5.00	5.97	6.09	5.16
DCON	5.22	6.11	6.52	5.96	5.95
(D)CON	2.63	4.21	4.59	4.68	4.02
(A)CON	2.12	3.73	3.99	4.84	3.67
-CON	1.97	3.20	3.27	3.42	2.96
MEAN	2.33	3.92	4.61	4.69	3.89

GRAIN MEAN DM% 77.6

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BARLEY

STRAW TONNES/HECTARE

***** TABLES OF MEANS *****

N	0	48	96	144	MEAN
MANURE					
---CON	0.61	0.99	1.19	1.38	1.04
-P-CON	0.61	1.19	2.40	2.19	1.60
-KCON	0.59	1.78	1.97	2.38	1.68
-PKCON	0.79	2.78	3.21	3.43	2.55
A--CON	0.39	0.59	0.98	0.98	0.74
AP-CON	0.40	1.00	1.19	1.20	0.95
A-KCON	0.79	0.98	1.78	1.58	1.28
APKCON	0.79	2.41	3.79	3.55	2.64
N--CON	0.36	0.72	1.09	0.72	0.73
N--SICON	0.73	1.10	1.82	1.80	1.36
NP-CON	0.73	1.45	1.45	1.41	1.26
NP-SICON	0.73	1.47	2.92	2.18	1.83
N-KCON	0.72	1.80	1.07	1.80	1.35
N-KSICON	0.72	1.46	2.91	2.53	1.90
NPKCON	0.36	2.19	2.84	2.90	2.07
NPKSICON	0.72	2.19	2.91	3.66	2.37
C--CON	0.37	1.46	2.19	2.19	1.55
C--RTN	0.74	2.22	2.94	2.19	2.02
CP-CON	0.73	1.83	2.54	2.20	1.83
CP-RTN	0.75	2.22	2.19	3.35	2.13
C-KCON	0.73	1.83	2.94	2.59	2.02
C-KRTN	0.73	1.81	2.94	2.93	2.10
CPKCON	0.73	2.58	3.30	3.60	2.55
CPKRTN	1.47	3.29	3.69	4.44	3.22
DCON	3.41	4.46	5.08	4.28	4.31
(D)CON	1.07	2.40	2.67	2.93	2.26
(A)CON	0.80	1.60	1.87	2.41	1.67
-CON	0.78	1.58	2.35	1.56	1.57
MEAN	0.80	1.83	2.44	2.44	1.88

STRAW MEAN DM% 88.2

SUB PLOT AREA HARVESTED 0.00007

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BARLEY

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

MANURE / MGNESIUM	551AN2PK	561--PK	571NN2--	581NN2--	MEAN
0	5.24	0.91	4.38	2.49	3.25
35	5.61	1.21	3.94	2.65	3.35
MEAN	5.42	1.06	4.16	2.57	3.30

GRAIN MEAN DM% 77.5

STRAW TONNES/HECTARE

***** TABLES OF MEANS *****

MANURE / MGNESIUM	551AN2PK	561--PK	571NN2--	581NN2--	MEAN
0	3.57	0.17	2.03	0.99	1.69
35	3.52	0.33	1.84	1.01	1.68
MEAN	3.55	0.25	1.93	1.00	1.68

STRAW MEAN DM% 87.0

SUB PLOT AREA HARVESTED 0.00306

https://doi.org/10.23637/ERADOC-1-29

77/R/HB/2

POTATOES

TOTAL TUBERS TONNES/HECTARE

***** TABLES OF MEANS *****

N MANURE	0	96	192	288	MEAN
C---	9.8	12.5	12.2	13.9	12.1
CP--	10.7	13.4	10.8	12.3	11.8
C-KMG	15.3	28.9	28.2	33.4	26.4
CPKMG	21.6	31.4	43.7	48.8	36.4
N----	8.0	7.1	6.1	7.6	7.2
N---SI	7.9	7.0	8.2	7.2	7.6
NP---	6.7	8.1	9.0	6.1	7.5
NP--SI	6.7	7.1	7.3	7.1	7.1
N-KMG-	11.7	19.2	22.8	18.7	18.1
N-KMGSI	15.1	24.7	26.9	27.4	23.5
NPKMG	20.6	32.0	44.7	46.0	35.8
NPKMGSI	14.3	34.5	43.9	52.6	36.3
MEAN	12.4	18.8	22.0	23.4	19.2

PERCENTAGE WARE 3.81 CM (1.5 INCH RIDDLE)

***** TABLES OF MEANS *****

N MANURE	0	96	192	288	MEAN
C---	87.2	91.2	89.7	90.2	89.6
CP--	80.0	81.2	77.7	72.3	77.8
C-KMG	91.8	94.7	96.2	98.4	95.2
CPKMG	89.1	91.5	96.2	94.1	92.7
N----	89.5	86.0	87.9	86.9	87.6
N---SI	89.3	81.3	91.1	86.2	87.0
NP---	75.0	66.5	75.4	72.4	72.3
NP--SI	68.7	65.4	65.5	72.1	67.9
N-KMG-	92.4	97.0	97.0	96.9	95.8
N-KMGSI	95.5	97.9	98.0	97.5	97.2
NPKMG	91.9	94.4	96.0	95.2	94.4
NPKMGSI	80.2	91.9	92.9	96.0	90.3
MEAN	85.9	86.6	88.6	88.2	87.3

PLOT AREA HARVESTED 0.00191

https://doi.org/10.23637/ERADOC-1-29

77/R/HB/2

BEANS

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

MANURE NRES(76)	C---	CP--	C-KMG	CPKMG	MEAN
0	1.62	1.07	1.82	2.78	1.82
96	1.61	0.98	1.30	3.07	1.74
192	1.82	1.29	2.24	3.07	2.10
288	2.13	1.20	2.11	2.60	2.01
MEAN	1.79	1.14	1.87	2.88	1.92

GRAIN MEAN DM% 79.9

STRAW TONNES/HECTARE

***** TABLES OF MEANS *****

MANURE NRES(76)	C---	CP--	C-KMG	CPKMG	MEAN
0	1.10	1.94	3.07	2.92	2.26
96	0.82	2.14	2.62	3.38	2.24
192	1.64	2.73	2.48	2.36	2.30
288	1.43	3.10	3.33	3.27	2.78
MEAN	1.25	2.48	2.88	2.98	2.40

STRAW MEAN DM% 55.8

SUB PLOT AREA HARVESTED 0.00143

https://doi.org/10.23637/ERADOC-1-29

77/R/WF/3

WHEAT AND FALLOW

Object: To study the effects of fallowing for one or three years on unmanured winter wheat - Hoosfield.

The 122nd year, winter wheat.

For previous years see 'Details' 1967, 1973 and 74-76/R/WF/3.

