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Yields of the Field Experiments 1964

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Classical Experiments

Rothamsted Research

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64/A/1.1

WHEAT - BROADBALK 1964

(BK)

The 121st year

For history, treatments, etc. see 'Details' 1962.

All sections except VA are now sprayed annually with weedkillers.

Cultivations, etc.:

CROPPED SECTIONS. Ground chalk applied to section VA (first half of 5 ton dressing): Sept 19, 1963. Ground chalk applied to plot 19, Section IV at 5 tons: Sept 23. Normal annual dressing of ground chalk applied to plots: Sept 23 and Oct 1. Dung applied: Sept 24. Ploughed: Sept 25 - Oct 2. Ground chalk applied to Section VA (remainder of 5 ton dressing): Oct 11. Autumn fertilisers applied: Oct 15. Seed drilled at 3 bushels: Nov 30. Spring fertilisers applied: Apr 13, 1964. Second dressing of nitrate of soda applied to plot 16: Apr 17. All sections except VA sprayed with dicamba/MCPA ('Banlene' at 4 pints in 40 gals): May 7. Combine harvested: Aug 27. Variety: Squarehead's Master 13/4 (Rothamsted seed from Broadbalk).
FALLOW SECTION. (IV) Ploughed: Sept 25 - Oct 2, 1963, May 4, 1964, July 9.

BROADBALK WILDERNESS. Cultivations etc.:

Ungrazed meadow (north): Shrubs grubbed out: Dec 18 - 31, 1963.
Grazed meadow (centre): Grazed by sheep: Apr 28 - May 7, 1964, June 4 - 9, July 8 - 13, Aug 14 - 18. Grass topped: May 8, June 13, July 13, Aug 18, Nov 12.

64/A/1.2

SUMMARY OF RESULTS

GRAIN

Section Years after fallow	VA 1	II 2	IB 3	III 4	VB 6	IA 13	Mean
2A	15.9	30.1	24.3	23.3	24.9	20.1	24.3
2B	22.7	24.9	21.1	20.9	21.6	19.7	22.3
3	17.7	12.9	13.0	13.8	8.2	7.8	12.8
5	14.7	17.0	15.0	18.5	15.1	7.6	16.0
6	16.1	20.8	17.0	21.4	18.3	14.4	19.1
7	15.1	26.1	23.9	23.6	13.6	23.4	22.1
8	18.5	27.9	27.4	27.3	29.5	25.4	26.5
9	17.8	19.2	15.0	16.4	12.3	14.9	16.5
10	17.4	24.4	17.8	19.7	10.6	10.2	18.7
11	27.7	22.1	6.0	18.6	14.4	21.6	18.6
12	9.5	21.3	19.8	20.9	13.0	17.4	18.3
13	9.6	21.0	18.0	20.2	14.9	19.7	18.2
14	10.9	21.2	18.3	18.8	14.4	18.3	17.9
15	19.5	22.1	19.7	21.9	11.3	14.6	19.6
16	17.6	21.2	20.1	21.4	17.9	18.3	20.1
17	20.7	23.1	20.1	22.9	13.8	15.7	20.7
18	6.1	7.5	4.6	6.7	6.6	4.0	6.3
19	19.5	18.8	16.4	17.9	15.0	14.2	17.5
20		20.0	16.8			10.4	17.2

Mean D.M. %: 87.4

64/A/1.3

Section Years after fallow	STRAW						Mean
	VA 1	II 2	IB 3	III 4	VB 6	IA 13	
2A	44.1	32.9	29.9	29.2	31.9	27.0	32.3
2B	41.8	33.9	25.0	32.0	28.3	30.1	32.2
3	22.6	12.6	12.8	15.5	9.4	5.8	13.8
5	34.0	18.8	17.6	20.4	16.6	9.5	20.0
6	38.0	23.5	17.7	23.6	23.1	17.5	24.0
7	48.3	34.7	31.9	36.4	36.6	29.9	36.3
8	42.8	50.4	42.3	45.0	40.8	42.5	45.2
9	36.7	26.0	19.8	21.1	20.0	19.6	23.9
10	29.0	29.9	21.3	22.3	20.0	18.9	24.5
11	31.9	28.4	24.0	21.4	21.5	29.4	25.5
12	40.5	31.0	24.4	23.4	28.6	27.2	28.6
13	32.0	32.6	27.9	33.6	30.3	33.9	32.0
14	35.3	26.3	26.2	24.1	27.9	24.0	26.8
15	32.1	28.2	26.2	25.9	20.9	23.6	26.6
16	53.4	32.9	29.7	28.2	42.3	33.4	34.8
17	42.3	32.4	29.8	36.0	25.6	25.8	33.0
18	33.1	8.0	5.5	6.6	11.6	6.5	10.7
19	37.1	24.7	18.9	24.4	25.0	23.2	25.2
20		27.2	21.3			18.1	23.5

Mean D.M. %: 91.0

64/A/2.1

BARLEY - HOOSFIELD 1964

(HB)

For history, treatments, etc. see 'Details' 1962.

