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Yields of the Field Experiments 1983

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83/R/HB/2 Hoosfield - S. Barley

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83/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 132nd year, s. barley.

For previous years see 'Details' 1967 and 1973, Station Report for 1966 and 74-82/R/HB/2.

Treatments: All combinations of:-
1. MANURE Fertilizers, organic manures and frequency of barley cropping:

	Form of N 1852-1966	Additional treatments 1852-1979	Changes since 1980	Number of barley crops since last non-cereal
---16F	None	-	-	16 after fallow
-P-16F	None	P	-	16 after fallow
--K16F	None	K(Na)Mg	-	16 after fallow
-PK16F	None	PK(Na)Mg	-	16 after fallow
A--16F	A	-	-	16 after fallow
AP-16F	A	P	-	16 after fallow
A-K16F	A	K(Na)Mg	-	16 after fallow
APK16F	A	PK(Na)Mg	-	16 after fallow
N----16F	N	-	-	16 after fallow
NP---16F	N	P	-	16 after fallow
N-K--16F	N	K(Na)Mg	-	16 after fallow
NPK--16F	N	PK(Na)Mg	-	16 after fallow
N--S-16F	N	Si	Si omitted	16 after fallow
NP-S-16F	N	P Si	"	16 after fallow
N-KS-16F	N	K(Na)MgSi	"	16 after fallow
NPKS-16F	N	PK(Na)MgSi	"	16 after fallow
N---S5BE	N	-	Si added	5 after beans
NP--S5BE	N	P	"	5 after beans
N-K-S5BE	N	K(Na)Mg	"	5 after beans
NPK-S5BE	N	PK(Na)Mg	"	5 after beans
N--SS5BE	N	Si	-	5 after beans
NP-SS5BE	N	P Si	-	5 after beans
N-KSS5BE	N	K(Na)MgSi	-	5 after beans
NPKSS5BE	N	PK(Na)MgSi	-	5 after beans
C(--)16F	C	-	PKMg omitted	16 after fallow
C(P-)16F	C	P	"	16 after fallow
C(-K)16F	C	K(Na)Mg	"	16 after fallow
C(PK)16F	C	PK(Na)Mg	"	16 after fallow
C(--)6BE	C	-	"	6 after beans
C(P-)6BE	C	P	"	6 after beans
C(-K)6BE	C	K(Na)Mg	"	6 after beans
C(PK)6BE	C	PK(Na)Mg	"	6 after beans
C(--)5BE	C	-	"	5 after beans
C(P-)5BE	C	P	"	5 after beans
C(-K)5BE	C	K(Na)Mg	"	5 after beans
C(PK)5BE	C	PK(Na)Mg	"	5 after beans
C(--)5PO	C	-	"	5 after potatoes
C(P-)5PO	C	P	"	5 after potatoes
C(-K)5PO	C	K(Na)Mg	"	5 after potatoes
C(PK)5PO	C	PK(Na)Mg	"	5 after potatoes

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D16F	None	D	-	16 after fallow
(D)16F	(D)	-	-	16 after fallow
(A)16F	(Ashes)	-	-	16 after fallow
-16F	None	-	-	16 after fallow

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

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

There are four extra plots testing all combinations of:-

1. MANURE Fertilizers other than magnesium:

551AN2PK	Plot 551 AN2PK	16th barley
561--PK	Plot 561 --PK	16th barley
571NN2--	Plot 571 NN2	16th barley
581NN2--	Plot 581 NN2	16th barley

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

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

0
35

NOTES: (1) For a fuller record see 'Details' etc.
(2) Chalk was applied at 2.9 t to all plots in 5th barley after beans.

Basal applications: Weedkillers: Glyphosate at 1.4 kg in 120 l. Dicamba, mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l. Fungicide: Tridemorph at 0.52 kg in 250 l.

Seed: Georgie, dressed ethirimol, sown at 160 kg.

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Cultivations, etc.:- Glyphosate applied: 27 Oct, 1982. P, K, Mg and silicate of soda applied: 8 Nov. Chalk and FYM applied: 24 Nov. Ploughed: 25 Nov. Spring-tine cultivated twice: 8 Mar, 1983. Seed sown: 9 Mar. N applied: 23 May. Weedkillers applied: 24 May. Fungicide applied: 21 June. Combine harvested: 9 Aug.