Whole plot dimensions: 9.60 x 52.1.

Treatments:

PLOT	Phase of fallowing cycle (up to 1977):-							
-	Plot 1	W	F	F	F	W	F	W	F
-	Plot 2	F	W	F	W	F	W	F	F
-	Plot 3	W	F	W	F	F	F	W	F
4/FALL1	Plot 4	F	F	F	W	F	W	F	W
-	Plot 5	W	F	W	F	W	F	F	F
6/FALL1	Plot 6	F	W	F	F	F	W	F	W
-	Plot 7	F	F	W	F	W	F	W	F
8/FALL3	Plot 8	F	W	F	W	F	F	F	W

W = wheat, F = fallow.

Basal applications: Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 4.9 l in 220 l). Insecticide: Pirimicarb at 0.14 kg in 280 l.

Seed: Cappelle, sown at 200 kg.

Cultivations, etc.:-
Wheat plots: Ploughed: 1 Oct, 1976. Rotary harrowed and seed sown: 24 Nov. Weedkillers applied: 24 May, 1977. Insecticide applied: 15 July. Combine harvested: 8 Sept.
Fallow plots: Ploughed: 1 Oct, 1976, 18 May, 1977 and 20 July. Spring-tine cultivated: 11 Aug.

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

PLOT	4/FALL1	6/FALL1	8/FALL3	MEAN
	1.95	2.09	2.49	2.17

GRAIN MEAN DM% 81.1

STRAW TONNES/HECTARE

PLOT	4/FALL1	6/FALL1	8/FALL3	MEAN
	1.21	1.18	1.24	1.21

STRAW MEAN DM% 89.7

PLOT AREA HARVESTED 0.01483

https://doi.org/10.23637/ERADOC-1-29

77/R/EX/4

EXHAUSTION LAND

Object: To study the residual effects of manures, applied 1856-1901, on the yield of continuous barley - Hoosfield.

The 122nd year, barley.

For previous years see 'Details' 1967, 1973 and 74-76/R/EX/4.

Treatments: All combinations of:-

Whole plots

1. PLOTFERT(01) Fertiliser and farmyard manure 1876-1901:

1-	Plot 1 None
2-	Plot 2 None
3D	Plot 3 D
4D	Plot 4 D
5N	Plot 5 N
6N*	Plot 6 N*
7NMIN	Plot 7 N P K Na Mg
8N*MIN	Plot 8 N* P K Na Mg
9P	Plot 9 P
10MIN	Plot 10 P K Na Mg

N - 96 kg N as ammonium salts
N* - 96 kg N as nitrate of soda
P - 34 kg P as superphosphate
K - 137 kg K as sulphate of potash
Na - 16 kg Na as sulphate of soda
Mg - 11 kg Mg as sulphate of magnesia
D - Farmyard manure at 35 tonnes
MIN - P K Na Mg

Sub plots

2. N Nitrogen fertiliser (kg N) (basal until 1975, on a cyclic system since 1976)
0
48
96
144

For a fuller record of treatments see 'Details' 1967 etc.

Basal applications: Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 4.9 l in 220 l).

Seed: Julia, sown at 160 kg.

Cultivations, etc.:- Ploughed: 4 Oct, 1976. Rotary harrowed and seed sown: 9 Mar, 1977. N applied: 2 May. Weedkillers applied: 24 May. Combine harvested: 26 Aug.

https://doi.org/10.23637/ERADOC-1-29

77/R/EX/4

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

N PLOTFERT(01)	0	48	96	144	MEAN
1-	1.72	2.17	2.52	3.37	2.45
2-	1.43	2.20	2.31	2.30	2.06
3D	2.71	4.35	5.36	4.69	4.28
4D	2.52	4.52	5.75	4.24	4.26
5N	1.81	2.51	2.56	3.36	2.56
6N*	1.83	2.14	2.03	1.99	2.00
7NMIN	2.17	3.50	4.68	3.69	3.51
8N*MIN	2.23	3.54	4.61	4.59	3.74
9P	2.57	3.77	4.73	5.17	4.06
10MIN	1.79	3.50	3.75	4.55	3.40
MEAN	2.08	3.22	3.83	3.79	3.23

GRAIN MEAN DM% 76.7

STRAW TONNES/HECTARE

***** TABLES OF MEANS *****

N PLOTFERT(01)	0	48	96	144	MEAN
1-	0.70	1.18	1.32	1.60	1.20
2-	0.48	1.10	1.45	1.30	1.08
3D	1.10	2.41	3.06	3.04	2.40
4D	1.02	2.61	3.08	3.31	2.51
5N	0.68	1.24	1.32	1.45	1.17
6N*	0.82	1.02	1.17	0.97	1.00
7NMIN	0.91	1.96	2.78	2.86	2.13
8N*MIN	0.82	2.17	2.62	2.78	2.10
9P	0.95	1.84	2.71	2.73	2.06
10MIN	0.69	1.92	2.49	2.72	1.96
MEAN	0.82	1.75	2.20	2.28	1.76

STRAW MEAN DM% 85.6

PLOT AREA HARVESTED 0.00728

https://doi.org/10.23637/ERADOC-1-29

77/R/PG/5

PARK GRASS

Object: To study the effects of organic and inorganic manures on old grass (for hay). The effects of liming are also studied.

The 122nd year, hay.

For previous years see 'Details' 1967 and 1973 and 74-76/R/PG/5.

Treatments:

Whole plots

MANURE	Fertilisers and organic manures:-	
N1	Plot 1	N1
O(D)	Plot 2	None (D until 1863)
O/PLOT3	Plot 3	None
P	Plot 4-1	P
N2P	Plot 4-2	N2 P
N1MIN	Plot 6	N1 P K Na Mg
MIN	Plot 7	P K Na Mg
PNAMG	Plot 8	P Na Mg
N2MIN	Plot 9	N2 P K Na Mg
N2PNAMG	Plot 10	N2 P Na Mg
N3MIN	Plot 11-1	N3 P K Na Mg
N3MINSI	Plot 11-2	N3 P K Na Mg Si
O/PLOT12	Plot 12	None
D/F	Plot 13	D/F
N2*MIN	Plot 14	N2* P K Na Mg
MIN(N2*)	Plot 15	P K Na Mg (N2* until 1875)
N1*MIN	Plot 16	N1* P K Na Mg
N1*	Plot 17	N1*
N2KNAMG	Plot 18	N2 K Na Mg
D	Plot 19	D
D/N*PK	Plot 20	D/N*P K

