

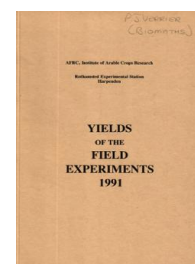
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91/R/BK/1 Broadbalk - W. Wheat, Potatoes

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91/R/BK/1

BROADBALK

Object: To study the effects of organic and inorganic manures on continuous w. wheat. From 1968 two three-year rotations were included: potatoes, beans, w. wheat and fallow, w. wheat, w. wheat. In 1979 the first rotation was changed to fallow, potatoes, w. wheat. In 1980 the second rotation reverted to continuous w. wheat. Since 1985 part of the second rotation has been added to the first to extend the rotation to fallow, potatoes, w. wheat, w. wheat, w. wheat.

The 148th year, w. wheat, fallow, potatoes.

For previous years see 'Details' 1967 and 1973, Station Report for 1966, pp. 229-231, Station Report for 1968, Part 2, and 74-90/R/BK/1.

Areas harvested:

Wheat:	Section	
	0	0.00311
	1	0.00572
	2, 4, 6 and 7	0.00473
	8 and 9	0.00497
Potatoes:	5	0.00348

Treatments:

Whole plots

PLOT

Fertilizers and organic manures:-

	Plot	Treatments until 1967	Treatments from 1968	Treatments from 1985
01DN4PK	01	-	D N2 P K	D N4 P K
21DN2	21	D	D N2	D N2
22D	22	D	D	D
030	03	None	None	None
05F	05	P K Na Mg	P K (Na) Mg	PK Mg
06N1F	06	N1 P K Na Mg	N1 P K (Na) Mg	N1 P K Mg
07N2F	07	N2 P K Na Mg	N2 P K (Na) Mg	N2 P K Mg
08N3F	08	N3 P K Na Mg	N3 P K (Na) Mg	N3 P K Mg
09N4F	09	N*1 P K Na Mg	N4 P K (Na) Mg	N4 P K Mg
10N2	10	N2	N2	N2
11N2P	11	N2 P	N2 P	N2 P
12N2PNA	12	N2 P Na	N2 P Na	N2 P Na
13N2PK	13	N2 P K	N2 P K	N2 P K
14N2PKMG	14	N2 P Mg	N2 P K Mg	N2 P K Mg
15N5F	15	N2 P K Na Mg	N3 P K (Na) Mg	N5 P K Mg
16N6F	16	N*2 P K Na Mg	N2 P K (Na) Mg	N6 P K Mg
17N0+3FH	17	N2 (A)	N2 1/2 (P K (Na) Mg)	N0+3 1/2 (PK Mg)+
18N1+3FH	18	P K Na Mg (A)	N2 1/2 (P K (Na) Mg)	N1+3 1/2 (PK Mg)+
19C	19	C	C	C
20NKMG	20	N2 K Na Mg	N2 K (Na) Mg	N2 K Mg

(A) Alternating

91/R/BK/1

Standard applications:

- W. wheat: Manure: Chalk at 2.9 t (to sections 7 and 9 only).
Weedkillers: Glyphosate at 1.4 kg in 200 l (except to sections 4 and 8). Diflufenican at 0.12 kg and isoproturon at 2.2 kg in 200 l (except to section 8). Glyphosate at 2.2 kg with a wetting agent, 'MAFF Adjuvant no. 0004' at 2.9 l, at 150 l (except to section 8).
Fungicides (except to section 6): Prochloraz at 0.40 kg with the growth regulator in 200 l. Propiconazole at 0.12 kg with chlorothalonil at 0.50 kg in 200 l. Fenpropimorph at 0.75 kg in 200 l. Growth regulator (except to section 6): Chlormequat chloride at 1.6 kg.
- Potatoes: Weedkillers: Glyphosate at 1.4 kg in 200 l. Linuron at 1.6 kg in 200 l. Fungicides: Maneb at 0.96 kg and zinc oxide at 22 g in 200 l on three occasions, the first and third with a wetting agent, 'Bond' at 0.20 l, and the second occasion with pirimicarb. Mancozeb at 1.4 kg with a wetting agent, 'Bond' at 0.20 l, in 200 l. Fentin hydroxide at 0.27 kg with a wetting agent, 'Nu-film P' at 0.18 l, in 200 l. Insecticide: Pirimicarb at 0.14 kg.
- Fallow: Weedkiller: Glyphosate at 2.2 kg with a wetting agent, 'MAFF Adjuvant no. 0004' at 2.9 l, in 150 l.

Seed: W. wheat: Apollo, dressed fonofos, sown at 180 kg.
Potatoes: Pentland Crown.

Cultivations, etc.:-

All Sections:

K, Na and Mg applied: 1 Oct, 1990. P applied: 2 Oct. FYM applied, ploughed and furrow pressed: 9 Oct. Rotary harrowed: 15 Oct.

