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# Yields of the Field Experiments 1975

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## 75/ R/HB/2 - Hoosfield - Potatoes, Beans, Barley

### Rothamsted Research

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75/R/HB/2

HOOSFIELD

Object: To study the effects of organic and inorganic manures on continuous spring barley. Since 1968 a rotation of potatoes, beans and barley has been included.

The 12<sup>th</sup> year, potatoes, beans and barley. The 8<sup>th</sup> year of revised scheme.

For previous years see 'Details' 1967, Station Report for 1966, 68/A/2(t), 69/R/HB/2(t) and 70-74/R/HB/2.

Treatments to barley: All combinations of:-

1. Fertilisers, organic manures and frequency of barley cropping:-

Form of N 1852-1966	Additional treatments 1852-1975		MANURE
None	-	Continuous	---CON
None	P	Continuous	-P-CON
None	K (Na) Mg	Continuous	--KCON
None	P K (Na) Mg	Continuous	-PKCON
A	-	Continuous	A--CON
A	P	Continuous	AP-CON
A	K (Na) Mg	Continuous	A-KCON
A	P K (Na) Mg	Continuous	APKCON
N	-	Continuous	N--CON
N	-	Continuous	N--SICON
N	P	Continuous	NP-CON
N	P	Continuous	NP-SICON
N	K (Na) Mg	Continuous	N-KCON
N	K (Na) Mg Si	Continuous	N-KSICON
N	P K (Na) Mg	Continuous	NPKCON
N	P K (Na) Mg Si	Continuous	NPKSICON
C	-	Continuous	C--CON
C	-	In rotation (P, BE, B)	C--RIN
C	P	Continuous	CP-CON
C	P	In rotation (P, BE, B)	CP-RIN
C	K (Na) Mg	Continuous	C-KCON
C	K (Na) Mg	In rotation (P, BE, B)	C-KRIN
C	P K (Na) Mg	Continuous	CPKCON
C	P K (Na) Mg	In rotation (P, BE, B)	CPKRIN
None	D	Continuous	DCON
(D)	-	Continuous	(D)CON
(Ashes)	-	Continuous	(A)CON
None	-	Continuous	-CON





75/R/HB/2

To beans only:

MANURE

1852-1966 1852-1975

N	-				N----
N		Si			N---SI
N	P				NP---
N	P	Si			NP--SI
N	K (Na)	Mg			N-KMG-
N	K (Na)	Mg	Si		N-KMGSI
N	P K (Na)	Mg			NPKMG-
N	P K (Na)	Mg	Si		NPKMGSI

2. Nitrogen fertiliser (kg N), as 'Nitro-Chalk':

Beans (residual effects, applied to previous potatoes)	Potatoes (applied 1975)	NRESID Beans	N Potatoes
None	None	(0)	0
96	96	(96)	96
192	192	(192)	192
288	288	(288)	288

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

Standard applications:

Potatoes: Weedkillers: Linuron at 1.1 kg plus paraquat at 0.42 kg ion in 450 l. Fungicide: Mancozeb at 1.3 kg applied with demeton-s-methyl on second occasion. Insecticide: Demeton-s-methyl at 0.25 kg in 450 l on two occasions.

Spring beans: Insecticide: Demeton-s-methyl at 0.25 kg in 450 l.

Barley: Weedkiller: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Seed: Potatoes: King Edward, once grown Rothamsted seed.

Spring beans: Minor, sown at 220 kg.

Barley: Julia, sown at 160 kg.

Cultivations, etc.:-

All crops: P applied: 25 Nov, 1974. K, silicate of soda and FYM applied: 8 Jan, 1975. Ploughed: 10 Jan. Spring-tine cultivated: Once 10 Feb, twice 24 Feb.

Potatoes: N applied: 29 Apr. Spike rotary cultivated, seed machine planted: 7 May. Grubbed: 13 May. Linuron and paraquat applied: 4 June. Insecticide applied and grubbed: 27 June. Rotary ridged: 18 July. Fungicide and insecticide applied: 21 July. Haulm mechanically destroyed: 16 Sept. Lifted: 19 Sept.

Spring beans: Seed sown and spring-tine cultivated: 25 Mar. Tractor hoed: 16 May and 24 June. Insecticide applied: 9 July. Combine harvested: 29 Aug.

Barley: Seed sown and spring-tine cultivated: 25 Feb. N applied: 29 Apr. Weedkiller applied: 20 May. Combine harvested: 7 Aug.

75/R/HB/2

POTATOES

TOTAL TUBERS TONNES/HECTARE

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

N	0	96	192	288	MEAN
MANURE					
C---	4.8	5.7	6.4	7.9	6.2
CP--	5.6	5.1	5.7	5.9	5.6
C-KMG	7.0	7.6	9.0	11.1	8.6
CPKMG	8.6	11.4	12.4	10.7	10.8
MEAN	6.5	7.4	8.4	8.9	7.8

PERCENTAGE WARE 3.81CM(1.5INCH) RIDDLE

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

N	0	96	192	288	MEAN
MANURE					
C---	62.0	67.6	69.9	78.8	69.6
CP--	63.2	51.5	56.5	58.4	57.4
C-KMG	69.9	61.4	68.4	65.9	66.4
CPKMG	65.5	70.5	72.2	75.1	70.8
MEAN	65.1	62.8	66.7	69.6	66.0

