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Yields of the Field Experiments 1971

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71/R/BN/7 Barnfield - Beans, Sugar Beet, Potatoes

Rothamsted Research

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71/R/BN/7

BARNFIELD

Object: Originally studied the effects of organic and inorganic manures on continuous roots. The experiment has been modified to study effects on a four-course rotation and on continuous beans.

The fourth year of new scheme, beans, sugar beet, potatoes.

For previous years see 'Details' 1967, 68/A/5(t), 69/R/BN/7 and 70/R/BN/7(t).

Plot dimensions and areas harvested:

Potatoes and sugar beet (quarter plot): 4.27 x 28.5.
(Strip 1: 2.74 x 28.5). Area harvested: Potatoes - 0.00390,
sugar beet, roots - 0.00130, tops - 0.00065.
Beans, Section 1 (half plot): 10.7 x 27.4.
(Strips 1 and 8: 7.01 x 27.4). Area harvested: 0.00878.
Section 2 (half plot): 10.7 x 19.5.
(Strips 1 and 8: 7.01 x 19.5). Area harvested: 0.00624.

Continuous spring beans: Fresh simazine was applied only to the quarter plots which tested simazine residues (1967 - 69) in 1970. There were thus three combinations:-

	1967	1968	1969	1970	1971
(1)	+	-	-	-	-
(2)	+	+	+	-	+
(3)	+	+	+	+	-

+ = simazine, - = no simazine (mechanical cultivation as needed).

On Section 1 treatment (1) was duplicated, Section 2 had only treatments (1) and (3).

Standard applications:

Spring beans: Weedkiller: Paraquat at 0.84 kg ion in 225 l.
Insecticide: Demeton-s-methyl at 245 g in 438 l.
Potatoes: Weedkillers: Paraquat at 0.28 kg ion in 225 l. Linuron at 1.68 kg in 427 l. Fungicide: Mancozeb at 1.35 kg in 438 l.
Sugar beet: Weedkiller: Paraquat at 0.28 kg ion in 225 l.
Insecticide: Demeton-s-methyl at 245 g in 438 l.

Cultivations, etc.: P, K, Na and Mg applied*: 15 Oct, 1970. FYM applied, all plots ploughed: 19 Oct.

Spring beans: Paraquat applied: 11 Sept, 1970. Seed drilled at 224 kg: 4 Mar, 1971. Simazine applied to appropriate quarter plots at 1.12 kg in 225 l: 10 Mar. Insecticide applied: 1 July. Combine harvested: 2 Sept. Variety: Maris Bead.

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Potatoes: Paraquat applied: 19 Sept, 1970. N applied: 31 Mar, 1971. All plots rotary cultivated, strips 1 and 2 twice, potatoes machine planted: 2 Apr. Linuron applied: 15 Apr. Grubbed: 4 June. Rotary ridged: 5 June. Fungicide applied: 23 June, 13 Aug. Haulm destroyed mechanically: 8 Sept. Sprayed with undiluted BOV at 169 l: 17 Sept. Lifted: 23 Sept. Variety: King Edward.

Sugar beet: Paraquat applied: 19 Sept, 1970. N applied: 31 Mar, 1971. Seed drilled at 5.6 kg: 2 Apr. Singled: 1 June. Insecticide applied: 25 June. Lifted: 3 Nov. Variety: Klein E.

* All plots of Strip 5 received extra fertiliser in error - 5.6 kg P.

Erratum to 70/R/BN/7, p.35. Cultivations to spring beans: 'Simazine applied to half plots' should be 'Simazine applied to appropriate sub plots.....', simazine was applied to one quarter plot per strip on Section 1 and one half plot on Section 2.