N1, N2, N3:	48, 96, 144 kg N as sulphate of ammonia
N1*, N2*:	48, 96 kg N as nitrate of soda (30 kg N to Plot 20 in years with no farmyard manure)
P:	35 kg P (15 kg P to Plot 20 in years with no farmyard manure) as single superphosphate (triple superphosphate in 1974)
K:	225 kg K (45 kg K to Plot 20 in years with no farmyard manure) as sulphate of potash
Na:	15 kg Na as sulphate of soda
Mg:	10 kg Mg as sulphate of magnesia
Si:	Silicate of soda at 450 kg
D:	Farmyard manure at 35 tonnes every fourth year
F:	Fish meal every fourth year to supply 63 kg N
MIN:	P K Na Mg

Sub plots

LIME	Liming:-
A	a Ground chalk applied as necessary to achieve pH7
B	b Ground chalk applied as necessary to achieve pH6
C	c Ground chalk applied as necessary to achieve pH5
D	d None

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77/R/PG/5

NOTE: Lime was applied regularly, and at the same rate, to all a and b sub plots of Plots 1 to 17 (except 12) from 1924. Differential liming started in 1965 on certain b and c sub plots (except on Plot 12) and in 1976 on certain a sub plots (including Plot 12) and 12b.

Additional sub plots (Plots 18, 19 and 20 only) (tonnes $CaCO_3$ applied every fourth year 1920-1964):-

N2KNAMG0	18-1	None
N2KNAMG2	18-2	13.5
N2KNAMG1	18-3	7.9
D0	19-1	None
D2	19-2	6.3
D1	19-3	1.1
D/N*PK0	20-1	None
D/N*PK2	20-2	5.6
D/N*PK1	20-3	1.1

Since 1965 Plot 18-1 has been split into two for treatments 'c' and 'd' above and Plot 18-3 split into two for treatments 'a' and 'b'. The remaining sub-plots of Plots 18, 19 and 20 are treated as 'a'.

NOTE: For a fuller record of treatments see 'Details' etc.

Cultivations, etc.:- P applied: 11 Nov, 1976. Remaining mineral fertilisers applied: 18 Nov. FYM applied: 16 Dec. N applied: 1st dressing - 19 Apr, 1977, 2nd dressing - 18 May. Cut twice: 21 June, 23 Nov.

ERRATA TO 'YIELDS' 1976 76/R/PG/5

***** TABLES OF MEANS *****

page 28. MANURE D1, LIME A should read 1.03 not .03

page 29. MANURE D/F, LIME B should read 4.54 not .54

https://doi.org/10.23637/ERADOC-1-29

77/R/PG/5

1ST CUT (21/6/77) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

LIME / MANURE	A	B	C	D	MEAN
N1	1.43	1.96	1.29	0.20	1.22
O(D)	1.41	1.57	1.09	1.21	1.32
O/PLOT3	1.76	1.90	0.99	1.20	1.46
P	2.05	2.62	1.94	2.25	2.22
N2P	3.10	3.59	3.12	2.61	3.10
N1MIN	4.88	4.94			4.91
MIN	5.02	5.10	2.65	2.27	3.76
PNAMG	1.88	2.04	2.51	2.43	2.22
N2MIN	5.37	5.93	5.43	4.34	5.27
N2PNAMG	3.63	3.61	3.74	3.19	3.54
N3MIN	5.27	5.58	6.26	4.52	5.41
N3MINSI	5.81	6.56	6.49	4.48	5.83
O/PLOT12	1.47	1.38	1.22	1.21	1.32
D/F	4.85	5.05	5.17	5.36	5.11
N2*MIN	5.48	5.54	5.61	5.90	5.63
MIN(N2*)	3.74	4.40	1.79	2.27	3.05
N1*MIN	4.70	5.21	4.43	4.74	4.77
N1*	2.18	2.70	2.74	2.44	2.51
N2KNAMG0			0.67	0.38	0.53
N2KNAMG2	2.24				2.24
N2KNAMG1	1.59	1.84			1.72
D0	5.37				5.37
D2	5.71				5.71
D1	5.68				5.68
D/N*PK0	5.31				5.31
D/N*PK2	5.49				5.49
D/N*PK1	5.78				5.78

1ST CUT MEAN DM% 21.6

https://doi.org/10.23637/ERADOC-1-29

77/R/PG/5

2ND CUT (23/11/77) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

LIME / MANURE	A	B	C	D	MEAN
N1	1.49	2.29	1.50	1.32	1.65
O(D)	1.50	1.10	1.29	1.60	1.37
O/PLOT3	1.28	1.24	1.28	1.91	1.43
P	1.85	1.91	1.86	2.23	1.96
N2P	1.84	1.80	1.99	1.95	1.89
N1MIN	3.20	2.48			2.84
MIN	2.91	2.35	2.59	1.92	2.44
PNAMG	2.11	1.77	2.29	2.34	2.13
N2MIN	2.40	2.51	1.52	1.62	2.01
N2PNAMG	2.07	1.75	1.88	1.59	1.82
N3MIN	2.63	2.46	2.48	4.18	2.94
N3MINSI	3.35	3.20	2.60	4.36	3.38
O/PLOT12	2.97	2.68	2.45	2.75	2.71
D/F	4.06	4.76	4.16	3.76	4.19
N2*MIN	1.96	2.85	2.88	2.58	2.57
MIN(N2*)	2.19	2.29	2.05	2.39	2.23
N1*MIN	2.46	2.33	2.98	2.57	2.58
N1*	2.14	1.88	2.58	2.14	2.19
N2KNAMG0			1.07	0.28	0.68
N2KNAMG2	3.02				3.02
N2KNAMG1	1.78	2.41			2.09
D0	4.55				4.55
D2	3.98				3.98
D1	6.41				6.41
D/N*PK0	4.00				4.00
D/N*PK2	6.50				6.50
D/N*PK1	4.21				4.21

2ND CUT MEAN DM% 25.9

https://doi.org/10.23637/ERADOC-1-29

77/R/PG/5

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

LIME / MANURE	A	B	C	D	MEAN
N1	2.92	4.25	2.79	1.52	2.87
O(D)	2.91	2.68	2.38	2.81	2.69
O/PLOT3	3.04	3.14	2.27	3.11	2.89
P	3.90	4.53	3.81	4.48	4.18
N2P	4.93	5.39	5.11	4.56	5.00
N1MIN	8.08	7.42			7.75
MIN	7.93	7.46	5.24	4.19	6.21
PNAMG	3.99	3.81	4.80	4.77	4.34
N2MIN	7.77	8.44	6.95	5.96	7.28
N2PNAMG	5.70	5.37	5.62	4.78	5.37
N3MIN	7.90	8.04	8.74	8.70	8.34
N3MINSI	9.17	9.76	9.08	8.84	9.21
O/PLOT12	4.43	4.06	3.67	3.96	4.03
D/F	8.91	9.82	9.33	9.12	9.29
N2*MIN	7.44	8.38	8.49	8.48	8.20
MIN(N2*)	5.93	6.69	3.84	4.66	5.28
N1*MIN	7.16	7.54	7.40	7.30	7.35
N1*	4.32	4.58	5.32	4.58	4.70
N2KNAMG0			1.75	0.66	1.20
N2KNAMG2	5.27				5.27
N2KNAMG1	3.37	4.25			3.81
D0	9.92				9.92
D2	9.69				9.69
D1	12.09				12.09
D/N*PK0	9.32				9.32
D/N*PK2	11.99				11.99
D/N*PK1	9.98				9.98

TOTAL OF 2 CUTS MEAN DM% 23.7

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77/R/AG/6

AGDELL

Object: To study, by crop yields and soil analyses, the residual values of phosphate and potash applied in the period 1848-1951 and further dressings since 1964.