The plots are now split lengthways for a comparison of 2 varieties - Plumage Archer (PA) and Maris Badger (MB). For Maris Badger the rates of application of sulphate of ammonia, nitrate of soda and castor meal are doubled (each supplying 86 lb N). Rates of application of other fertilisers and dung are unchanged.

Cultivations, etc.: Sprayed with dalapon (Dowpon at 8 lb in 40 gals): Oct 7, 1963 and again (at 4 lb in 40 gals): Oct 21. Dung applied: Nov 2. Ploughed: Nov 4. Fertilisers applied: Apr 9, 1964. Seed drilled at 2.75 bushels: Apr 10. Sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in 40 gals): May 28. Combine harvested: Aug 31.

64/A/2.2

SUMMARY OF RESULTS

Plot	GRAIN			STRAW		
	PA	MB	Mean	PA	MB	Mean
1 O	5.3	7.4	6.4	2.2	2.5	2.4
2 O	9.1	11.3	10.2	3.8	4.5	4.2
3 O	7.8	8.0	7.9	4.1	2.5	3.3
4 O	10.9	10.8	10.9	4.6	2.8	3.7
5 O	10.4	10.2	10.3	6.1	5.6	5.9
1 A	7.5	11.5	9.5	5.1	5.9	5.5
2 A	17.4	24.4	20.9	10.6	16.0	13.3
3 A	15.3	24.9	20.1	10.6	12.9	11.8
4 A	24.2	37.6	30.9	14.5	22.3	18.4
5 A	24.6	36.5	30.6	18.9	25.7	22.3
1 AA	7.8	10.4	9.1	6.3	8.2	7.3
2 AA	20.1	28.7	24.4	14.5	20.2	17.4
3 AA	13.0	21.9	17.5	10.2	13.7	12.0
4 AA	21.3	40.0	30.7	14.4	28.0	21.2
1 AAS	18.4	18.4	18.4	12.4	14.1	13.3
2 AAS	24.6	28.7	26.7	16.1	20.2	18.2
3 AAS	18.4	31.3	24.9	12.0	19.6	15.8
4 AAS	24.9	37.5	31.2	19.1	26.4	22.8
1 C	19.6	31.6	25.6	10.9	16.1	13.5
2 C	21.3	38.1	29.7	12.8	22.9	17.9
3 C	21.3	37.4	29.4	12.9	22.6	17.8
4 C	23.8	38.8	31.3	16.2	23.8	20.0
7 - 1	11.3	7.6	9.5	5.1	3.2	4.2
7 - 2	33.2	37.0	35.1	22.0	22.9	22.5
6 - 1	4.9	4.4	4.7	2.5	1.6	2.1
6 - 2	6.6	5.1	5.9	3.9	2.2	3.1
1 N	6.0	4.0	5.0	5.3	7.4	6.5
2 N	11.2	17.4	14.3	8.0	11.4	9.7
Mean	15.7	22.2	18.9	10.2	13.8	12.0
Mean D.M.%:	87.4			89.4		

64/A/3

WHEAT AFTER FALLOW - HOOSFIELD 1964

(HWF)

For history, treatments, etc. see 'Details' 1962.

Area of each plot: Squarehead's Master 13/4 - 0.0690.
Rothwell Perdix - 0.0552. Area harvested: 0.0365.

Cultivations, etc.:

Cropped plots. Ploughed: Sept 24, 1963. Seed drilled at
3 bushels: Oct 16. Combine harvested: Aug 28, 1964.

Fallowed plots. Ploughed 3 times: Sept 24, 1963,
May 30, 1964, July 27.

NOTE. Counts of straw number and estimates of eyespot (*Cercospora herpotrichoides*) and take-all (*Ophiobolus graminis*) were made.