TL/R/BN/7

SUMMARY OF RESULTS

POTATOES

TOTAL TUBERS: TONNES/HECTARE

Strip	N	N	A	AC	C
1	0	22.8	-	-	19.4
	1	-	34.4	22.0	-
	2	45.5	-	-	31.0
2	0	-	31.6	31.9	-
	1	-	15.8	18.4	-
	2	34.0	-	-	33.0
4	0	44.1	-	-	48.7
	1	11.9	-	-	15.4
	2	-	22.8	24.0	-
5	0	27.6	-	-	33.2
	1	-	32.7	37.0	-
	2	10.2	-	-	9.3
6	0	16.0	8.9	8.8	-
	1	-	-	-	15.4
	2	16.0	8.6	9.3	-
7	0	-	11.0	12.8	-
	1	18.4	-	-	19.7
	2	-	23.1	30.6	-
8	0	29.6	-	-	29.8
	1	-	9.1	9.7	-
	2	11.3	-	-	12.7
9	0	-	7.9	8.5	-
	1	18.7	-	-	15.8
	2	-	5.8	6.3	-
9	0	9.3	-	-	9.8
	1	-	6.4	6.8	-
	2	17.7	-	-	7.3
	3	-	-	8.4	-
			17.8		
			24.3		
			29.7		

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POTATOES

% WARE: 3.81 CM (1.5 INCH) RIDDLE

Strip	N	N	A	AC	C
1	0	65.5	-	-	68.4
	1	-	78.5	64.7	-
	2	80.3	-	-	68.5
2	3	-	67.5	61.9	-
	0	-	62.0	61.9	-
	1	77.3	-	-	67.6
4	2	-	71.7	65.7	-
	3	73.7	-	-	70.9
	0	74.3	-	-	57.4
5	1	-	70.3	64.4	-
	2	77.2	-	-	73.5
	3	-	72.5	70.1	-
6	0	73.3	-	-	60.2
	1	-	42.0	45.8	-
	2	73.2	-	-	65.4
7	3	-	43.2	46.1	-
	0	-	63.3	61.3	-
	1	76.6	-	-	70.1
8	2	-	68.4	74.1	-
	3	87.3	-	-	81.6
	0	-	61.0	64.5	-
9	1	50.0	-	-	60.9
	2	-	37.9	53.2	-
	3	77.0	-	-	65.6
8	0	-	56.6	59.4	-
	1	78.0	-	-	64.0
	2	-	71.7	45.1	-
9	3	85.1	-	-	60.0
	0		71.3		
	1		82.1		
9	2		85.0		
	3		77.0		

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SUGAR BEET

CLEAN BEET: TONNES/HECTARE

Strip	N	N	A	AC	C
1	0	-	34.2	30.9	-
	1	35.4	-	-	48.3
	2	-	49.7	49.1	-
2	3	51.8	-	-	44.9
	0	32.2	-	-	27.4
	1	-	43.7	41.7	-
4	2	48.8	-	-	50.0
	3	-	50.9	54.1	-
	0	-	26.1	25.7	-
5	1	32.3	-	-	31.1
	2	-	38.8	35.9	-
	3	49.5	-	-	47.9
6	0	-	28.8	32.8	-
	1	25.4	-	-	29.3
	2	-	36.5	35.4	-
7	3	34.2	-	-	43.0
	0	22.4	-	-	26.8
	1	-	26.8	30.1	-
8	2	34.4	-	-	41.4
	3	-	43.4	46.9	-
	0	11.1	-	-	16.6
9	1	-	28.9	32.8	-
	2	36.6	-	-	39.3
	3	-	41.9	42.2	-
10	0	21.5	-	-	18.8
	1	-	21.1	25.4	-
	2	28.5	-	-	33.3
11	3	-	30.4	27.2	-