The eighth year of revised scheme, ryegrass and ryegrass/clover.

For previous years see 'Details' 1967 and 1973, and 74-76/R/AG/6.

Treatments: All combinations of:-

Whole plots

1. OLDRESD — Fertilisers and organic manures applied to roots every fourth year, in the period 1848-1948:

NONE	None
PKNAMG	P K Na Mg
NPKNAMGC	N P K Na Mg C

N: 48 kg N as sulphate of ammonia
P: 41 kg P as superphosphate
K: 224 kg K as sulphate of potash
Na: 16 kg Na as sulphate of soda
Mg: 11 kg Mg as sulphate of magnesia
C: Castor meal at 2240 kg supplying about 112 kg N

NOTE: Yields taken only from OLDRESD NONE.

2. (RN)CROP (77) — Rotation 1848-1951 and crop 1977:

(F) G/C	With fallow: Roots (turnips or swedes), barley, fallow, wheat 1848-1951. Grass/clover 1977.
(L) G	With legume: Roots, barley, legume (clover or beans), wheat 1848-1951. Grass 1977.

Half plots

3. 1964RESD — Residues of 1964 treatments:

P
K

Quarter plots

4. PREVCROP — Previous cropping 1958-69 on P-test half plots, 1958-70 on K-test half plots:

ARABLE	Arable or fallow
GRASS	Grass

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77/R/AG/6

Sixteenth plots

5. P205 64 K20 64 Rates of 1964 treatments (kg):

P205 to P-test half plots	K20 to K-test half plots
0	0
500	315
1000	630
2000	1260

Sixty fourth plots

6. On P-test half plots:

P205 70-2 Residues of P205 applied 1970-72 (total, kg):

0
375

On K-test half plots:

K20 73-6 Residues of K20 applied 1973-76 (total, kg):

0
870

NOTE: Strips of sixty fourth plots on P-test half plots tested 63 and 94 kg N in 1976. Yields in 1977 were to be taken only from strips given 94 kg N. Strips of sixty fourth plots on K-test half plots were cropped with potatoes and barley in 1976. Yields in 1977 were to be taken only from strips cropped with potatoes. Because growth was sparse no yield cuts were taken. The experiment was topped in December.

Sub plot dimensions: Plots 1, 2, 3 and 4 - 6.04 x 3.02. Plots 5, 6 - 5.43 x 3.02.

Standard applications: Manures: Grass plots only: N at 100 kg as 'Nitro-Chalk'.
Weedkillers: MCPB (Tropotox at 7.0 l in 340 l).

Seed: Grass plots: S.23, sown at 22 kg. Grass/clover plots: S.23 at 22 kg, Blanca at 2 kg, mixture sown at 24 kg.

Cultivations, etc.:- Ploughed: 7 Dec, 1976. Spring-tine cultivated: 7 Apr, 1977. N applied: 27 Apr. Power harrowed: 19 May. Seed sown, harrowed: 20 May. Weedkiller applied: 27 July. Topped: 1 Dec.

https://doi.org/10.23637/ERADOC-1-29 *pp 24*

77/R/BN/7

BARNFIELD

Object: The experiment was designed to study the effects of organic and inorganic manures on continuous root crops. It has been progressively modified to study effects on other crops.

Sections 1 and 2 fallow. The third year of Italian ryegrass on the rest of the experiment except for the discard of Strip 4, sown to wheat for take-all studies.

For previous years see 'Details' 1967 & 1973 and 74-76/R/BN/7.

Plot dimensions: Ryegrass: 10.7 x 55.9.

Treatments to ryegrass: All combinations of:-

Whole plots

1. MANURE Fertilisers and organic manures:

DN	D N
DNPK	D N P K
NPKMG	N P K (Na) Mg
NP	N P
NPK	N P K
NPMG	N P (Na) Mg
N	N

N: 100 kg N before first cut, 75 kg N after first and second cuts. All as 'Nitro-Chalk'.
P: 35 kg P as single superphosphate (triple superphosphate in 1974).
K: 225 kg K as sulphate of potash.
(Na): 90 kg Na as sodium chloride until 1973
Mg: 90 kg Mg as kieserite every fourth year since 1974 (sulphate of magnesia until 1973).
D: Farmyard manure at 35 tonnes (until 1975).

Quarter plots

2. NFORMRES Residues of forms of N (each supplying 96 kg N):

NS	Nitrate of soda
SA	Sulphate of ammonia
SA/CM	Sulphate of ammonia + castor meal
CM	Castor meal

Castor meal last applied 1961, others until 1959.

Plus one plot MANURE NKMG

NOTES: (1) Yields were taken only from half plots cropped with sugar beet in 1973.
(2) P K Mg and D treatments were applied to Sections 1 and 2, fallow in 1977.

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77/R/BN/7

Standard applications:
Ryegrass: Weedkiller: Mecoprop ('Methoxone 3' at 3.5 l in 220 l).
Fallow: Weedkillers: Paraquat at 0.28 kg ion in 340 l. 2,4-DB at 2.3 kg in 220 l.

Cultivations, etc.:- P applied: 25 Aug, 1976. K applied: 26 Aug.
Ryegrass: N applied: 14 Mar, 1977, 1 June, 29 July. Weedkiller applied: 30 Mar. Cut: 30 May, 20 July, 29 Nov.
Fallow: 2,4-DB applied: 7 Sept, 1976. FYM applied: 25 Oct. Ploughed: 27 Oct. Paraquat applied: 13 May, 1977. Spring-tine cultivated: 19 May. Rotary cultivated twice: 6 June, 6 July. Rotary harrowed: 17 Oct.