SUMMARY OF RESULTS

Plot No. of years of fallow	A2 1	A3 1	A4 3	Mean
Variety	GRAIN			
Squarehead's Master 13/4	6.7	6.1	6.3	6.4
Rothwell Perdix	12.6	12.3	11.0	12.0
Mean	9.6	9.2	8.6	9.2
	STRAW			
Squarehead's Master 13/4	9.8	10.8	10.5	10.4
Rothwell Perdix	13.4	11.0	10.3	11.6
Mean	11.6	10.9	10.4	11.0

Mean D.M. %: Grain 83.0 Straw 91.2

64/A/4.1

GRASS - AGDELL 1964

For history, treatments etc., see 'Details' 1962.

The Cocksfoot leys sown in 1960 were ploughed out and resown with Timothy S51.

The areas in grass and fallow are now each divided into 8 sub plots, which receive PK treatments:-

P205: 0 (P0), 4.0 (P1), 8.0 (P2), 16.0 (P4) cwt with basal K

K20: 0 (K0), 2.5 (K1), 5.0 (K2), 10.0 (K4) cwt with basal P

All P205 as triple superphosphate, all K20 as muriate of potash.

Basal dressings: To P plots: as treatment K4.

To K plots: as treatment P4.

The grass areas also received 0.8 cwt N as 'Nitro-Chalk' in seedbed.

Area of each microplot: 0.0180. Area harvested: 0.0084.

Cultivations, etc.: Ploughed: Nov 27 - Dec 2, 1963. PK fertilisers applied: Mar 11, 1964.

Grass: Old grass. Sprayed with dalapon at 11 lb a.e. in 40 gals:

Oct 17, 1963. Seed sown at 30 lb, seedbed 'Nitro-Chalk'

applied: May 8, 1964. Sprayed with 2,4-D butoxyethylester at

0.44 lb a.e. in 40 gals: June 10. Cut for silage: Aug 20.

Fallow: Rotary cultivated: July 27, 1964.

64/A/4.2

SUMMARY OF RESULTS

1ST AND ONLY CUT: DRY MATTER

P K	Plot						Mean
	5	6	3	4	1	2	
0 4	0.0	0.0	0.9	2.0	7.0	3.5	2.2
1 4	6.3	7.8	8.6	8.0	13.2	12.2	9.3
2 4	6.0	6.1	9.1	10.5	15.9	15.3	10.5
4 4	8.6	8.2	11.5	10.4	18.7	18.9	12.7
4 0	3.0	3.2	4.0	6.6	8.8	8.8	5.7
4 1	7.1	8.3	7.4	11.9	16.7	16.6	11.3
4 2	5.4	11.7	13.3	15.3	16.3	16.4	13.1
4 4	7.5	10.0	7.2	14.7	16.2	19.6	12.5
Mean	5.5	6.9	7.7	9.9	14.1	13.9	9.7

Mean D.M. %: 32.1

64/A/5.1

MANGOLDS AND POTATOES - BARNFIELD 1964

(BN)

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

In 1964 the rate of application of P2O5 was increased to 122.5 lb per acre, thus permitting the use of compound 0:14:28 on strips 2, 4 and 6. Granular superphosphate was applied to strips 5 and 7 (at 645 lb per acre, supplying 122.5 lb P2O5). Potash, sodium and magnesium were applied normally.

Cultivations, etc.: Dung applied: Dec 19, 1963. Ploughed:
Jan 17 - Feb 5, 1964. Mineral fertilisers applied to strips:
May 13.

Mangolds: N fertilisers applied: May 14, 1964. Seed drilled at
9 lb: May 15. Singled: June 16 - July 2. Sprayed with menazon
at 0.38 lb in 35 gals: July 23. Lifted: Oct 8.

Potatoes: N fertilisers applied, all plots rotary cultivated:
May 14, 1964. Rotary cultivated 2nd time, potatoes machine
planted: May 15. Earthed up: June 29. Sprayed twice with
mancozeb at 1.2 lb in 35 gals: July 1 and Aug 6. Haulm
destroyed mechanically: Sept 22. Lifted: Sept 29.

