ROTHAMSTED RESEARCH

Yields of the Field Experiments 1973

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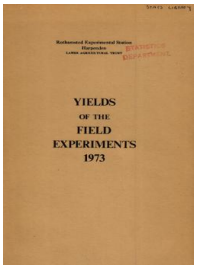

73/R/BK/1 - Broadbalk - Potatoes, Beans, Wheat

Rothamsted Research

Rothamsted Research (1974) *73/R/BK/1 - Broadbalk - Potatoes, Beans, Wheat ;* Yields Of The Field Experiments 1973, pp 9 - 14 **- DOI: https://doi.org/10.23637/ERADOC-1-98**

73/R/BK/1

BROADBALK

Object: To study the effects of organic and inorganic manures on continuous winter wheat. Since 1968 two three-year rotations have been included: potatoes, beans, wheat and fallow, wheat, wheat.

The 130th year, wheat, potatoes, beans. The sixth year of the revised scheme.

For previous years see 'Details' 1967, Station Report for 1966, pp.229-231, Station Report for 1968, Part 2, 68/A/1(t) and 69-72/R/BK/1.

Areas harvested:

	Section	
Wheat:	0	0.00434
	1	0.00798
	5, 6 and 7	0.00659
	8 and 9	0.00694
Potatoes:	2	0.00659
Beans:	4	0.00741

Treatments:

Whole plots: Fertilisers and organic manures:-

Plot	Treatments till 1967	Treatments from 1968	PLOT
01	-	D N2 P K	01DN2PK
21	D	D N2	21DN2
22	D	D	22D
03	None	None	03O
05	P K Na Mg	P K Na Mg	05MIN
06	N1 P K Na Mg	N1 P K Na Mg	06N1MIN
07	N2 P K Na Mg	N2 P K Na Mg	07N2MIN
08	N3 P K Na Mg	N3 P K Na Mg	08N3MIN
09	N*1 P K Na Mg	N4 P K Na Mg	09N4MIN
10	N2	N2	10N2
11	N2 P	N2 P	11N2P
12	N2 P Na	N2 P Na	12N2PNa
13	N2 P K	N2 P K	13N2PK
14	N2 P Mg	N2 P K Mg	14N2PKMg
15	N2 P K Na Mg	N3 P K Na Mg	15N3MIN
16	N*2 P K Na Mg	N2 P K Na Mg	16N2MIN
17	+N2	N2 1/2(P K Na Mg)	17N2MINH
18	+ P K Na Mg	N2 1/2(P K Na Mg)	18N2MINH
19	C	C	19C
20	N2 K Na Mg	N2 K Na Mg	20NKNaMg

\+ Alternating

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N1,N2,N3,N4: 48, 96,144, 192 kg N (as sulphate of ammonia until 1967, except N* which was nitrate of soda. All as 'Nitro-Chalk' from 1968).
P: Superphosphate to supply 34 kg P
K: Sulphate of potash to supply 90 kg K
Na: Sulphate of soda to supply 16 kg Na (57 kg on Plot 12)
Mg: Sulphate of magnesia to supply 11 kg Mg (31 kg on Plot 14)
D: Farmyard manure at 35 tonnes
C: Castor meal to supply 96 kg N
MIN: P K Na Mg

Strips of sub-plots: Until 1967 wheat alone was grown on the experiment, with some bare fallowing on strips of sub-plots. From 1968, ten sub-plots were started with the following cropping:-

	1968	1969	1970	1971	1972	1973	SECTION
Section 0	W (last fallowed 1951)	W	W	W	W	W	SC0/W22
Section 1	W (last fallowed 1966)	W	W	W	W	W	SC1/W7
Section 2	BE	W	P	BE	W	P	SECTION2
Section 3	W (last fallowed 1967)	W	F	W	W	F	-
Section 4	W (last fallowed 1965)	P	BE	W	P	BE	SECTION4
Section 5	W (last fallowed 1965)	F	W	W	F	W	SC5/W1F
Section 6	F	W	W	F	W	W	SC6/W2
Section 7	P	BE	W	P	BE	W	SC7/W1BE
Section 8*	W (last fallowed 1963)	W	W	W	F	W	SC8/W1F
Section 9	W (last fallowed 1958)	W	W	W	W	W	SC9/W15

