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68/A/2 Hoosfield Barley and Three-course Rotation

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HOOSFIELD: BARLEY AND THREE-COURSE ROTATION 1968

(HB)

The 117th year, 1st year of revised scheme

For history, treatments, etc., see 'Details 1967' and Station Report for 1966.

Cropping and treatments:

A three-course rotation (potatoes, spring beans, spring barley) is now followed on parts of the old series AA, AAS and C. The remainder of these series, the old series O and A and old plots 1N, 2N, 5-0, 5A, 6-1, 6-2, 7-1, 7-2, carry continuous barley.

The arrangement is indicated below:-

Old Series	O	A	AA	AAS	C	1N,2N 5-0,5-A
(East): 1968	B	B	B P	P B	B B P Be	B (West)
1969	B	B	B Be	Be B	B P Be B	B
1970	B	B	B B	B B	B Be B P	B
1971	B	B	B P	P B	B B P Be	B

(B = Barley, Be = Beans, P = Potatoes)

Varieties in 1968:

Barley - Maris Badger, Beans - Maris Bead (seed inoculated with Rhizobium), Potatoes - Majestic.

The strip manures:

- Strip 1 - None
- 2 - P
- 3 - KNaMg
- 4 - PKNaMg

continue to be applied at the same rates, but are now applied in autumn before ploughing. Farmyard manure (D) at 14 tons is applied to plot 7-2 as hitherto and silicate of soda is applied as hitherto (old series AAS). The rate is unchanged but it too is applied before ploughing. Castor meal is no longer applied. All plots (except 1N, 2N, 5-0, 5A) are split into 4 sub plots and (except on plot 7-2) a test is made of none (NO), 43(N1), 86(N2), 129 (N3) lb N as 'Nitro-Chalk 21' applied to the barley seed bed. Potatoes receive basal 'Nitro-Chalk' at 129 lb N before rotary cultivation in spring, beans receive no N. The levels of N to barley are cumulative and are randomized. Plot 7-2 in 1968 had a test on duplicate sub plots of NO and N1**. Plots

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1N (now numbered 581), 2N (571), 5A (551), receive N2, plot 5-0 (561) NO. Plots 5-0, and 5A receive PK, at rates as before but applied before ploughing in autumn.

* NOTE: In 1968 sub plots on the old plots 6-1, 6-2, 7-1 and 7-2 received nitrogen at rates 57 (N1) 115 (N2) and 172 (N3) lb N in error.

Symbols:

D - 14 tons farmyard manure
P - Superphosphate supplying 30 lb P
K - Sulphate of potash supplying 80 lb K
Na - Sulphate of soda supplying 14 lb Na
Mg - Sulphate of magnesia supplying 10 lb Mg
Si - 400 lb silicate of soda.

Standard applications 1968:

To Barley: (weedkiller) dicamba/mecoprop/MCPA ('Banlene Plus' at 4 pints in 33 gals).
To Beans: (weedkiller) simazine at 1 lb in 33 gals, (insecticide) phorate at 1.04 lb (in granules).
To Potatoes: (no weedkiller) (fungicide) mancozeb at 1.2 lb in 37 gals, on 3 occasions, (insecticide) demeton-s-methyl at 3.5 oz applied with fungicide on 2nd occasion, (haulm killer) undiluted BCV at 20 gals.

Liming:

Under the new scheme ground chalk will be applied every third year, starting Autumn 1970.

Area of each sub plot:-

	Area	Area harvested
Old series O and A	0.0317	0.0086
Old plots 6-1, 6-2, 7-1 and 7-2	0.0238	0.0064
Old series AA, AAS and C		
Barley	0.0087	0.0024
Potatoes	0.0087	0.0047
Beans	0.0087	0.0044**
Old plots 1N, 2N, 5-0, 5A (whole plots)	0.0661	0.0101

Barley is harvested by small combine harvester on the old series AA, AAS and C, by large combine on the remainder.

** Plots harvested in pairs.

All crop-rows now run north-south, not east-west as previously.

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Cultivations, etc.:-

P, K, Na, Mg applied : 5 Oct, 1967. Silicate of soda and FYM applied, all plots ploughed: 6 Oct.

Barley: Seed drilled at 140 lb: 4 Mar, 1968. 'Nitro-Chalk' applied: 25 Mar. Weedkiller applied: 14 May. Combine harvested: 22 Aug.

Potatoes: 'Nitro-Chalk' applied: 26 Mar, 1968. Plots rotary cultivated, potatoes machine planted: 1 Apr. Grubbed: 20 May. Rotary ridged: 28 May. Fungicide applied, the second time including insecticide: 3 July, 19 July, 5 Aug. BOV applied: 30 Aug. Haulm destroyed mechanically: 13 Sept. Lifted: 23 Sept.

Spring beans: Seed drilled at 200 lb: 4 Mar, 1968. Weedkiller applied: 5 Mar. Insecticide applied: 21 June. Combine harvested: 13 Sept.