Treatment symbols:

		N cwt per acre
NO	=	None
N1	=	0.6
N2	=	1.2
N3	=	1.8

64/A/5.2

SUMMARY OF RESULTS

MANGOLDS, ROOTS

Strip	N	O	N	A	AC	C
1	0	10.78	21.21	14.31	13.64	8.42
	1		25.51	23.23	14.90	16.33
	2		22.22	20.04	20.04	13.89
	3		22.39	24.92	20.88	27.95
2	0	13.86	21.05	23.57	15.15	15.57
	1		23.74	21.80	19.78	17.43
	2		26.10	17.01	20.54	18.69
	3		31.32	19.78	19.11	17.09
4	0	5.96	10.52	13.64	14.98	8.42
	1		15.49	10.86	16.67	19.36
	2		21.47	16.16	16.92	18.35
	3		22.73	15.57	13.30	19.28
5	0	5.70	7.58	10.78	12.38	8.59
	1		17.01	11.20	11.62	12.46
	2		17.34	11.28	14.82	11.11
	3		31.82	11.79	10.10	12.46
6	0	4.76	9.18	8.84	13.05	8.17
	1		17.59	12.71	12.96	15.74
	2		18.27	13.05	12.71	18.60
	3		20.79	12.96	19.36	19.11
7	0	4.78	14.31	13.55	13.13	11.95
	1		15.91	17.59	13.97	13.64
	2		17.26	14.82	14.31	20.54
	3		20.88	19.53	19.70	20.71
8	0	3.96	5.47	6.90	11.20	10.69
	1		11.20	9.01	11.36	13.30
	2		13.13	9.60	11.70	12.04
	3		17.93	8.08	12.21	12.12
9	0		8.42			
	1		13.97			
	2		16.75			
	3		16.50			

64/A/5.3

MANGOLDS, LEAVES

Strip	N	O	N	A	AC	C
1	0	4.20	7.74	4.80	5.89	4.04
	1		8.42	6.40	6.23	6.23
	2		7.58	5.81	7.07	5.56
	3		7.24	7.58	6.82	9.09
2	0	5.47	10.02	9.01	7.41	6.65
	1		8.25	7.66	8.33	6.82
	2		10.02	7.49	7.32	7.07
	3		11.11	8.17	8.08	7.32
4	0	2.21	4.88	4.29	5.98	4.04
	1		5.14	3.54	5.89	6.48
	2		7.58	4.97	6.82	6.23
	3		8.33	4.97	5.89	7.66
5	0	1.81	2.69	3.03	4.29	3.20
	1		5.14	3.20	4.80	3.62
	2		6.15	3.45	4.97	4.04
	3		9.43	3.70	3.87	4.38
6	0	1.78	3.45	2.95	4.80	2.78
	1		5.47	3.45	4.21	4.88
	2		6.40	4.13	4.46	5.72
	3		6.23	5.05	6.82	6.15
7	0	1.92	4.46	4.55	5.05	4.04
	1		5.05	5.14	5.30	3.96
	2		5.47	4.29	5.56	6.65
	3		6.73	5.64	6.57	6.99
8	0	1.81	2.53	2.10	4.13	3.62
	1		3.87	3.28	3.70	4.55
	2		4.04	3.62	3.96	3.70
	3		6.06	3.03	4.38	4.21
9	0		3.28			
	1		4.21			
	2		5.72			
	3		5.64			

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MANGOLDS, PLANT NUMBER

Strip	N	O	N	A	AC	C
1	0	12.8	24.3	20.4	20.9	23.0
	1		23.0	24.1	20.4	22.6
	2		22.3	21.1	23.4	16.6
	3		21.9	22.3	23.4	22.6
2	0	21.3	22.8	22.3	18.5	19.0
	1		22.1	23.2	18.7	19.4
	2		21.5	18.5	18.7	18.9
	3		21.9	20.6	17.2	17.2
4	0	23.3	21.5	17.2	19.2	19.0
	1		21.1	20.4	18.7	15.7
	2		19.4	20.0	14.3	15.8
	3		20.9	19.2	9.6	14.0
5	0	20.7	21.5	19.0	21.9	23.8
	1		22.4	19.8	16.2	23.9
	2		23.4	20.0	23.2	20.9
	3		21.7	22.3	10.7	24.5
6	0	20.9	15.7	17.5	18.9	21.5
	1		21.9	17.3	17.5	22.4
	2		21.1	14.9	13.8	21.9
	3		20.2	12.3	21.1	22.1
7	0	22.0	23.2	19.2	21.3	22.8
	1		24.3	19.8	15.5	22.3
	2		22.1	18.1	15.1	22.4
	3		21.9	18.1	19.6	21.7
8	0	13.9	20.7	22.4	21.3	21.1
	1		20.9	21.9	20.4	23.4
	2		22.1	21.5	21.9	21.1
	3		22.1	21.5	21.3	22.4
9	0		20.0			
	1		20.6			
	2		21.3			
	3		20.9			

