ROTHAMSTED RESEARCH

Yields of the Field Experiments 1994

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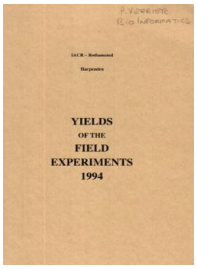

94/R/HB/2 Hoos Barley - S. Barley

Rothamsted Research

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94/R/HB/2

HOOS BARLEY

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 143rd year, s. barley.

For previous years see 'Details' 1967 and 1973, Station Report for 1966 and 74-93/R/HB/2.

Treatments: All combinations of:-

Whole plots

1. **MANURE** Plot Fertilizers and organic manures:

		Form of N 1852-1966	Additional treatments 1852-1979	Changes since 1980
---	11	None	-	-
-P-	21	None	P	-
--K	31	None	K(Na)Mg	-
-PK	41	None	PK(Na)Mg	-
A--	12	A	-	-
AP-	22	A	P	-
A-K	32	A	K(Na)Mg	-
APK	42	A	PK(Na)Mg	-
N----	131	N	-	-
NP---	231	N	P	-
N-K--	331	N	K(Na)Mg	-
NPK--	431	N	PK(Na)Mg	-
N--S-	134	N	Si	Si omitted
NP-S-	234	N	P Si	"
N-KS-	334	N	K(Na)MgSi	"
NPKS-	434	N	PK(Na)MgSi	"
N---S	132	N	-	Si added
NP--S	232	N	P	"
N-K-S	332	N	K(Na)Mg	"
NPK-S	432	N	PK(Na)Mg	"
N--SS	133	N	Si	-
NP-SS	233	N	P Si	-
N-KSS	333	N	K(Na)MgSi	-
NPKSS	433	N	PK(Na)MgSi	-
C(--)	14	C	-	PKMg omitted
C(P-)	24	C	P	"
C(-K)	34	C	K(Na)Mg	"
C(PK)	44	C	PK(Na)Mg	"
D	72	None	D	-
(D)	71	(D)	-	-
(A)	62	(Ashes)	-	-
-	61	None	-	-

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94/R/HB/2

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 triple superphosphate in 1974 and since 1988, single superphosphate in other years
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

Sub plots

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:-

Whole plots

1. **MANURE** Fertilizers other than magnesium:

55AN2PK	Plot 55 AN2PK
56--PK	Plot 56 --PK
57NN2--	Plot 57 NN2
58NN2--	Plot 58 NN2

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

Sub plots

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

0
35

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

Experimental diary:

19-Nov-93 : **T** : P applied.
22-Nov-93 : **T** : Si and K applied.
15-Dec-93 : **T** : FYM applied.
16-Dec-93 : B : Ploughed.
14-Mar-94 : B : Spring-tine cultivated twice, rotary harrowed, Alexis, dressed Baytan, drilled at 350 seeds per m^2, rolled.

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Experimental diary:

27-Apr-94 : **T** : N applied.
27-May-94 : B : Duplosan New System CMPP at 2.0 l with Vindex at 1.4 l in 200 l.
23-Jun-94 : B : Derosal WDG at 312 g with Dorin at 1.0 l in 260 l.
09-Aug-94 : B : Combine harvested.

NOTE: Samples of grain and straw were taken from selected plots for chemical analysis.

MAIN PLOTS

GRAIN TONNES/HECTARE

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

N / **MANURE**	0	48	96	144	Mean
---	0.25	0.28	0.92	0.75	0.55
-P-	1.90	3.29	3.75	2.98	2.98
--K	0.07	1.01	0.75	2.05	0.97
-PK	0.57	3.08	5.10	6.10	3.71
A--	0.57	0.79	1.18	1.08	0.91
AP-	2.04	3.02	3.81	3.62	3.12
A-K	0.43	1.11	0.95	1.53	1.01
APK	0.75	2.94	3.96	5.14	3.20
N----	0.20	1.04	1.89	1.62	1.19
NP---	1.64	3.61	4.09	3.75	3.28
N-K--	0.50	1.56	1.66	1.75	1.37
NPK--	1.12	3.04	4.83	5.49	3.62
N--S-	0.85	1.11	2.77	1.39	1.53
NP-S-	0.86	4.04	3.85	3.66	3.10
N-KS-	1.70	1.82	1.91	3.05	2.12
NPKS-	0.60	3.59	5.60	5.22	3.75
N---S	1.04	1.71	1.76	2.23	1.68
NP--S	2.15	3.62	4.76	4.21	3.68
N-K-S	0.70	1.70	2.05	2.51	1.74
NPK-S	0.79	3.50	4.36	5.11	3.44
N--SS	1.12	1.44	1.83	1.99	1.59
NP-SS	2.02	3.35	4.20	4.78	3.59
N-KSS	0.26	1.77	2.24	2.79	1.77
NPKSS	0.59	3.78	4.39	6.40	3.79
C(--)	1.08	2.54	3.08	3.37	2.52
C(P-)	1.33	3.23	3.66	4.03	3.06
C(-K)	0.99	1.96	3.50	3.84	2.57
C(PK)	0.96	2.34	4.24	4.82	3.09
D	3.75	5.52	5.42	5.52	5.05
(D)	0.52	1.97	3.71	2.19	2.10
(A)	0.48	1.97	1.63	1.59	1.42
-	0.61	0.95	0.33	1.54	0.86
Mean	1.01	2.40	3.07	3.32	2.45

GRAIN MEAN DM% 86.0

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94/R/HB/2 MAIN PLOTS

STRAW TONNES/HECTARE

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

N	0	48	96	144	Mean
MANURE					
---	0.07	0.19	0.24	0.24	0.18
-P-	0.50	1.24	1.45	1.45	1.16
--K	0.04	0.29	0.20	0.59	0.28
-PK	0.21	1.00	1.89	2.46	1.39
A--	0.17	0.23	0.29	0.23	0.23
AP-	0.49	1.07	1.78	1.40	1.19
A-K	0.17	0.26	0.27	0.40	0.27
APK	0.21	1.04	1.88	2.89	1.50
D	1.26	3.00	3.06	3.70	2.76
(D)	0.26	0.69	1.20	0.66	0.70
(A)	0.13	0.38	0.43	0.37	0.33
-	0.23	0.27	0.21	0.47	0.30
Mean	0.31	0.80	1.07	1.24	0.86

STRAW MEAN DM% 77.8

PLOT AREA HARVESTED 0.00154

EXTRA PLOTS

GRAIN TONNES/HECTARE

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

MANURE	55AN2PK	56--PK	57NN2--	58NN2--	Mean
MGNESIUM					
0	3.77	0.15	2.58	0.53	1.76
35	4.65	0.19	2.54	0.98	2.09
Mean	4.21	0.17	2.56	0.75	1.92

GRAIN MEAN DM% 86.7

PLOT AREA HARVESTED 0.00329

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