1ST CUT (30/5/77) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

NFORMRES / MANURE	NS	SA	SA/CM	CM	MEAN
DN	6.50	6.40	6.10	6.03	6.26
DNPK	6.84	5.67	5.59	6.02	6.03
NPKMG	5.42	4.93	4.99	4.67	5.00
NP	4.67	4.44	5.23	5.00	4.84
NPK	5.12	4.84	4.94	4.71	4.90
NPMG	4.63	4.27	5.73	5.37	5.00
N	3.71	3.33	4.98	5.24	4.32
MEAN	5.27	4.84	5.37	5.29	5.19

MANURE NKMG 4.06

GRAND MEAN 5.15

1ST CUT MEAN DM% 23.9

2ND CUT (20/7/77) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

NFORMRES / MANURE	NS	SA	SA/CM	CM	MEAN
DN	4.91	4.83	4.76	5.08	4.89
DNPK	4.13	4.44	4.26	4.10	4.23
NPKMG	4.07	3.74	4.10	4.21	4.03
NP	3.27	3.51	3.69	3.63	3.53
NPK	3.89	4.10	3.94	3.78	3.93
NPMG	3.45	3.80	3.56	3.56	3.59
N	1.71	3.35	3.79	3.62	3.12
MEAN	3.64	3.97	4.02	4.00	3.90

MANURE NKMG 3.92

GRAND MEAN 3.90

2ND CUT MEAN DM% 26.1

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77/R/BN/7

3RD CUT (29/11/77) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

NFORMRES MANURE	NS	SA	SA/CM	CM	MEAN
DN	3.53	3.40	3.37	3.76	3.52
DNPK	3.77	4.07	3.99	3.73	3.89
NPKMG	2.75	2.73	2.88	2.23	2.65
NP	2.27	2.03	2.49	1.98	2.19
NPK	2.51	2.39	2.63	2.12	2.41
NPMG	2.46	2.43	2.41	2.46	2.44
N	2.67	2.30	2.19	2.01	2.29
MEAN	2.85	2.77	2.85	2.61	2.77

MANURE NKMG 2.07

GRAND MEAN 2.75

3RD CUT MEAN DM% 25.8

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

NFORMRES MANURE	NS	SA	SA/CM	CM	MEAN
DN	14.95	14.63	14.24	14.88	14.67
DNPK	14.74	14.18	13.84	13.84	14.15
NPKMG	12.25	11.41	11.96	11.12	11.69
NP	10.22	9.97	11.41	10.61	10.55
NPK	11.52	11.34	11.51	10.61	11.24
NPMG	10.55	10.50	11.70	11.39	11.03
N	8.10	8.98	10.96	10.87	9.73
MEAN	11.76	11.57	12.23	11.90	11.87

MANURE NKMG 10.05

GRAND MEAN 11.80

TOTAL OF 3 CUTS MEAN DM% 25.3

PLOT AREA HARVESTED 0.00568

https://doi.org/10.23637/ERADOC-1-29

77/R/GC/8

GARDEN CLOVER

Object: To study yields and pathogens of red clover grown continuously - Manor Garden.

The 124th year, red clover.

For previous years see 'Details' 1967 & 1973, and 74-76/R/GC/8.

Whole plot dimensions: 2.13 x 3.05.

Treatments: All combinations of:-

1. VARIETY — Varieties:

   HUNGAROP — Hungaropoly (resistant to Sclerotinia trifoliorum)
   S.123 — S.123 (susceptible to S. trifoliorum)

2. ALDICARB — Aldicarb to seedbed (kg):

   0
   10

NOTE: Many plants failed to survive the winter. Gaps were re-sown in spring.

Basal applications: Manures: (0:14:28) at 540 kg. K20 at 75 kg, as muriate of potash, after each cut except the last. Mg at 110 kg, as Epsom salts, half in spring, half after first cut. N at 130 kg, as 'Nitro-Chalk', in spring and after each cut except the last.

Seed: Sown at 34 kg.

Cultivations, etc.:- Basal PK and Mg applied: 28 Feb, 1977. Seed sown in gaps, aldicarb and N applied: 28 Apr. Cut: 21 June. Basal N and K applied: 24 June. Cut, basal N, K and Mg applied: 27 July. Cut, basal N and K applied: 6 Sept. Cut: 19 Oct.

NOTE: Samples of herbage were taken for determination of N, P, K, Ca, Na and Mg.

DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

VARIETY	HUNGAROP		S.123		
ALDICARB	0	10	0	10	MEAN
1ST CUT (21/6/77)	0.79	1.58	0.03	0.60	0.75
2ND CUT (27/7/77)	0.66	2.00	0.19	1.65	1.12
3RD CUT (6/9/77)	0.68	1.74	0.61	1.28	1.08
4TH CUT (19/10/77)	0.72	1.05	0.48	0.82	0.77
TOTAL OF 4 CUTS	2.84	6.38	1.31	4.35	3.72

MEAN DM% 1ST CUT 15.3 2ND CUT 21.4
3RD CUT 12.8 4TH CUT 13.7
TOTAL OF 4 CUTS: 15.8

PLOT AREA HARVESTED 0.00011

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77/S/RN/1

ROTATION I

Object: To compare nutrient cycles, uptakes of nutrients and responses to fresh P and K. To obtain an estimate of the rate of release of nutrients, particularly K, from Saxmundham soil - Saxmundham.

Sponsor: A.E. Johnston.

The 79th year, grass, lucerne, potatoes, barley and beans.

For previous years see 'Details' 1967 & 1973, and 74-76/S/RN/1.

Whole plot dimensions (new treatments): 5.49 x 17.1.

Treatments: From 1899 to 1969 the experiment followed a four-course rotation of wheat, roots, barley, legumes. Each phase of the rotation was present each year on a separate block. From 1966 each plot was divided, a small area at the south end being continued under the original treatment (OLDTREAT), modified treatments (NEWTREAT) being applied on the larger sub-plots (see below).

In 1970 the rotation was stopped and each pair of blocks was divided for lucerne and grass
(the OLDTREAT sub-plots form a part of the Grass area).

TREATMENT 1899-1965	OLDTREAT Grass	NEWTREAT Lucerne	NEWTREAT Grass
	MANURE	MANURE	MANURE
D	(D)	(D)	(D)N
B	B	B	BN
N	N	(N)P2	(N)P2N
P	P	(P)P1	(P)P1N
K	K	(K)P2K	(K)P2KN
-	-	(-)P2	(-)P2N
PK	PK	(PK)P1K	(PK)P1KN
NK	NK	(NK)P2K	(NK)P2KN
NP	NP	(NP)P1	(NP)P1N
NPK	NPK	(NPK)P1K	(NPK)P1KN

D: Farmyard manure at 15 tonnes
(D): Farmyard manure at 30 tonnes (1966-1969 15 tonnes on OLDTREAT), 60 tonnes in autumn 1969, none since
B: Bone meal at 0.5 tonnes
N: 1899-1965 - 38 kg N as nitrate of soda. Since 1970 - 100 kg N (38 kg N on OLDTREAT) per cut as 'Nitro-Chalk'
P: 1899-1965 40 kg P205 as single superphosphate. Since 1966 50 kg P205 as triple superphosphate
P1,P2: 50, 100 kg P205 as triple superphosphate (single superphosphate until 1965)
K: 1899-1965 63 kg K20 as muriate of potash. Since 1966 - 126 kg K20 (75 kg K20 on OLDTREAT)

NOTES: (1) For a fuller record of treatments see 'Details' etc.
(2) On OLDTREAT grass, clover appeared naturally on some plots in 1975. To unify the plots white clover was sown on all at 33 kg.
(3) Lucerne was resown in 1976.