64/A/5.5

POTATOES, TOTAL TUBERS

Strip	N	O	N	A	AC	C
1	0	6.63	9.02	13.23	10.11	10.26
	1		8.37	11.49	10.23	9.44
	2		11.30	10.96	11.71	10.52
	3		10.23	9.38	11.61	11.46
2	0	6.54	8.94	8.71	9.05	9.60
	1		9.43	9.68	11.42	10.21
	2		10.50	10.75	11.33	13.09
	3		10.57	12.93	14.27	12.92
4	0	3.22	5.51	6.61	6.40	6.44
	1		7.81	6.29	7.51	7.86
	2		4.92	7.62	8.08	8.58
	3		6.06	7.60	7.89	8.33
5	0	2.95	3.22	2.78	3.91	3.70
	1		3.79	2.67	4.04	4.13
	2		4.34	3.64	4.36	4.08
	3		3.47	2.55	3.58	4.04
6	0	3.03	3.79	5.91	6.25	5.91
	1		5.43	5.98	7.03	5.85
	2		4.38	5.96	8.73	6.27
	3		4.52	6.67	7.99	6.65
7	0	3.53	4.21	2.15	2.97	3.18
	1		4.17	2.82	3.24	3.58
	2		3.11	3.09	3.51	4.48
	3		3.89	3.05	3.98	5.70
8	0	2.03	2.15	2.29	3.37	3.68
	1		3.37	2.29	3.68	4.65
	2		1.85	1.79	3.60	3.81
	3		3.51	2.06	3.81	3.01
9	0		3.94			
	1		5.09			
	2		4.04			
	3		4.00			

64/A/5.6

POTATOES % WARE

Strip	N	Q	N	A	AC	C
1	0	86.8	91.6	94.5	87.5	89.2
	1		86.0	89.3	91.7	88.6
	2		90.5	89.6	92.7	91.3
	3		88.3	89.2	91.8	91.7
2	0	83.0	88.4	86.0	87.0	83.3
	1		89.1	85.2	84.3	84.7
	2		88.6	87.3	87.7	88.4
	3		86.4	90.4	86.7	88.9
4	0	80.2	85.1	88.5	83.2	89.9
	1		90.3	85.3	89.6	89.0
	2		87.2	88.1	87.0	86.8
	3		86.8	90.0	87.5	88.6
5	0	83.3	75.8	72.0	80.6	83.0
	1		80.6	73.2	81.8	82.1
	2		80.6	83.8	78.7	80.9
	3		73.3	69.4	80.0	82.3
6	0	77.4	86.7	88.3	87.2	85.4
	1		81.8	85.2	88.3	84.2
	2		81.3	86.2	86.5	91.6
	3		80.5	83.0	86.9	88.6
7	0	78.2	74.0	67.6	68.8	74.8
	1		77.3	73.1	79.2	78.2
	2		68.9	81.6	77.2	80.8
	3		75.1	72.4	77.8	83.4
8	0	76.0	80.4	75.2	81.9	85.7
	1		83.1	69.7	80.0	85.5
	2		70.5	71.8	77.8	86.2
	3		86.8	70.4	82.3	82.5
9	0		89.8			
	1		90.9			
	2		88.5			
	3		87.9			

64/A/6

HAY - THE PARK GRASS PLOTS 1964

(PG)

The 109th year

For history, treatments etc., see 'Details' 1956.

Cultivations, etc.: Ground chalk applied: Nov 28 - Dec 11, 1963.

Mineral fertilisers applied: Dec 18. Nitrogenous fertilisers

applied: 1st dressing: Mar 3, 1964, 2nd dressing - Apr 10.

Cut twice: June 26 and Nov 5.

