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Numerical Results of the Field Experiments 1968

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68/A/5 Barnfield Four Course Rotation & Beans After Long Term Experiments on Root Crops

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68/A/5.1

BARNFIELD: FOUR-COURSE ROTATION AND SPRING BEANS AFTER LONG TERM

EXPERIMENTS ON ROOT CROPS

(BN)

First year of new scheme, 1968

For history, treatments, etc., see 'Details 1967' and 'Results' 62/A/5.

Cropping and design:

Series O (now Section 1): Continuous spring beans started 1967. Plots are split lengthways into two for a test (unrandomised) of inter-row cultivation none (O) v.1 (H) 1b simazine 1b simazine for weed control.

The valley (now Section 2), excluding a 30 ft headland between the valley and section 3: As section 1. The remainder of each strip (1, 2, 4, 5, 6, 7, 8,) is split lengthways into two to carry two crops of a four course rotation of potatoes, spring barley, sugar beet and spring wheat, with two crops present each year (barley and wheat in 1968, with barley on the east side, both following beans 1967). Each half is further split breadthways into two for the 4 N rates, which are applied cumulatively (for rates of N see below). Each whole plot has the four rates, NO and N2 on one crop, N1 and N3 on the other.

In each crop on any one strip Series N and C have the same two rates of N, Series A and AC the other two. In each crop, too, on any one series, strips 1, 4, and 5 have the same two rates of N and strips 2, 6, 7, and 8, the other two. Series N, A, AC, and C are now called Sections 3, 4, 5 and 6 respectively.

Plot 9: Carries a four course rotation as above with one crop present each year (barley in 1968). It is similarly divided into quarter plots to which the 4 rates of N are applied for each crop.

Manuring:

Nitrogen is now applied as 'Nitro-Chalk' only. The rates in lb N are none (NO), 43 (N1), 86 (N2), 129 (N3) to barley and wheat and none (NO), 64 (N1), 129 (N2) and 193 (N3) to potatoes and sugar beet. No N is applied to beans. The mineral fertilisers and FYM to strips continue to be applied. Section 2 (the valley) now receives the strip manures. Application of castor bean meal is discontinued.

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Varieties in 1968: Barley: Maris Badger, spring wheat: Kolibri,
spring beans: Maris Bead (uninoculated).

Plot areas:

Wheat and barley (quarter plot):

0.0362 (Strip 1: 0.0238). Area harvested: 0.0193.

Beans Section 1 (half plot): 0.0723

(Strips 1 and 8: 0.0475). Area harvested: 0.0362.

Section 2 (half plot): 0.0241.

(Strips 1 and 8: 0.0158). Area harvested: 0.0129.

Cultivations, etc.:— P, K, Na and Mg applied: 22 Sept, 1967. Sub-
soiled: 10 Oct. FYM applied, all plots ploughed: 9 Nov.
Spring wheat: Seed drilled at 160 lb: 4 Mar, 1968. 'Nitro-Chalk'
applied: 18 Mar. Combine harvested: 7 Sept.
Barley: Seed drilled at 140 lb: 4 Mar, 1968. 'Nitro-Chalk'
applied: 18 Mar. Combine harvested: 22 Aug.
Spring beans: Seed drilled at 200 lb: 4 Mar, 1968. Half plots
sprayed with simazine at 1 lb in 33 gals: 5 Mar. 1.04 lb
phorate applied in granules: 21 June. Combine harvested:
9 Sept.

NOTE: Birds took much of the grain from the plots of strip 1.

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SUMMARY OF RESULTS

SPRING WHEAT

GRAIN

SERIES

Strip	N 1968	N	A	AC	C
1	0	-	18.0	22.3	-
	1	11.1	-	-	27.3
	2	-	20.9	21.5	-
2	3	19.7	-	-	17.8
	0	18.0	-	-	18.5
	1	-	28.7	31.5	-
4	2	25.7	-	-	29.3
	3	-	25.0	27.2	-
	0	-	16.2	18.3	-
5	1	22.3	-	-	28.8
	2	-	34.5	33.7	-
	3	28.3	-	-	23.1
6	0	-	18.1	21.0	-
	1	22.0	-	-	27.6
	2	-	36.4	37.3	-
7	3	33.1	-	-	35.8
	0	11.2	-	-	17.4
	1	-	25.0	31.5	-
8	2	24.0	-	-	33.4
	3	-	38.0	40.8	-
	0	9.5	-	-	19.1
9	1	-	30.9	33.0	-
	2	21.9	-	-	34.9
	3	-	33.7	41.9	-
10	0	7.6	-	-	20.0
	1	-	21.4	32.7	-
	2	23.5	-	-	38.4
11	3	-	39.9	43.2	-

