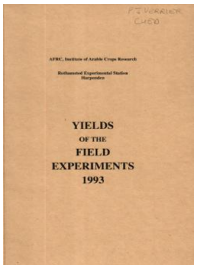
ROTHAMSTED RESEARCH

Yields of the Field Experiments 1993

Full Table of Content



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

Rothamsted Research

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93/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 142nd year, s. barley.

For previous years see 'Details' 1967 and 1973, Station Report for 1966 and 74-92/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	-	-

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93/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

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

0
35

NOTES: (1) For a fuller record see 'Details' etc.
(2) Erratum: Since 1989 some records of the type of superphosphate applied were incorrect. Given above is the correct record.

Experimental diary:

06-Jul-92	B	Straw baled.
21-Dec-92	**T**	Si and K applied.
22-Dec-92	**T**	P applied.
19-Jan-93	**T**	FYM applied.
20-Jan-93	B	Ploughed.
03-Mar-93	B	Heavy spring-tine cultivated, twice.
04-Mar-93	B	Rotary harrowed, Alexis, dressed Baytan, drilled at 350 seeds per square metre, rolled.

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93/R/HB/2

Experimental diary:

30-Apr-93 : **T** : N applied.
13-May-93 : B : Ally at 30 g and Starane 2 at 1.0 l in 200 l.
08-Jun-93 : B : Alto 100 SL at 0.80 l and Derosal WDG at 0.31 kg in 200 l.
14-Aug-93 : B : Combine harvested.

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

MAIN PLOTS

GRAIN TONNES/HECTARE

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

N	0	48	96	144	Mean
MANURE					
---	0.80	0.55	0.74	0.73	0.71
-P-	2.19	4.17	3.95	3.57	3.47
--K	1.72	1.53	2.79	1.90	1.98
-PK	2.47	3.92	5.32	5.84	4.39
A--	0.89	1.10	0.97	0.94	0.98
AP-	2.80	3.98	3.99	4.12	3.72
A-K	0.96	1.29	1.62	1.38	1.31
APK	2.57	4.38	5.54	6.10	4.65
N----	1.09	0.67	0.66	0.85	0.82
NP---	2.87	3.93	4.24	3.99	3.76
N-K--	0.74	0.90	1.68	1.15	1.12
NPK--	2.85	4.50	5.91	5.97	4.81
N--S-	0.31	2.14	1.32	3.05	1.70
NP-S-	2.92	3.85	4.03	4.24	3.76
N-KS-	1.80	3.32	2.24	2.26	2.40
NPKS-	3.03	4.84	6.13	6.90	5.22
N---S	1.02	1.75	1.58	1.13	1.37
NP--S	2.33	3.91	4.78	5.32	4.08
N-K-S	1.46	1.75	2.03	2.73	1.99
NPK-S	2.37	4.79	5.82	5.92	4.72
N--SS	0.67	1.91	1.76	1.39	1.43
NP-SS	2.51	4.17	4.10	4.77	3.89
N-KSS	1.77	2.75	1.95	2.35	2.20
NPKSS	2.68	4.99	5.49	6.35	4.88
C(--)	1.87	2.27	3.44	3.67	2.81
C(P-)	2.41	4.44	4.07	4.95	3.97
C(-K)	1.71	3.87	4.27	5.11	3.74
C(PK)	2.69	4.49	4.97	5.69	4.46
D	5.95	5.53	5.70	5.79	5.74
(D)	2.02	2.83	2.89	5.58	3.33
(A)	1.61	1.89	3.16	2.18	2.21
-	1.19	0.68	1.17	1.14	1.04
Mean	2.01	3.03	3.38	3.66	3.02

GRAIN MEAN DM% 81.0

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93/R/HB/2 MAIN PLOTS

STRAW TONNES/HECTARE

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

N	0	48	96	144	Mean
MANURE					
---	0.27	0.24	0.49	0.60	0.40
-P-	0.76	1.84	1.88	1.90	1.59
--K	0.56	0.58	1.13	0.66	0.73
-PK	0.72	1.41	2.07	3.18	1.85
A--	0.28	0.42	0.25	0.35	0.32
AP-	1.00	1.99	2.32	2.15	1.87
A-K	0.32	0.50	1.02	0.81	0.66
APK	0.81	1.57	2.59	2.86	1.96
D	3.63	3.46	4.09	3.61	3.70
(D)	0.55	1.40	1.34	2.41	1.42
(A)	0.63	0.88	1.32	0.83	0.91
-	0.40	0.33	0.38	0.32	0.36
Mean	0.83	1.22	1.57	1.64	1.31

STRAW MEAN DM% 69.0

PLOT AREA HARVESTED 0.00154

EXTRA PLOTS

GRAIN TONNES/HECTARE

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

MANURE	551AN2PK	561--PK	571NN2--	581NN2--	Mean
MGNESIUM					
0	4.82	0.67	3.31	0.57	2.34
35	5.18	0.69	1.94	0.89	2.18
Mean	5.00	0.68	2.62	0.73	2.26

GRAIN MEAN DM% 81.0

PLOT AREA HARVESTED 0.00329

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