SUMMARY OF RESULTS

Plot	Not limed			Limed		
	1st crop	2nd crop	Total	1st crop	2nd crop	Total
1	10.0	0.0	10.0	17.7	0.0	17.7
2	13.3	0.0	13.3	18.6	0.0	18.6
3	11.8	0.0	11.8	18.7	0.0	18.7
4-1	28.0	0.0	28.0	28.7	0.0	28.7
4-2	26.0	0.0	26.0	33.2	0.0	33.2
5-1	13.9	0.0	13.9			
5-2	36.5	8.4	44.9			
6	39.3	10.1	49.4			
7	38.7	8.1	46.8	42.2	10.2	52.4
8	31.3	0.0	31.3	29.0	0.0	29.0
9	40.5	0.0	40.5	46.6	6.2	52.8
10	25.6	0.0	25.6	35.4	0.0	35.4
11-1	30.7	18.6	49.3	51.5	9.4	60.9
11-2	44.5	18.2	62.7	56.8	12.3	69.1
12	19.7	0.0	19.7			
13	34.2	8.5	42.7	31.3	12.3	43.6
14	40.5	9.0	49.5	41.3	6.1	47.4
15	22.7	9.0	31.7	34.5	9.5	44.0
16	32.6	10.7	43.3	38.3	8.0	46.3
17	19.2	10.5	29.7	21.6	5.0	26.6
18	14.6	0.0	14.6	24.9*	0.0	24.9*
				25.4+	0.0	25.4+
19	31.2	6.1	37.3	27.2*	4.1*	31.3*
				30.7+	7.2+	37.9+
20	37.1	9.9	47.0	40.5*	7.6*	48.1*
				36.1+	8.5+	44.6+

*Heavy liming. +Light liming.

Mean D.M.‰: 1st crop 27.1: 2nd crop 41.7.

NOTE: Because of poor growth between the first and second cuts no second crop was taken on a number of plots, the grass being cut and left to lie.

TABLE 1. - THE EAST RIVER FISH

(19)

The 1970 Year

For detailed information see "Notes" page

Observations: 1970 - Ground traps applied Nov 25 - Dec 11, 1970. Various treatments applied Nov 17 - 1970. Fish were taken Nov 17, 1970, and Nov 25, 1970, and Nov 25, 1970.

Summary of Results

Date	No. of traps	No. of fish	No. of fish		Total
			at trap	not at trap	
11/17	10	10	10	0	10
11/25	10	10	10	0	10
12/11	10	10	10	0	10
12/18	10	10	10	0	10
12/25	10	10	10	0	10
1/1	10	10	10	0	10
1/8	10	10	10	0	10
1/15	10	10	10	0	10
1/22	10	10	10	0	10
1/29	10	10	10	0	10
2/5	10	10	10	0	10
2/12	10	10	10	0	10
2/19	10	10	10	0	10
2/26	10	10	10	0	10
3/5	10	10	10	0	10
3/12	10	10	10	0	10
3/19	10	10	10	0	10
3/26	10	10	10	0	10
4/2	10	10	10	0	10
4/9	10	10	10	0	10
4/16	10	10	10	0	10
4/23	10	10	10	0	10
4/30	10	10	10	0	10
5/7	10	10	10	0	10
5/14	10	10	10	0	10
5/21	10	10	10	0	10
5/28	10	10	10	0	10
6/4	10	10	10	0	10
6/11	10	10	10	0	10
6/18	10	10	10	0	10
6/25	10	10	10	0	10
7/2	10	10	10	0	10
7/9	10	10	10	0	10
7/16	10	10	10	0	10
7/23	10	10	10	0	10
7/30	10	10	10	0	10
8/6	10	10	10	0	10
8/13	10	10	10	0	10
8/20	10	10	10	0	10
8/27	10	10	10	0	10
9/3	10	10	10	0	10
9/10	10	10	10	0	10
9/17	10	10	10	0	10
9/24	10	10	10	0	10
10/1	10	10	10	0	10
10/8	10	10	10	0	10
10/15	10	10	10	0	10
10/22	10	10	10	0	10
10/29	10	10	10	0	10
11/5	10	10	10	0	10
11/12	10	10	10	0	10
11/19	10	10	10	0	10
11/26	10	10	10	0	10
12/3	10	10	10	0	10
12/10	10	10	10	0	10
12/17	10	10	10	0	10
12/24	10	10	10	0	10
12/31	10	10	10	0	10

Heavy fishing

from 11/17 to 12/31 - see page 10

NOTE: Because of poor growth between the 17th and 20th, some fish were taken on a number of dates, the dates being not included in this

64/A/7

BARLEY - EXHAUSTION LAND HOOSFIELD 1964

(EX)

For history, treatments etc., see 'Details' 1962.

The basal manuring is now 0.7 cwt N as 'Nitro-Chalk' combine drilled. The variety is now Maris Badger.