PLOT AREA HARVESTED 0.00191

75/R/HB/2

BEANS

GRAIN TONNES/HECTARE

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

NRESID	(0)	(96)	(192)	(288)	MEAN
MANURE					
C---	0.90	0.91	0.81	1.01	0.91
CP--	0.80	0.65	0.77	0.65	0.72
C-KMG	0.39	1.46	0.77	0.96	0.89
CPKMG	1.11	1.03	1.19	1.23	1.14
N----	0.65	0.59	0.49	0.74	0.62
N---SI	0.65	0.69	0.77	0.56	0.67
NP---	0.39	0.45	0.60	0.62	0.51
NP--SI	0.45	0.36	0.45	0.38	0.41
N-KMG-	1.01	0.83	0.85	1.10	0.95
N-KMGS I	1.13	1.07	0.92	1.01	1.03
NP KMG-	0.95	0.98	0.95	0.98	0.96
NP KMGS I	1.17	0.92	1.15	0.97	1.05
MEAN	0.80	0.83	0.81	0.85	0.82

GRAIN MEAN DM% 87.9

PLOT AREA HARVESTED 0.00143

75/R/HB/2

BARLEY

GRAIN TONNES/HECTARE

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

N	0	48	96	144	MEAN
MANURE					
---CON	1.03	2.04	2.50	2.78	2.09
-P-CON	1.35	3.09	3.97	4.40	3.20
--KCON	0.71	2.30	3.24	2.81	2.26
-PKCON	1.13	2.93	4.40	4.05	3.13
A--CON	1.08	1.56	2.00	2.16	1.70
AP-CON	2.13	3.47	3.61	2.86	3.02
A-KCON	0.96	1.84	2.03	2.58	1.85
APKCON	1.65	3.29	4.66	4.88	3.62
N--CON	1.13	1.29	1.60	2.45	1.62
N--SICON	1.15	3.19	2.69	3.17	2.55
NP-CON	2.11	3.34	4.25	4.18	3.47
NP-SICON	1.70	3.08	3.87	4.82	3.37
N-KCON	1.34	2.24	2.23	2.59	2.10
N-KSICON	1.33	2.52	3.62	4.79	3.07
NPKCON	1.29	3.34	4.59	4.47	3.42
NPKSICON	1.58	3.45	4.76	4.86	3.66
C--CON	1.37	3.12	4.17	4.05	3.18
C--RTN	2.75	4.44	4.78	4.58	4.14
CP-CON	2.16	3.36	4.80	4.79	3.78
CP-RTN	2.65	4.09	4.22	4.28	3.81
C-KCON	1.06	2.56	3.74	4.44	2.96
C-KRTN	1.66	2.52	4.01	3.76	2.99
CPKCON	1.48	3.73	4.51	4.87	3.65
CPKRTN	2.61	4.06	5.10	4.73	4.13
DCON	2.79	4.26	5.08	4.46	4.15
(D)CON	0.74	2.91	3.02	2.81	2.37
(A)CON	1.43	2.37	2.97	2.96	2.43
-CON	0.88	1.59	2.03	2.22	1.68
MEAN	1.54	2.93	3.66	3.78	2.98

GRAIN MEAN DM% 86.0



75/R/HB/2

BARLEY

STRAW TONNES/HECTARE

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

N	0	48	96	144	MEAN
MANURE					
--CON	0.35	0.88	0.87	1.02	0.78
-P-CON	0.53	1.20	1.42	1.57	1.18
--KCON	0.17	1.05	1.35	1.18	0.94
-PKCON	0.52	1.20	2.25	2.05	1.50
A--CON	0.35	0.70	0.70	1.04	0.70
AP-CON	0.52	1.43	1.23	1.23	1.11
A-KCON	0.35	0.69	0.86	1.04	0.73
APKCON	0.52	1.21	2.11	2.19	1.51
N--CON	0.67	0.65	0.66	1.00	0.74
N--SICON	0.65	1.32	1.00	1.30	1.07
NP-CON	0.66	1.31	1.98	1.96	1.48
NP-SICON	0.66	1.33	1.63	1.99	1.40
N-KCON	0.33	1.00	0.97	1.31	0.90
N-KSICON	0.66	0.66	2.00	2.28	1.40
NPKCON	0.66	1.70	2.32	2.26	1.74
NPKSICON	0.67	1.68	2.31	1.99	1.66
C--CON	0.68	1.02	1.70	1.99	1.35
C--RTN	1.02	2.02	2.36	1.98	1.84
CP-CON	0.68	1.35	2.36	2.00	1.60
CP-RTN	1.35	1.67	1.91	2.02	1.74
C-KCON	0.33	1.01	1.68	2.37	1.35
C-KRTN	1.00	1.38	2.02	2.03	1.61
CPKCON	0.69	1.70	2.37	2.35	1.78
CPKRTN	1.02	2.37	2.70	2.72	2.20
DCON	1.35	2.03	2.91	2.62	2.22
(D)CON	0.20	1.15	1.37	1.36	1.02
(A)CON	0.47	0.93	1.17	1.40	0.99
-CON	0.23	0.72	0.93	1.37	0.81
MEAN	0.62	1.26	1.68	1.77	1.33

STRAW MEAN DM% 87.1



75/R/HB/2

BARLEY

GRAIN TONNES/HECTARE

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

MANURE MAGNESIUM	551A2PK	561--PK	571NN2-	581NN2-	MEAN
0	4.15	0.48	2.33	1.70	2.17
35	5.05	0.47	2.01	1.65	2.29
MEAN	4.60	0.47	2.17	1.67777	2.23

GRAIN MEAN DM% 82.6

STRAW TONNES/HECTARE

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

MANURE MAGNESIUM	551A2PK	561--PK	571NN2-	581NN2-	MEAN
0	1.80	0.14	0.88	0.60	0.85
35	2.13	0.13	0.83	0.75	0.97
MEAN	1.96	0.13	0.83	0.67	0.91

STRAW MEAN DM% 82.7