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In 1977 lucerne was ploughed on one pair of blocks and the area divided into three for the first three phases of the arable four-course rotation barley, potatoes, winter beans, wheat. Whole plot treatments are continued on the ploughed area as for NEWTREAT lucerne except all crops, except beans, are given N and plots previously given farmyard manure now receive phosphate fertiliser. Plots on this area are randomly subdivided for each crop for a test of potash fertiliser. All combinations of the following are present:

1. MANURE

Beans	Potatoes and barley
(D)P2	(D)P2N
B	BN
(N)P2	(N)P2N
(P)P1	(P)P1N
(K)P2K	(K)P2KN
(-)P2	(-)P2N
(PK)P1K	(PK)P1KN
(NK)P2K	(NK)P2KN
(NP)P1	(NP)P1N
(NPK)P1K	(NPK)P1KN

Symbols as above except N = 250 kg (potatoes); 94 kg (Barley)

2. POTASH Additional potash fertiliser, as muriate of potash (kg K20):

Barley and beans	Potatoes
0	0
63	224

Standard applications:
Barley: Weedkillers: Ioxynil at 0.42 kg with mecoprop at 1.3 kg in 340 l.
Potatoes: Weedkillers: Linuron at 0.93 kg with paraquat at 0.28 kg ion in 280 l. Fungicide: Mancozeb at 1.3 kg in 280 l on four occasions. Insecticide: Menazon ('Saphi-Col' at 0.7 l) applied with the first fungicide application.

Seed: Barley: Julia, sown at 190 kg.
Potatoes: Pentland Crown.
Beans: Minden, sown at 270 kg.

Cultivations, etc.:-
OLDTREAT Grass: P, K and bone meal applied: 16 Feb, 1977. N applied: 16 Mar, 15 June. Cut: 1 June, 28 Sept.
NEWTREAT Grass: P, K and bone meal applied: 16 Feb. N applied: 16 Mar, 15 June, 27 July. Cut: 1 June, 21 July, 28 Sept.
Lucerne: P, K and bone meal applied: 16 Feb. Cut: 15 June, 10 Aug.
All tillage crops: Ploughed: 12 Nov, 1976. Bone meal applied: 16 Feb, 1977. K and additional K applied: 16 Mar.
Potatoes: N applied and planted: 28 Apr. Weedkillers applied: 25 May. Fungicide with insecticide applied: 6 July. Fungicide only applied: 21 July, 10 Aug, 21 Sept. Lifted: 18 Oct.
Barley: Sown and N applied: 6 Apr. Weedkillers applied: 26 May. Combine harvested: 31 Aug.
Beans: Sown: 7 Apr. Combine harvested: 8 Sept.

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77/S/RN/1 GRASS OLDTREAT

DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

	1ST CUT (1/6/77)	2ND CUT (28/9/77)	TOTAL OF 2 CUTS
MANURE			
(D)	2.07	1.04	3.11
B	1.87	1.02	2.89
N	2.34	1.19	3.53
P	1.82	1.05	2.87
K	0.84	0.42	1.26
-	1.07	0.59	1.66
PK	2.31	0.95	3.26
NK	2.68	1.21	3.89
NP	2.75	1.41	4.16
NPK	3.64	1.69	5.33
MEAN	2.14	1.06	3.20

1ST CUT MEAN DM% 30.0

2ND CUT MEAN DM% 43.3

TOTAL OF 2 CUTS MEAN DM% 36.6

PLOT AREA HARVESTED 0.00050

77/S/RN/1 GRASS NEWTREAT

DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

	1ST CUT (1/6/77)	2ND CUT (21/7/77)	3RD CUT (28/9/77)	TOTAL OF 3 CUTS
MANURE				
(D)N	8.21	3.25	2.00	13.46
BN	6.94	2.56	1.94	11.44
(N)P2N	7.11	2.47	1.94	11.51
(P)P1N	6.81	2.42	1.91	11.14
(K)P2KN	7.58	2.66	2.25	12.49
(-)P2N	7.07	2.43	1.85	11.35
(PK)P1KN	7.39	2.61	2.13	12.13
(NK)P2KN	7.58	2.91	2.31	12.81
(NP)P1N	6.48	2.33	1.70	10.51
(NPK)P1K	7.57	2.93	1.79	12.29
MEAN	7.27	2.66	1.98	11.91

1ST CUT MEAN DM% 27.6
2ND CUT MEAN DM% 34.6
3RD CUT MEAN DM% 32.4
TOTAL OF 3 CUTS MEAN DM% 31.5

1ST CUT PLOT AREA HARVESTED 0.00124
2ND CUT PLOT AREA HARVESTED 0.00116
3RD CUT PLOT AREA HARVESTED 0.00112

https://doi.org/10.23637/ERADOC-1-29

77/S/RN/1 LUCERNE NEWTREAT

***** TABLES OF MEANS *****

MANURE	1ST CUT (15/6/77)	2ND CUT (10/8/77)	TOTAL OF 2 CUTS
(D)	3.43	2.04	5.46
B	2.88	1.60	4.48
(N)P2	2.99	1.61	4.60
(P)P1	2.46	1.60	4.06
(K)P2K	2.81	1.67	4.49
(-)P2	3.17	1.73	4.90
(PK)P1K	2.80	1.80	4.61
(NK)P2K	2.78	1.90	4.68
(NP)P1	2.81	1.69	4.50
(NPK)P1K	3.10	2.10	5.19
MEAN	2.92	1.77	4.70

1ST CUT MEAN DM% 20.6
2ND CUT MEAN DM% 31.2
TOTAL OF 2 CUTS MEAN DM% 25.9

PLOT AREA HARVESTED 0.00156

77/S/RN/1 POTATOES

TUBERS TONNES/HECTARE

***** TABLES OF MEAN *****

POTASH MANURE	0	224	MEAN
(D)P2N	38.1	39.8	39.0
BN	25.2	32.5	28.8
(N)P2N	21.6	33.1	27.4
(P)P1N	24.3	31.4	27.9
(K)P2KN	36.7	39.9	38.3
(-)P2N	29.1	36.8	33.0
(PK)P1KN	39.2	40.9	40.1
(NK)P2KN	37.7	40.4	39.1
(NP)P1N	21.9	34.0	27.9
(NPK)P1K	35.4	37.8	36.6
MEAN	30.9	36.7	33.8