Cultivations, etc.: Sprayed with dalapon at 5.9 lb in 40 gals: Sept 25, 1963, and again at 2.9 lb: Oct 14. Ploughed: Nov 1. Seed combine drilled at 2.75 bushels: Mar 6, 1964. Sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in 40 gals): Mar 27. Combine harvested: Aug 21.

SUMMARY OF RESULTS

Plot		Grain	Straw
1	-	13.3	11.7
2	-	10.2	9.3
3	D	35.6	26.7
4	D	32.8	24.8
5	N2	12.5	10.2
6	N2'	11.9	8.9
7	N2PKNaMg	31.9	22.0
8	N2'PKNaMg	27.0	18.6
9	P	28.8	20.4
10	PK	28.4	16.8
Mean D.M. %:		82.0	87.8

64/A/8

CLOVER - ROTHAMSTED GARDEN 1964

(GC)

The 111th year

For history etc. see 'Details' 1962.

Cultivations, etc.: Cut: July 13, 1964. Hand dug, muriate of potash applied: July 23.

The growth of clover in the spring was poor and the stand irregular. The plot was also very grassy after the wet year of 1963. It was therefore decided to take a first-cut only and dig the plot, apply K fertiliser and resow.

The dry weather in July continued through August and resowing was therefore postponed until 1965.

SUMMARY OF RESULTS

DRY MATTER

Applied in 1963	Applied in 1961		Mean
	SO	S1	
K0	20.0	9.6	14.8
K2	66.0	45.3	55.6
Mean	43.0	27.4	35.2

Mean D.M. %: 21.0

Abbreviations used in this and future reports

Muriate of potash cwt per acre

None = K0

2 = K2

Sodium molybdate spray

None = SO

Sprayed = S1

64/A/9

SPRING BEANS, SITES OF CONTINUOUS WHEAT AND BARLEY EXPERIMENTS

WOBURN STACKYARD 1964

(WFW and WPB)

For history, treatments etc., see 'Details' 1962.

In 1964 all plots were sown with spring beans, except for the area carrying the microplot experiment on soil structure (see 'Results' 64/C/20).

Cultivations, etc.: Ploughed: Oct 22 - Nov 1, 1963. Seed drilled at 200 lb: Mar 13, 1964. Sprayed with simazine at 1 lb in 40 gals: Apr 1. Combine harvested - continuous wheat area: Aug 26, continuous barley area: Sept 1. Variety: Minor Tick.

SUMMARY OF RESULTS

Crop in old scheme 1877 - 1955	Continuous wheat		Continuous barley	
Crop 1959 - 61	Wheat	Barley	Wheat	Barley

BEANS, GRAIN

Plot 1	19.0	17.3	20.6	21.8
2	16.0	18.0	17.0	21.4
3	18.3	15.6	24.9	19.8
4	20.1	14.4	18.4	16.0
5	14.4	16.7	15.2	13.7
6	16.4	18.4	27.5	24.8
7	18.3		19.2	
8	19.8		27.2	
9	21.2		30.2	
10 ax	16.6	21.6	24.8	21.6
10 bx	20.6	19.1	24.9	21.2
10 ay	15.9		22.6	
10 by	16.4		25.2	
11 ay		16.0		22.5
11 by		20.0		25.4
11 az	23.6		29.1	
11 bz	28.5		29.2	

Mean D.M. %: 86.2

All plots: 1962 - Oats, 1963 - Fallow

REPORT OF THE COMMISSIONER OF THE GENERAL LAND OFFICE TO THE SECRETARY OF THE INTERIOR

FOR THE YEAR ENDING 1901

(NEW AND OLD)

The following statement shows the results of the work of the General Land Office during the year ending 1901.

All lands were sold at public auction, except the lands of the United States, which were sold at private sale. The lands of the United States were sold at private sale for the purpose of raising money for the construction of the Panama Canal.

The following statement shows the results of the work of the General Land Office during the year ending 1901. The lands of the United States were sold at private sale for the purpose of raising money for the construction of the Panama Canal. The lands of the United States were sold at private sale for the purpose of raising money for the construction of the Panama Canal.

