ROTHAMSTED RESEARCH

Yields of the Field Experiments 1995

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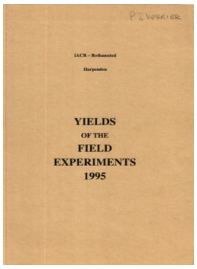

95/R/HB/2 Hoos Barley - S. Barley

Rothamsted Research

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95/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 144th year, s. barley.

For previous years see 'Details' 1967 and 1973, Station Report for 1966 and 74-94/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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95/R/HB/2

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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 t.  (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:
   08-Aug-94 : B : Straw baled.
   03-Nov-94 : T : P applied.
   07-Nov-94 : T : K applied.
   08-Nov-94 : T : Mg applied.
   10-Nov-94 : T : Si applied.
   15-Nov-94 : B : Stubble topped.
   15-Dec-94 : T : Farmyard manure applied.
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Experimental diary:

22-Dec-94 : B : Ploughed.
16-Mar-95 : B : Spring-tine cultivated, rotary harrowed, Alexis, dressed Baytan, drilled at 350 seeds per m^2.
04-May-95 : **T** : N applied.
23-May-95 : B : Duplosan New System CMPP at 1.5 l with Vindex at 1.4 l in 260 l.
08-Aug-95 : 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
---	0.44	0.84	1.26	0.88	0.85
-P-	1.87	2.79	2.79	3.43	2.72
--K	1.15	1.95	2.82	2.47	2.10
-PK	2.00	3.65	4.29	4.71	3.66
A--	0.66	1.10	1.29	1.43	1.12
AP-	1.90	3.11	2.56	2.35	2.48
A-K	1.10	1.48	1.63	2.08	1.57
APK	1.96	3.43	4.37	4.34	3.52
N----	0.60	1.41	1.55	1.21	1.19
NP---	2.13	3.50	3.86	2.98	3.12
N-K--	1.27	1.60	1.69	1.74	1.58
NPK--	2.17	3.74	4.61	4.97	3.87
N--S-	1.41	2.57	2.23	1.76	1.99
NP-S-	2.20	3.11	2.77	3.59	2.92
N-KS-	1.89	1.90	2.51	2.73	2.26
NPKS-	2.52	3.75	4.51	4.51	3.82
N---S	1.20	1.89	2.02	1.95	1.76
NP--S	2.42	3.70	3.88	3.62	3.40
N-K-S	1.49	2.18	2.51	2.65	2.21
NPK-S	2.03	4.29	4.97	4.82	4.03
N--SS	1.68	1.61	2.15	2.36	1.95
NP-SS	1.93	3.32	3.33	3.89	3.12
N-KSS	1.62	2.30	2.86	2.99	2.44
NPKSS	2.44	3.95	4.57	4.76	3.93
C(--)	1.61	2.68	2.90	3.34	2.63
C(P-)	2.20	3.09	3.28	3.97	3.14
C(-K)	1.61	2.65	3.68	3.46	2.85
C(PK)	2.23	3.61	4.13	4.82	3.70
D	5.99	6.20	6.20	6.44	6.21
(D)	2.37	3.43	3.33	3.26	3.10
(A)	2.08	2.03	2.29	2.38	2.20
-	1.13	1.77	1.93	2.56	1.85
Mean	1.85	2.77	3.09	3.20	2.73

GRAIN MEAN DM% 88.6

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95/R/HB/2 MAIN PLOTS

STRAW TONNES/HECTARE

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

N	0	48	96	144	Mean
MANURE					
---	0.17	0.52	0.60	0.32	0.40
-P-	0.67	1.08	1.66	2.08	1.37
--K	0.26	0.78	1.11	1.01	0.79
-PK	0.60	1.57	2.15	2.59	1.73
A--	0.22	0.45	0.43	0.60	0.42
AP-	0.56	1.40	1.40	1.60	1.24
A-K	0.22	0.54	0.59	0.80	0.54
APK	0.67	1.49	2.06	2.16	1.59
D	3.06	3.55	3.67	3.82	3.52
(D)	0.94	1.61	1.40	1.69	1.41
(A)	0.66	0.70	0.75	0.85	0.74
-	0.30	0.69	0.91	1.14	0.76
Mean	0.69	1.20	1.39	1.56	1.21

STRAW MEAN DM% 88.8

EXTRA PLOTS

GRAIN TONNES/HECTARE

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

MANURE	551AN2PK	561--PK	571NN2--	581NN2--	Mean
MGNESIUM					
0	4.30	0.69	3.47	1.75	2.55
35	4.12	0.91	3.01	1.81	2.46
Mean	4.21	0.80	3.24	1.78	2.51

GRAIN MEAN DM% 88.9

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