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# Yields of the Field Experiments 1987

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## 87/R/HB/2 Hoosfield - S. Barley

### Rothamsted Research

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87/R/HB/2

HOOSFIELD

Object: To study the effects of organic and inorganic manures on continuous s. barley. From 1968 to 1978 a rotation of potatoes, beans and s. barley was practised. The rotation was discontinued in 1979 and the experiment reverted to continuous s. barley.

The 136th year, s. barley.

For previous years see 'Details' 1967 and 1973, Station Report for 1966 and 74-86/R/HB/2.

Treatments: All combinations of:-

1. MANURE Fertilizers and organic manures:

	Form of N 1852-1966	Additional treatments 1852-1979	Changes since 1980
---	None	-	-
-P-	None	P	-
--K	None	K(Na)Mg	-
-PK	None	PK(Na)Mg	-
A--	A	-	-
AP-	A	P	-
A-K	A	K(Na)Mg	-
APK	A	PK(Na)Mg	-
N----	N	-	-
NP---	N	P	-
N-K--	N	K(Na)Mg	-
NPK--	N	PK(Na)Mg	-
N--S-	N	Si	Si omitted
NP-S-	N	P Si	"
N-KS-	N	K(Na)MgSi	"
NPKS-	N	PK(Na)MgSi	"
N---S	N	-	Si added
NP--S	N	P	"
N-K-S	N	K(Na)Mg	"
NPK-S	N	PK(Na)Mg	"
N--SS	N	Si	-
NP-SS	N	P Si	-
N-KSS	N	K(Na)MgSi	-
NPKSS	N	PK(Na)MgSi	-
C(--)	C	-	PKMg omitted
C(P-)	C	P	"
C(-K)	C	K(Na)Mg	"
C(PK)	C	PK(Na)Mg	"
D	None	D	-
(D)	(D)	-	-
(A)	(Ashes)	-	-
-	None	-	-

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

87/R/HB/2

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

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

0  
48  
96  
144

Plus extra plots testing all combinations of:-

1. MANURE Fertilizers other than magnesium:

551AN2PK	Plot 551 AN2PK
561--PK	Plot 561 --PK
571NN2--	Plot 571 NN2
581NN2--	Plot 581 NN2

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

2. MAGNESIUM Magnesium fertilizer (kg Mg) as kieserite every third year since 1974:

0  
35

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

Basal applications: Weedkillers: Glyphosate at 1.4 kg in 200 l. Clopyralid at 0.07 kg and bromoxynil at 0.34 kg with mecoprop at 2.5 kg in 200 l. Fungicide: Tridemorph at 0.52 kg in 200 l.

Seed: Triumph, dressed triadimenol and fuberidazole, sown at 160 kg.

Cultivations, etc.: - Glyphosate applied: 6 Nov, 1986. Silicate of soda, K and P applied: 28 Nov. FYM applied, ploughed: 2 Dec. Spring-tine cultivated, seed sown: 16 Mar, 1987. N applied: 24 Apr. Remaining weedkillers applied: 5 May. Fungicide applied: 29 May. Combine harvested: 21 Aug.

87/R/HB/2

GRAIN TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

N	0	48	96	144	Mean
MANURE					
---	0.95	1.56	2.27	1.98	1.69
-P-	2.38	3.92	3.39	3.35	3.26
--K	1.82	2.66	3.47	2.94	2.72
-PK	2.30	3.64	5.26	5.54	4.19
A--	1.46	1.56	1.48	2.36	1.72
AP-	2.79	3.79	2.43	1.81	2.71
A-K	1.48	1.97	2.38	2.85	2.17
APK	2.51	4.14	5.47	5.77	4.47
N----	1.82	2.59	2.12	2.95	2.37
NP---	2.65	4.28	3.32	2.34	3.15
N-K--	1.60	1.70	2.21	2.32	1.96
NPK--	2.91	4.39	5.10	5.74	4.54
N--S-	1.80	3.45	3.23	2.99	2.87
NP-S-	2.88	3.91	4.43	4.47	3.92
N-KS-	1.90	3.04	4.42	5.23	3.65
NPKS-	2.47	4.56	5.48	5.68	4.55
N---S	1.83	2.13	2.46	3.46	2.47
NP--S	3.43	4.21	5.34	4.29	4.32
N-K-S	1.74	2.73	3.11	2.49	2.52
NPK-S	2.67	3.83	5.01	6.23	4.44
N--SS	1.73	2.49	3.06	3.37	2.66
NP-SS	3.39	4.75	4.61	4.70	4.36
N-KSS	1.57	2.76	3.27	3.39	2.75
NPKSS	2.11	4.52	6.30	5.44	4.59
C(--)	1.83	3.39	3.70	4.18	3.28
C(P-)	2.64	3.98	4.08	4.46	3.79
C(-K)	1.54	4.02	3.92	5.00	3.62
C(PK)	1.97	3.90	5.01	5.31	4.05
D	5.89	6.14	5.87	6.18	6.02
(D)	1.98	4.34	3.96	3.98	3.57
(A)	2.90	3.59	3.83	4.01	3.58
-	2.21	2.52	2.81	1.96	2.37
Mean	2.29	3.45	3.84	3.96	3.38

GRAIN MEAN DM% 84.8

87/R/HB/2

STRAW TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

N	0	48	96	144	Mean
MANURE					
---	0.35	0.72	0.91	0.91	0.72
-P-	0.91	1.85	1.85	2.59	1.80
--K	0.71	1.23	2.15	2.02	1.53
-PK	1.09	2.16	3.10	3.68	2.51
A--	0.54	0.73	0.72	1.10	0.77
AP-	1.10	2.01	1.66	1.29	1.52
A-K	0.72	1.42	1.24	1.41	1.20
APK	1.09	1.97	3.26	3.97	2.57
D	3.54	4.35	4.68	4.69	4.32
(D)	0.96	2.40	2.20	2.64	2.05
(A)	1.19	1.92	1.94	2.17	1.81
-	0.72	1.43	1.69	2.27	1.53
Mean	1.08	1.85	2.12	2.39	1.86

STRAW MEAN DM% 89.2

PLOT AREA HARVESTED 0.00161

EXTRA PLOTS

GRAIN TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

MANURE	551AN2PK	561--PK	571NN2--	581NN2--	Mean
MGNESIUM					
0	4.34	1.04	3.76	2.30	2.86
35	4.97	1.39	3.69	2.35	3.10
Mean	4.65	1.22	3.72	2.33	2.98

GRAIN MEAN DM% 85.3

PLOT AREA HARVESTED 0.00344