W = wheat, P = potatoes, BE = beans, F = Fallow

* No weedkillers

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

Standard applications:-
Winter wheat: Terbutryne and related triazines ('Prebane' at 4.5 kg in 220 l). Dicamba, mecoprop and MCPA ('Tetralex Plus' at 9.1 l in 290 l).
Potatoes: Weedkiller: Linuron at 3.8 kg plus paraquat at 0.42 kg ion in 450 l. Fungicide: Manozeb at 1.35 kg in 370 l on two occasions. Insecticide: Demethon-s-methyl at 0.25 kg applied with the mancozeb on the first occasion.
Spring beans: Insecticide: Demeton-s-methyl at 0.25 kg in 370 l.

Seed: Winter wheat: Cappelle, seed dressed with dieldrin, sown at 200 kg.
Potatoes: King Edward, Rothamsted once grown.
Spring beans: Maris Bead, sown at 220 kg.

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Cultivations, etc.:

ALL SECTIONS: Autumn fertilisers applied: 3 Oct, 1972. FYM applied: 11 Oct. Ploughed: 10-12 Oct.

CROPPED SECTIONS:

Winter wheat: Seed sown: 17 Oct, 1972. 'Prebane' applied: 20 Oct. N applied: 13 Apr, 1973. 'Tetralex Plus' applied: 26 Apr. Combine harvested: 20 Aug.

Potatoes: N applied: 21 Mar, 1973. Potatoes machine planted: 6 Apr. Linuron plus paraquat applied: 11 May. Mancozeb and demeton-s-methyl applied: 2 July. Manncozeb applied: 24 July, 9 Aug. Haulm destroyed mechanically, sprayed with undiluted BOV at 220 l: 31 Aug. Lifted: 25 Sept.

Spring beans: N applied: 8 Mar, 1973. Seed sown: 9 Mar. Insecticide applied: 8 June. Combine harvested: 3 Sept.

FALLOW SECTION: Ploughed second time: 16 May, 1973, third time: 9 July.

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TABLES OF MEANS

WHEAT

GRAIN: TONNES/HECTARE

SECTION

PLOT	SC7/W1BE	SC5/W1F	SC6/W2	SC1/W7	SC9/W15	SC0/W22	SC8/W1F	Mean
01DN2PK	4.83	4.44	4.66					
21DN2	4.30	4.13	4.33	4.82	4.48	3.54	4.06	4.24
22D	5.74	5.22	6.03	6.22	6.45	5.98	4.22	5.69
030	2.42	3.69	1.05	1.87	1.43	1.68	3.83	2.28
05MIN	3.07	4.14	1.30	1.81	2.04	2.08	5.25	2.81
06N1MIN	5.54	5.85	3.92	3.79	4.26	3.96	3.58	4.41
07N2MIN	5.99	5.04	5.57	5.43	5.75	5.40	3.98	5.31
08N3MIN	3.90	4.62	5.46	5.05	5.74	4.70	3.19	4.67
09N4MIN	3.66	4.07	4.67	5.26	5.38	4.46	3.85	4.48
10N2	4.89	5.47	3.14	3.54	2.60	3.15	3.68	3.78
11N2P	5.40	4.55	4.84	3.26	2.74	3.14	2.04	3.71
12N2PNa	6.42	5.10	5.30	4.92	4.42	4.78	3.59	4.93
13N2PK	6.63	5.92	5.08	5.49	5.92	5.01	3.86	5.42
14N2PKMg	6.96	6.09	5.27	5.62	6.05	4.83	4.48	5.61
15N3MIN	4.97	4.03	5.85	6.05	6.23	5.04	3.86	5.15
16N2MIN	6.52	5.66	5.18	5.11	5.28	4.73	3.53	5.14
17N2MINH	6.77	5.68	4.99	4.78	5.24	4.40	4.27	5.16
18N2MINH	6.62	5.42	5.11	4.80	5.57	4.17	3.82	5.07
19C	6.85	4.62	4.75	4.17	4.67	4.49	4.77	4.90
20NKNaMg				3.72		3.40		