Mean D.M. %: 77.0

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SPRING WHEAT

STRAW

SERIES

Strip	N 1968	N	A	AC	C
1	0	-	55.2	28.0	-
	1	40.3	-	-	44.1
	2	-	40.9	54.2	-
	3	60.4	-	-	63.4
2	0	40.0	-	-	31.8
	1	-	56.9	52.8	-
	2	58.1	-	-	57.6
	3	-	69.3	68.5	-
4	0	-	14.8	20.0	-
	1	28.2	-	-	30.8
	2	-	44.2	45.4	-
	3	55.1	-	-	51.9
5	0	-	19.2	22.7	-
	1	35.8	-	-	37.3
	2	-	44.5	48.9	-
	3	51.0	-	-	50.2
6	0	14.0	-	-	19.2
	1	-	33.7	37.9	-
	2	41.4	-	-	46.7
	3	-	56.7	51.6	-
7	0	10.6	-	-	18.5
	1	-	34.1	37.0	-
	2	36.2	-	-	39.9
	3	-	58.7	56.9	-
8	0	12.2	-	-	18.1
	1	-	26.8	35.1	-
	2	36.7	-	-	41.1
	3	-	45.8	48.2	-

Mean D.M. %: 80.4

68/A/5.5

BARLEY

GRAIN

SERIES

Strip	N 1968	N	A	AC	C
1	0	34.5	-	-	32.7
	1	-	30.0	40.6	-
	2	30.1	-	-	28.4
	3	-	26.2	27.3	-
2	0	-	33.3	31.0	-
	1	37.2	-	-	34.2
	2	-	28.4	30.6	-
	3	24.7	-	-	28.2
4	0	16.8	-	-	20.7
	1	-	23.3	35.5	-
	2	33.9	-	-	34.3
	3	-	29.6	26.6	-
5	0	13.5	-	-	21.7
	1	-	36.1	38.4	-
	2	36.6	-	-	35.9
	3	-	36.5	33.7	-
6	0	-	19.0	22.5	-
	1	25.6	-	-	30.1
	2	-	35.9	33.1	-
	3	31.8	-	-	28.3
7	0	-	14.3	20.7	-
	1	25.2	-	-	30.3
	2	-	39.4	36.7	-
	3	30.3	-	-	22.4
8	0	-	19.7	22.8	-
	1	24.9	-	-	33.3
	2	-	36.8	36.1	-
	3	30.4	-	-	24.4
9	0	13.2	-	-	-
	1	31.4	-	-	-
	2	29.8	-	-	-
	3	33.4	-	-	-

Mean D.M. %: 82.8

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BARLEY

STRAW

SERIES

Strip	N 1968	N	A	AC	C
1	0	38.3	-	-	38.7
	1	-	60.0	59.5	-
	2	66.8	-	-	70.5
2	3	-	57.1	52.4	-
	0	-	35.1	35.2	-
	1	55.9	-	-	55.9
4	2	-	58.5	59.6	-
	3	59.5	-	-	60.1
	0	15.8	-	-	16.7
5	1	-	26.7	36.7	-
	2	48.2	-	-	42.4
	3	-	48.9	51.6	-
6	0	12.0	-	-	19.9
	1	-	32.4	35.5	-
	2	46.3	-	-	44.7
7	3	-	42.6	45.6	-
	0	-	16.8	22.3	-
	1	26.4	-	-	27.5
8	2	-	43.4	44.8	-
	3	42.5	-	-	45.0
	0	-	11.8	19.2	-
9	1	25.5	-	-	29.9
	2	-	44.2	47.3	-
	3	41.8	-	-	47.9
10	0	-	29.0	19.1	-
	1	28.9	-	-	29.7
	2	-	36.0	25.2	-
11	3	34.9	-	-	40.2
	0	11.8	-	-	-
	1	29.4	-	-	-
12	2	38.1	-	-	-
	3	46.2	-	-	-

Mean D.M. %: 79.7

68/A/5.7

SPRING BEANS

SERIES			
Strip	O	H	Mean
GRAIN			
1	19.2	26.7	23.0
2	31.9	29.6	30.7
4	30.8	16.7	23.7
5	32.7	11.8	22.2
6	32.1	15.8	23.9
7	32.5	11.9	22.2
8	25.7	7.6	16.7
Mean	29.3	17.2	23.2
STRAW			
1	5.1	17.8	11.5
2	26.8	16.0	21.4
4	15.2	8.1	11.6
5	17.3	4.0	10.7
6	16.8	5.4	11.1
7	13.7	5.3	9.5
8	10.9	1.7	6.3
Mean	15.1	8.3	11.7

Mean D.M. %: Grain: 79.2
Straw: 82.2