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SUMMARY OF RESULTS

BARLEY

N 1968

Treatment**		0	1	2	3	Mean
GRAIN						
1852-1968	1852-1966					
-	-	12.5	12.0	13.3	14.7	13.1
-	N	10.5	11.9	9.9	12.5	11.2
P	-	18.9	26.7	32.3	33.6	27.9
P	N	21.0	28.1	30.2	27.3	26.6
K Na Mg	-	8.6	15.4	22.3	23.8	17.5
K Na Mg	N	12.1	12.4	12.8	11.8	12.3
PK Na Mg	-	13.1	28.3	38.6	38.1	29.5
PK Na Mg	N	16.1	31.3	37.3	34.2	29.7
D	-	19.4	37.7	-	-	28.6
-	(D)	10.5	28.6	39.1	36.9	28.8
-	(Ashes)	15.8	29.3	27.3	26.9	24.9
-	-	11.9	18.1	19.5	24.1	18.4
STRAW						
-	-	0.8	10.4	13.9	17.0	10.5
-	N	4.1	9.0	6.4	10.1	7.4
P	-	10.7	19.0	25.6	24.0	19.8
P	N	12.9	21.2	23.2	23.5	20.2
K Na Mg	-	5.9	10.9	17.9	25.2	15.0
K Na Mg	N	10.7	11.8	16.4	16.2	13.8
PK Na Mg	-	10.9	27.9	34.0	38.3	27.8
PK Na Mg	N	8.5	25.1	34.7	27.8	24.0
D	-	28.4	40.3	-	-	34.3
-	(D)	7.9	21.7	36.6	31.2	24.4
-	(Ashes)	11.0	18.5	19.2	18.8	16.9
-	-	5.4	12.9	13.0	18.9	12.6

** For explanation of symbols see 'Details 1967'

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BARLEY

N 1968

Treatment**		0	1	2	3	Mean
GRAIN						
1852-1968	1852-1966					
-	N*	10.1	10.0	11.9	10.6	10.6
Si	N*	19.0	24.4	28.9	24.0	24.1
P	N*	23.7	32.8	33.3	30.0	29.9
P Si	N*	20.9	31.7	35.5	34.3	30.6
K Na Mg	N*	10.7	11.7	14.4	12.8	12.4
K Na Mg Si	N*	22.2	26.8	28.5	33.5	27.7
PK Na Mg	N*	12.7	28.8	33.0	36.6	27.8
PK Na Mg Si	N*	18.8	34.2	40.0	34.6	31.9
-	R(c)	21.9	38.4	33.1	36.1	32.4
-	R(r)	32.0	36.0	34.5	32.5	33.7
P	R(c)	21.3	32.8	35.9	33.3	30.8
P	R(r)	17.6	29.9	36.1	33.1	29.2
K Na Mg	R(c)	26.2	36.0	33.3	35.0	32.6
K Na Mg	R(r)	23.2	33.7	34.4	36.0	31.8
PK Na Mg	R(c)	28.2	34.3	37.4	35.0	33.7
PK Na Mg	R(r)	30.9	33.7	38.1	29.7	33.1
STRAW						
-	N*	13.8	11.1	13.7	13.7	13.1
Si	N*	20.2	21.6	28.9	27.9	24.7
P	N*	23.1	29.6	35.7	30.3	29.7
P Si	N*	16.0	30.5	37.6	36.1	30.1
K Na Mg	N*	18.1	15.0	22.2	21.3	19.1
K Na Mg Si	N*	17.6	26.3	31.8	36.0	27.9
PK Na Mg	N*	10.2	27.1	34.7	43.0	28.7
PK Na Mg Si	N*	14.8	34.9	41.3	40.1	32.8
-	R(c)	13.8	34.7	28.8	34.4	27.9
-	R(r)	24.5	28.2	26.4	28.9	27.0
P	R(c)	16.3	25.9	32.5	29.6	26.1
P	R(r)	14.5	27.4	29.8	26.3	24.5
K Na Mg	R(c)	19.2	33.7	32.8	32.9	29.7
K Na Mg	R(r)	19.7	30.7	29.4	34.7	28.7
PK Na Mg	R(c)	24.3	30.4	38.0	36.4	32.3
PK Na Mg	R(r)	23.4	29.3	38.8	38.5	32.5

NOTE: (c) = continuous, (r) = rotation. (These treatments were identical in 1968.)

** For explanation of symbols see 'Details 1967'

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Plots	Treatment**		BARLEY	
	1852-1968	1852-1966	GRAIN	STRAW
551	N2PK	N	32.5	30.6
561	PK	-	11.0	10.1
571	N2	N*	26.1	18.0
581	N2	N*	14.8	11.1

** For explanation of symbols see 'Details 1967'

Mean D.M. %: Grain: 80.9
Straw: 82.3

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Treatments**		POTATOES	
		TOTAL TUBERS	% WARE
1852-1968	1852-1966		
-	N*	2.20	80.7
Si	N*	2.66	86.8
P	N*	3.67	79.6
P Si	N*	3.30	77.9
K Na Mg	N*	5.78	94.6
K Na Mg Si	N*	6.84	95.6
PK Na Mg	N*	14.66	95.2
PK Na Mg Si	N*	15.04	95.9
-	R	8.98	94.8
P	R	8.41	92.8
K Na Mg	R	12.03	97.5
PK Na Mg	R	14.95	95.3

** For explanation of symbols see 'Details 1967'

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BEANS

Treatment**		GRAIN	STRAW
1852-1968	1852-1966		
-	R	24.8	16.9
P	R	22.5	15.5
K Na Mg	R	30.2	21.4
PK Na Mg	R	36.3	28.8

** For explanation of symbols see 'Details 1967'

Mean D.M. %: Grain: 75.9
 Straw: 57.2