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	POTASH	MANURES* POTASH
SED	0.78	2.46

* WITHIN SAME LEVEL OF MANURE ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	9	1.57	4.7
BLOCK.WP.SP	10	2.46	7.3

SUB PLOT AREA HARVESTED 0.00143

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77/S/RN/1 BARLEY

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

POTASH MANURE	0	63	MEAN
(D)P2N	5.27	6.08	5.68
BN	5.57	5.90	5.73
(N)P2N	5.74	5.86	5.80
(P)P1N	5.62	5.89	5.75
(K)P2KN	6.24	6.02	6.13
(-)P2N	5.74	5.69	5.72
(PK)P1KN	5.77	6.06	5.92
(NK)P2KN	5.76	5.88	5.82
(NP)P1N	5.61	5.27	5.44
(NPK)P1K	5.07	5.46	5.26
MEAN	5.64	5.81	5.72

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	POTASH	MANURE* POTASH
SED	0.119	0.376

* WITHIN SAME LEVEL OF MANURE ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	9	0.220	3.8
BLOCK.WP.SP	10	0.376	6.6

GRAIN MEAN DM% 79.8

STRAW TONNES/HECTARE

***** TABLES OF MEANS *****

POTASH MANURE	0	63	MEAN
(D)P2N	3.08	3.68	3.38
BN	3.58	3.59	3.58
(N)P2N	3.32	3.67	3.50
(P)P1N	3.47	3.82	3.65
(K)P2KN	4.06	3.67	3.86
(-)P2N	3.72	3.87	3.80
(PK)P1KN	3.76	4.17	3.97
(NK)P2KN	3.74	4.03	3.89
(NP)P1N	3.29	3.21	3.25
(NPK)P1K	3.14	3.14	3.14
MEAN	3.52	3.69	3.60

STRAW MEAN DM% 66.9

SUB PLOT AREA HARVESTED 0.00077

https://doi.org/10.23637/ERADOC-1-29

77/S/RN/1 BEANS

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

POTASH MANURE	0	63	MEAN
(D)P2	4.62	4.21	4.42
B	4.30	3.64	3.97
(N)P2	3.88	2.81	3.34
(P)P1	3.06	3.58	3.32
(K)P2K	4.18	3.91	4.04
(-)P2	3.87	3.70	3.78
(PK)P1K	3.99	3.65	3.82
(NK)P2K	4.21	3.99	4.10
(NP)P1	4.00	3.67	3.83
(NPK)P1K	3.45	3.61	3.53
MEAN	3.96	3.68	3.82

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	POTASH	MANURE* POTASH
SED	0.065	0.207

* WITHIN SAME LEVEL OF MANURE ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	9	0.428	11.2
BLOCK.WP.SP	6	0.207	5.4

GRAIN MEAN DM% 71.2

SUB PLOT AREA HARVESTED 0.00138

https://doi.org/10.23637/ERADOC-1-29

77/S/RN/2

ROTATION II

Object: To measure, by crop yields and soil analysis, the residual value of P applied as FYM or superphosphate in the periods 1899-1964 and 1965-1967 - Saxmundham.

Sponsors: G.E.G. Mattingly, A.E. Johnston.

The ninth year of revised scheme, wheat, barley.

For previous years see 'Details' 1967 & 1973, and 74-76/S/RN/2.

Whole plot dimensions: 5.49 x 39.8.

Treatments: From 1899-1964 the experiment tested farmyard manure and nitrogen and phosphate fertilisers applied to a rotation of crops. Since 1965 the treatments have been changed to evaluate old residues of P (from FYM and superphosphate) and new residues from treatments applied 1965-1967. All crops of the rotation - potatoes, barley, sugar beet, barley - were grown until 1974. The whole experiment was sown to barley in 1975 and 1976, wheat and barley in 1977, and tests combinations of:

Whole plots

1. RESIDUE Residues of previous treatments:-

		Approximate total dressing 1899-1964	Total dressing 1965-1967
(0)0	Plot 1	None	None
(D)0	Plot 2	400 tonnes FYM	None
(DP)0	Plot 3	400 tonnes FYM, 2.7 tonnes P205	None
(DP)D2	Plot 4	400 tonnes FYM, 2.7 tonnes P205	100 tonnes FYM
(DP)D2P1	Plot 5	400 tonnes FYM, 2.7 tonnes P205	100 tonnes FYM, 0.56 tonnes P205
(DP)P1	Plot 6	400 tonnes FYM, 2.7 tonnes P205	0.56 tonnes P205
(DP)P2	Plot 7	400 tonnes FYM, 2.7 tonnes P205	1.13 tonnes P205
(DP52)0	Plot 8	326 tonnes FYM, 4.3 tonnes P205 (until 1952 only)	None

3rd barley after potatoes or sugar beet (1974) tests in addition to 1:-

Sub plots

2. P205 72 Phosphate in 1970-72 (total P205 applied (kg)):

0	0 (2 sub plots/plot)
126	126
252	252
378	378

and some of the combinations of 2 with:-

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3. P205 746 Phosphate in 1974-76 (kg P205):

	1974	1975-6
0	None	None
63x3	63	63
189	189	None

Wheat (Maris Huntsman) after barley (1974-76) after potatoes (1973) and: Wheat (Cappelle) after barley (1974-76) after sugar beet (1973), test in addition to 1:

Sub plots

2. P205 71 Phosphate residues 1969-71 (total P205 applied (kg)):

0	0 (2 sub plots/plot)
126	126
252	252
378	378

and some of the combinations of 2 with:-

3. P205 735 Phosphate in 1973-75 (kg P205):

	1973	1974, 75
0	None	None
63x3	63	63
189	189	None

Standard applications:
Winter wheat: Manures: K20 at 150 kg as muriate of potash. N at 50 kg at drilling as 'Nitro-Chalk'. N at 125 kg top-dressed in spring as 'Nitro-Chalk'. Weedkillers: Ioxynil at 0.53 kg with mecoprop at 1.6 kg in 340 l.
Barley: Manures: K20 at 150 kg as muriate of potash. After barley (1975-76) after potatoes (1974): N at 94 kg as 'Nitro-Chalk' (N2). After barley (1975-76) after sugar beet (1974): N at 63 kg as 'Nitro-Chalk' (N1). Weedkillers: Ioxynil at 0.42 kg with mecoprop at 1.3 kg in 340 l. Fungicide: Tridemorph at 0.53 kg applied with the weedkillers.