Cropped Sections:

- W. wheat: Straw chopped (section 0): 14 Aug, 1990. Glyphosate alone applied (except to sections 4 and 8): 23 Aug. Chalk applied (sections 7 and 9): 27 Sept. Autumn N treatments applied: 2 Oct. Rotary harrowed, seed sown: 16 Oct. Diflufenican with isoproturon applied (except to section 8): 21 Nov. Spring N treatments applied: 9 Apr, 1991. Prochloraz with the growth regulator applied (except to section 6): 24 Apr. Propiconazole with chlorothalonil applied (except to section 6): 20 June. Fenpropimorph applied (except to section 6): 2 July. Glyphosate with the wetting agent applied (except to section 8): 12 Aug. Combine harvested: 25 Aug.
- Potatoes: Glyphosate applied: 11 Sept, 1990. Deep-tine cultivated: 14 Dec. N treatments applied: 9 Apr, 1991. Heavy spring-tine cultivated: 16 Apr. Rotary harrowed, potatoes planted: 17 Apr. Rotary ridged: 9 May. Linuron applied: 21 May. Maneb and zinc oxide with the wetting agent applied: 1 July and 22 July. Maneb and zinc oxide with the insecticide applied: 10 July. Mancozeb with the wetting agent applied: 1 Aug. Fentin hydroxide with the wetting agent applied: 12 Aug. Haulm mechanically destroyed: 28 Aug. Lifted: 24 Sept.
- Fallow: Deep-tine cultivated: 14 Dec, 1990. Heavy spring-tine cultivated: 25 Apr, 1991. Cultivated by rotary grubber: 21 June. Heavy spring-tine cultivated: 8 July. Glyphosate with wetting agent applied: 12 July.

91/R/BK/1 W.WHEAT

GRAIN TONNES/HECTARE

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

SECTION PLOT	4/W1	7/W2	2/W3	8/W3	6/W14	1/W25	9/W33	0/W40
01DN4PK	8.84	8.60	9.14	*	5.80	*	*	*
21DN2	9.38	8.65	8.84	3.31	7.18	8.98	9.10	8.74
22D	7.80	5.69	6.17	3.60	5.38	5.98	6.87	5.50
030	1.62	0.67	0.79	1.75	1.12	1.25	0.96	1.00
05F	1.50	0.52	0.85	2.10	1.17	1.29	1.09	1.51
06N1F	4.84	3.14	2.92	2.54	3.32	3.39	3.78	3.37
07N2F	6.92	5.42	5.07	3.27	5.75	6.29	6.19	5.82
08N3F	7.96	7.96	6.88	5.00	7.09	7.80	7.76	7.21
09N4F	8.35	8.43	7.39	5.63	6.95	7.65	8.21	7.34
10N2	5.63	4.85	3.29	1.76	3.54	3.14	4.00	3.11
11N2P	4.60	5.40	4.31	2.11	3.25	4.36	1.85	3.67
12N2PNA	5.32	5.67	3.92	2.32	4.31	2.85	2.22	4.51
13N2PK	6.74	4.95	4.56	3.28	5.15	5.42	6.09	5.34
14N2PKMG	6.72	5.27	4.69	2.86	5.14	5.77	6.20	5.67
15N5F	8.51	8.96	7.85	3.89	6.97	8.66	8.84	7.89
16N6F	8.26	8.50	8.21	3.77	6.28	8.16	8.22	7.32
17N0+3FH	8.27	7.40	6.39	3.28	6.36	7.22	7.30	6.91
18N1+3FH	8.38	7.81	7.25	4.33	6.62	7.28	7.38	7.42
19C	3.19	0.84	1.04	2.51	1.64	2.02	1.76	1.90
20NKMG	*	*	*	*	*	3.23	*	3.03

GRAIN MEAN DM% 82.7

STRAW TONNES/HECTARE

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

SECTION PLOT	4/W1	1/W25
01DN4PK	9.02	*
21DN2	9.11	8.67
22D	7.24	4.58
030	1.11	1.06
05F	0.90	0.92
06N1F	3.27	3.01
07N2F	5.54	4.75
08N3F	6.56	5.56
09N4F	6.60	5.90
10N2	3.04	3.78
11N2P	2.96	2.93
12N2PNA	3.37	1.68
13N2PK	5.57	4.38
14N2PKMG	5.86	3.98
15N5F	7.54	6.78
16N6F	7.05	6.34
17N0+3FH	6.68	5.95
18N1+3FH	6.83	6.46
19C	1.48	1.52
20NKMG	*	3.44

STRAW MEAN DM% 89.8

91/R/BK/1

POTATOES

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

PLOT	TOTAL TUBERS	% WARE
	TONNES/ HECTARE	3.81 CM (1.5 INCH) RIDDLE
01DN4PK	41.9	93.4
21DN2	45.7	95.6
22D	34.2	93.0
030	5.5	62.6
05F	10.6	78.0
06N1F	23.3	88.8
07N2F	29.2	88.8
08N3F	32.8	91.3
09N4F	29.7	91.4
10N2	8.7	78.2
11N2P	10.0	77.8
12N2PNA	9.8	73.2
13N2PK	18.3	75.9
14N2PKMG	31.1	90.6
15N5F	37.9	90.7
16N6F	35.3	93.2
17N3FH	22.1	89.5
18N3FH	27.1	92.5
19C	16.0	88.9