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SUGAR BEET

SUGAR %

Strip	N	N	A	AC	C
1	0	-	18.3	18.0	-
	1	18.2	-	-	17.5
	2	-	17.4	18.4	-
	3	17.4	-	-	17.2
2	0	18.3	-	-	18.2
	1	-	18.1	18.5	-
	2	18.2	-	-	18.6
	3	-	18.4	18.1	-
4	0	-	18.7	18.4	-
	1	19.1	-	-	18.9
	2	-	19.2	19.0	-
	3	18.4	-	-	18.5
5	0	-	18.9	18.5	-
	1	18.3	-	-	18.7
	2	-	18.8	18.5	-
	3	17.5	-	-	18.1
6	0	18.3	-	-	18.3
	1	-	19.4	18.8	-
	2	18.6	-	-	19.0
	3	-	18.7	18.5	-
7	0	18.7	-	-	18.2
	1	-	18.0	19.1	-
	2	18.2	-	-	19.1
	3	-	18.6	18.6	-
8	0	18.6	-	-	18.2
	1	-	19.2	19.0	-
	2	18.3	-	-	17.9
	3	-	17.4	16.8	-

7L/R/BN/7

SUGAR BEET

TOTAL SUGAR: TONNES/HECTARE

Strip	N	N	A	AC	C
1	0	-	6.26	5.55	-
	1	6.47	-	-	8.42
	2	-	8.65	9.03	-
2	3	9.02	-	-	7.72
	0	5.90	-	-	4.98
	1	-	7.92	7.72	-
4	2	8.90	-	-	9.27
	3	-	9.35	9.79	-
	0	-	4.90	4.73	-
5	1	6.15	-	-	5.89
	2	-	7.46	6.81	-
	3	9.11	-	-	8.86
6	0	-	5.45	6.07	-
	1	4.66	-	-	5.48
	2	-	6.85	6.55	-
7	3	6.00	-	-	7.76
	0	4.09	-	-	4.90
	1	-	5.19	5.65	-
8	2	6.40	-	-	7.87
	3	-	8.11	8.69	-
	0	2.09	-	-	3.03
8	1	-	5.19	6.26	-
	2	6.65	-	-	7.50
	3	-	7.80	7.83	-
8	0	4.00	-	-	3.43
	1	-	4.04	4.84	-
	2	5.21	-	-	5.97
	3	-	5.29	4.57	-

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SUGAR BEET

TOPS: TONNES/HECTARE

Strip	N	N	A	AC	C
1	0	-	14.0	13.3	-
	1	16.7	-	-	24.4
	2	-	32.1	25.8	-
2	3	32.8	-	-	32.1
	0	18.8	-	-	11.9
	1	-	18.1	15.3	-
4	2	27.2	-	-	22.3
	3	-	27.2	30.7	-
	0	-	4.2	4.9	-
5	1	7.0	-	-	7.0
	2	-	10.5	16.7	-
	3	18.8	-	-	24.4
6	0	-	4.9	5.6	-
	1	7.7	-	-	10.5
	2	-	16.0	18.8	-
7	3	23.0	-	-	20.2
	0	3.5	-	-	2.8
	1	-	6.3	8.4	-
8	2	12.6	-	-	16.0
	3	-	14.0	17.4	-
	0	3.5	-	-	5.6
8	1	-	8.4	9.1	-
	2	15.3	-	-	13.3
	3	-	15.3	18.1	-
8	0	4.9	-	-	4.9
	1	-	9.1	10.5	-
	2	15.3	-	-	18.1
	3	-	22.3	22.3	-

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BEANS

SIMAZINE

Strip	1967*	1967-70	1967-69 & 1971	Mean
GRAIN: TONNES/HECTARE				
1	1.25	1.40	1.65	1.39
2	1.41	0.99	0.68	1.13
4	1.52	1.26	0.39	1.17
5	1.86	1.43	0.43	1.40
6	1.73	1.46	0.54	1.37
7	1.69	1.98	0.28	1.41
8	1.34	0.80	0.34	0.95
Mean	1.54	1.33	0.62	1.26

STRAW: TONNES/HECTARE				
1	0.91	1.59	1.14	1.13
2	1.41	1.52	1.07	1.35
4	1.51	1.27	0.31	1.15
5	1.69	1.05	0.23	1.17
6	1.52	1.18	0.39	1.15
7	0.90	1.66	1.39	1.21
8	0.93	0.41	0.20	0.62
Mean	1.27	1.24	0.67	1.11

Mean D.M. %: Grain: 82.1
Straw: 77.8

* Duplicated treatment