BARLEY

STRAW TONNES/HECTARE

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

N MANURE	0	48	96	144	MEAN
---16F	0.19	0.18	0.38	0.39	0.29
-P-16F	0.35	0.38	0.77	1.56	0.76
--K16F	0.19	0.38	0.56	0.19	0.33
-PK16F	0.19	1.14	1.52	1.53	1.09
A--16F	0.20	0.19	0.39	0.39	0.29
AP-16F	0.59	0.78	0.95	1.16	0.87
A-K16F	0.19	0.39	0.59	0.39	0.39
APK16F	0.38	1.35	1.73	1.73	1.30
D16F	3.09	2.84	3.60	2.82	3.09
(D)16F	0.24	1.26	0.77	0.77	0.76
(A)16F	0.26	0.51	0.52	0.78	0.52
-16F	0.25	0.25	0.52	0.51	0.38
MEAN	0.51	0.80	1.02	1.02	0.84

STRAW MEAN DM% 90.8

PLOT AREA HARVESTED 0.00007

BARLEY

GRAIN TONNES/HECTARE

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

MANURE MGNESIUM	551AN2PK	561--PK	571NN2--	581NN2--	MEAN
0	3.20	0.33	1.28	1.30	1.53
35	3.04	0.40	1.66	1.49	1.65
MEAN	3.12	0.37	1.47	1.40	1.59

GRAIN MEAN DM% 85.4

PLOT AREA HARVESTED 0.00327

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BARLEY

GRAIN TONNES/HECTARE

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

N	0	48	96	144	MEAN
MANURE					
---16F	0.47	0.89	1.24	1.03	0.91
-P-16F	0.95	1.49	2.15	3.11	1.92
--K16F	0.32	0.92	1.42	1.03	0.92
-PK16F	0.78	1.99	2.68	2.82	2.07
A--16F	0.68	0.97	0.79	1.51	0.99
AP-16F	1.47	2.56	2.58	2.63	2.31
A-K16F	0.47	0.86	1.10	1.19	0.90
APK16F	0.78	1.60	1.78	3.28	1.86
N----16F	0.87	0.80	1.39	1.12	1.04
NP---16F	1.18	2.69	2.92	3.27	2.51
N-K--16F	0.66	1.12	0.72	1.24	0.93
NPK--16F	1.04	2.16	3.62	3.93	2.69
N--S-16F	1.39	1.12	1.64	1.46	1.40
NP-S-16F	0.96	2.58	3.25	3.44	2.56
N-KS-16F	1.17	1.43	2.07	2.83	1.88
NPKS-16F	1.30	1.91	3.61	4.91	2.93
N---S5BE	1.06	1.53	1.32	2.51	1.60
NP--S5BE	1.30	2.65	3.59	3.40	2.73
N-K-S5BE	0.40	1.12	1.91	1.24	1.16
NPK-S5BE	1.03	2.39	3.09	4.10	2.65
N--SS5BE	0.79	1.66	2.05	1.77	1.57
NP-SS5BE	1.30	2.59	3.98	3.79	2.91
N-KSS5BE	1.17	1.37	1.96	2.54	1.76
NPKSS5BE	0.84	2.66	3.21	4.28	2.75
C(--)16F	0.72	1.85	2.44	3.39	2.10
C(P-)16F	1.17	2.25	2.94	3.71	2.52
C(-K)16F	1.12	2.01	2.79	3.46	2.34
C(PK)16F	1.06	2.44	3.46	3.89	2.71
C(--)6BE	1.20	2.32	2.23	2.04	1.95
C(P-)6BE	0.96	2.43	2.56	3.09	2.26
C(-K)6BE	0.91	1.44	2.28	2.41	1.76
C(PK)6BE	1.50	2.70	2.90	3.37	2.62
C(--)5BE	0.79	1.58	2.63	2.37	1.84
C(P-)5BE	1.38	2.24	3.39	3.54	2.64
C(-K)5BE	0.72	2.06	2.24	2.28	1.82
C(PK)5BE	1.17	2.11	4.04	4.30	2.90
C(--)5PO	0.91	1.77	1.96	2.37	1.75
C(P-)5PO	1.25	2.38	3.13	3.40	2.54
C(-K)5PO	0.79	1.79	2.71	2.39	1.92
C(PK)5PO	0.84	2.73	3.75	3.59	2.73
D16F	2.06	3.51	2.79	4.91	3.31
(D)16F	0.29	1.83	1.98	1.47	1.39
(A)16F	0.96	1.43	1.42	1.77	1.39
-16F	0.91	0.94	1.33	1.35	1.13
MEAN	0.98	1.88	2.43	2.76	2.01

GRAIN MEAN DM% 85.2

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