Seed: Winter wheat varieties sown at 200 kg.
Barley: Julia, dressed ethirimol, sown at 190 kg.

Cultivations, etc.:- K applied: 17 Aug, 1976. Ploughed: 6 Sept.
Winter wheat: Sown: 23 Nov. Spring N applied: 28 Apr, 1977. Weedkillers applied: 14 May. Harvested: 1 Sept.
Barley: Sown, N applied: 6 Apr. Weedkillers plus fungicide applied: 25 May. Harvested: 31 Aug.

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WINTER WHEAT (MARIS HUNTSMAN) AFTER BARLEY 1974-76 POTATOES 1973

***** TABLES OF MEANS *****

		GRAIN TONNES/HECTARE			STRAW TONNES/HECTARE		
	P205 735	0	63X3	189	0	63X3	189
RESIDUE	P205 71						
(0)0	0	4.08	4.86		2.55	3.10	
(0)0	126			4.51			2.05
(0)0	252		5.72			3.81	
(0)0	378			5.11			2.57
(D)0	0	5.00		5.00	3.15		2.34
(D)0	126		6.33			3.43	
(D)0	252			5.47			2.59
(D)0	378		5.72			3.27	
(DP)0	0	6.06		6.35	3.29		3.78
(DP)0	126		6.81			4.60	
(DP)0	252			6.43			3.27
(DP)0	378		5.94			3.52	
(DP)D2	0	6.45	6.77		3.66	4.33	
(DP)D2	126			5.61			2.86
(DP)D2	252		6.91			3.77	
(DP)D2	378			6.43			3.66
(DP)D2P1	0	6.42		6.82	3.47		3.80
(DP)D2P1	126		5.97			3.52	
(DP)D2P1	252			6.69			4.06
(DP)D2P1	378		6.07			3.39	
(DP)P1	0	6.42		7.18	4.33		4.08
(DP)P1	126		6.33			3.81	
(DP)P1	252			6.67			4.29
(DP)P1	378		6.16			3.52	
(DP)P2	0	6.18	7.05		3.77	4.69	
(DP)P2	126			6.42			3.43
(DP)P2	252		7.03			4.00	
(DP)P2	378			6.67			3.75
(DP52)0	0	6.65	7.27		4.14	4.82	
(DP52)0	126			5.47			3.21
(DP52)0	252		6.42			3.79	
(DP52)0	378			6.52			4.70

GRAIN MEAN DM% 77.6

STRAW MEAN DM% 88.2

PLOT AREA HARVESTED 0.00077

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77/S/RN/2

WINTER WHEAT (CAPPELLE) AFTER BARLEY 1974-6 SUGAR BEET 1973

***** TABLES OF MEANS *****

		GRAIN TONNES/HECTARE			STRAW TONNES/HECTARE		
	P205 735	0	63X3	189	0	63X3	189
RESIDUE	P205 71						
(0)0	0	2.86		3.82	2.33		2.98
(0)0	126		5.15			3.80	
(0)0	252			4.67			3.10
(0)0	378		5.02			3.63	
(D)0	0	3.68	4.30		2.88	2.83	
(D)0	126			4.51			3.12
(D)0	252		5.11			3.50	
(D)0	378			5.02			3.51
(DP)0	0	5.14	5.76		4.28	4.03	
(DP)0	126			5.54			4.06
(DP)0	252		5.66			3.30	
(DP)0	378			5.88			4.19
(DP)D2	0	6.21		6.12	3.81		4.66
(DP)D2	126		6.74			4.61	
(DP)D2	252			6.47			4.42
(DP)D2	378		6.36			4.48	
(DP)D2P1	0	6.86	6.35		4.81	4.85	
(DP)D2P1	126			6.31			4.85
(DP)D2P1	252		6.89			4.82	
(DP)D2P1	378			6.35			4.02
(DP)P1	0	6.27	6.33		4.83	4.56	
(DP)P1	126			6.50			4.40
(DP)P1	252		6.50			4.28	
(DP)P1	378			6.33			4.70
(DP)P2	0	5.87		6.24	4.16		4.19
(DP)P2	126		6.11			4.04	
(DP)P2	252			6.26			4.36
(DP)P2	378		6.82			4.75	
(DP52)0	0	6.47		6.02	4.42		3.97
(DP52)0	126		5.87			4.82	
(DP52)0	252			6.51			5.33
(DP52)0	378		5.42			4.16	

GRAIN MEAN DM% 78.1

STRAW MEAN DM% 85.6

PLOT AREA HARVESTED 0.00077

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BARLEY AFTER BARLEY 1975-6 POTATOES 1974
AND
BARLEY AFTER BARLEY 1975-6 SUGAR BEET 1974

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

PREVIOUS CROP 1974

		POTATOES(N2)			SUGAR BEET(N1)		
	P205 746	0	63X3	189	0	63X3	189
RESIDUE	P205 72						
(0)0	0	4.43		4.19	4.16	4.68	
(0)0	126		5.53				4.20
(0)0	252			4.55		4.80	
(0)0	373		4.77				4.54
(D)0	0	4.43	5.76		4.94		5.17
(D)0	126			4.65		5.42	
(D)0	252		5.00				5.27
(D)0	373			5.96		5.29	
(DP)0	0	5.13	5.23		5.06		5.27
(DP)0	126			5.61		5.79	
(DP)0	252		6.58				5.51
(DP)0	373			5.16		5.29	
(DP)D2	0	5.84		5.62	5.48	5.39	
(DP)D2	126		5.63				5.54
(DP)D2	252			6.48		5.79	
(DP)D2	373		5.85				5.55
(DP)D2P1	0	5.91	5.79		5.77		5.62
(DP)D2P1	126			5.91		5.68	
(DP)D2P1	252		6.20				6.28
(DP)D2P1	373			6.55		5.68	
(DP)P1	0	5.85	5.55		5.68		5.66
(DP)P1	126			5.03		5.79	
(DP)P1	252		6.55				5.94
(DP)P1	373			6.02		5.89	
(DP)P2	0	6.34		5.86	5.80	5.29	
(DP)P2	126		6.03				5.27
(DP)P2	252			5.89		5.91	
(DP)P2	373		5.55				5.91
(DP52)0	0	5.21		5.59	5.01	5.55	
(DP52)0	126		5.62				5.07
(DP52)0	252			5.71		5.28	
(DP52)0	373		6.11				5.54

GRAIN MEAN DM% (PREVIOUS CROP 1974 POTATOES) 79.7

GRAIN MEAN DM% (PREVIOUS CROP 1974 SUGAR BEET) 80.1

PLOT AREA HARVESTED 0.00077

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