Mean D.M. %: 85.9

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WHEAT

STRAW: TONNES/HECTARE

SECTION

PLOT	SC7/W1BE	SC5/W1F	SC6/W2	SC1/W7	SC9/W15	SC0/W22	SC8/W1F	Mean
01DN2PK	8.79	6.63	7.78					
21DN2	7.66	7.80	7.20	7.78	8.12	5.91	7.52	7.43
22D	9.78	7.77	5.86	6.85	7.74	6.08	8.18	7.47
030	1.84	3.14	0.65	1.20	0.97	1.22	3.30	1.76
05MIN	2.57	3.85	0.72	1.47	1.12	1.31	6.62	2.52
06N1MIN	5.27	5.92	2.63	2.68	3.43	3.12	7.18	4.32
07N2MIN	6.35	5.86	4.15	4.51	5.44	5.08	7.51	5.56
08N3MIN	6.11	7.11	5.67	4.75	6.34	4.50	6.27	5.82
09N4MIN	5.55	5.20	5.41	5.30	6.28	4.98	7.21	5.70
10N2	2.93	4.44	2.50	2.15	3.78	2.10	4.57	3.21
11N2P	4.14	3.75	3.30	2.84	2.89	3.10	4.91	3.56
12N2PNa	5.30	5.50	4.14	3.44	4.36	3.33	6.04	4.59
13N2PK	6.82	6.51	3.71	4.29	6.09	4.88	8.19	5.78
14N2PKMg	6.63	6.57	4.63	4.19	5.23	4.29	7.28	5.55
15N3MIN	6.85	6.10	5.42	5.21	6.05	5.51	8.30	6.21
16N2MIN	6.82	6.94	4.81	4.06	4.96	4.91	7.91	5.77
17N2MINH	6.80	6.28	4.47	3.30	5.11	3.48	8.45	5.41
18N2MINH	6.74	6.72	5.07	3.70	5.33	3.54	8.64	5.68
19C	6.31	5.77	4.71	3.20	5.01	3.58	7.71	5.18
20NKNaMg				2.62		2.64		

Mean D.M. % 88.8

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	SECTION 2		SECTION 4	
	POTATOES		SPRING BEANS	
PLOT	TOTAL TUBERS: TONNES/ HECTARE	% WARE 3.81 CM (1.5 INCH) RIDDLE	GRAIN: TONNES/ HECTARE	STRAW: TONNES/ HECTARE
01DN2PK	38.9	93.2	4.26	2.63
21DN2	48.8	96.8	4.00	2.90
22D	47.1	93.2	4.20	2.61
030	13.5	84.3	2.56	0.83
05MIN	21.7	85.8	3.80	1.91
06N1MIN	29.6	89.8	3.93	2.43
07N2MIN	42.1	92.6	3.70	2.94
08N3MIN	48.5	94.0	4.39	3.56
09N4MIN	49.2	93.3	4.07	3.28
10N2	14.5	85.5	2.39	0.68
11N2P	12.2	56.6	1.40	1.79
12N2PNa	14.8	61.5	1.58	0.88
13N2PK	33.3	89.5	3.73	2.61
14N2PKMg	32.3	83.3	2.49	2.44
15N3MIN	47.2	94.8	4.45	2.92
16N2MIN	37.0	91.0	3.96	2.42
17N2MINH	34.9	90.0	4.09	2.44
18N2MINH	35.8	92.6	3.77	2.14
19C	24.1	91.3	2.10	1.92
Mean D.M. %			82.4	83.8

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