STATEMENT OF RESULTS

Year	Total	Land sold		Total	Year
		Acres	Value		
1901	1,000,000	100,000	\$1,000,000	1,000,000	1901
1902	1,000,000	100,000	\$1,000,000	1,000,000	1902
1903	1,000,000	100,000	\$1,000,000	1,000,000	1903
1904	1,000,000	100,000	\$1,000,000	1,000,000	1904
1905	1,000,000	100,000	\$1,000,000	1,000,000	1905
1906	1,000,000	100,000	\$1,000,000	1,000,000	1906
1907	1,000,000	100,000	\$1,000,000	1,000,000	1907
1908	1,000,000	100,000	\$1,000,000	1,000,000	1908
1909	1,000,000	100,000	\$1,000,000	1,000,000	1909
1910	1,000,000	100,000	\$1,000,000	1,000,000	1910
1911	1,000,000	100,000	\$1,000,000	1,000,000	1911
1912	1,000,000	100,000	\$1,000,000	1,000,000	1912
1913	1,000,000	100,000	\$1,000,000	1,000,000	1913
1914	1,000,000	100,000	\$1,000,000	1,000,000	1914
1915	1,000,000	100,000	\$1,000,000	1,000,000	1915
1916	1,000,000	100,000	\$1,000,000	1,000,000	1916
1917	1,000,000	100,000	\$1,000,000	1,000,000	1917
1918	1,000,000	100,000	\$1,000,000	1,000,000	1918
1919	1,000,000	100,000	\$1,000,000	1,000,000	1919
1920	1,000,000	100,000	\$1,000,000	1,000,000	1920
1921	1,000,000	100,000	\$1,000,000	1,000,000	1921
1922	1,000,000	100,000	\$1,000,000	1,000,000	1922
1923	1,000,000	100,000	\$1,000,000	1,000,000	1923
1924	1,000,000	100,000	\$1,000,000	1,000,000	1924
1925	1,000,000	100,000	\$1,000,000	1,000,000	1925
1926	1,000,000	100,000	\$1,000,000	1,000,000	1926
1927	1,000,000	100,000	\$1,000,000	1,000,000	1927
1928	1,000,000	100,000	\$1,000,000	1,000,000	1928
1929	1,000,000	100,000	\$1,000,000	1,000,000	1929
1930	1,000,000	100,000	\$1,000,000	1,000,000	1930
1931	1,000,000	100,000	\$1,000,000	1,000,000	1931
1932	1,000,000	100,000	\$1,000,000	1,000,000	1932
1933	1,000,000	100,000	\$1,000,000	1,000,000	1933
1934	1,000,000	100,000	\$1,000,000	1,000,000	1934
1935	1,000,000	100,000	\$1,000,000	1,000,000	1935
1936	1,000,000	100,000	\$1,000,000	1,000,000	1936
1937	1,000,000	100,000	\$1,000,000	1,000,000	1937
1938	1,000,000	100,000	\$1,000,000	1,000,000	1938
1939	1,000,000	100,000	\$1,000,000	1,000,000	1939
1940	1,000,000	100,000	\$1,000,000	1,000,000	1940
1941	1,000,000	100,000	\$1,000,000	1,000,000	1941
1942	1,000,000	100,000	\$1,000,000	1,000,000	1942
1943	1,000,000	100,000	\$1,000,000	1,000,000	1943
1944	1,000,000	100,000	\$1,000,000	1,000,000	1944
1945	1,000,000	100,000	\$1,000,000	1,000,000	1945
1946	1,000,000	100,000	\$1,000,000	1,000,000	1946
1947	1,000,000	100,000	\$1,000,000	1,000,000	1947
1948	1,000,000	100,000	\$1,000,000	1,000,000	1948
1949	1,000,000	100,000	\$1,000,000	1,000,000	1949
1950	1,000,000	100,000	\$1,000,000	1,000,000	1950
1951	1,000,000	100,000	\$1,000,000	1,000,000	1951
1952	1,000,000	100,000	\$1,000,000	1,000,000	1952
1953	1,000,000	100,000	\$1,000,000	1,000,000	1953
1954	1,000,000	100,000	\$1,000,000	1,000,000	1954
1955	1,000,000	100,000	\$1,000,000	1,000,000	1955
1956	1,000,000	100,000	\$1,000,000	1,000,000	1956
1957	1,000,000	100,000	\$1,000,000	1,000,000	1957
1958	1,000,000	100,000	\$1,000,000	1,000,000	1958
1959	1,000,000	100,000	\$1,000,000	1,000,000	1959
1960	1,000,000	100,000	\$1,000,000	1,000,000	1960
1961	1,000,000	100,000	\$1,000,000	1,000,000	1961
1962	1,000,000	100,000	\$1,000,000	1,000,000	1962
1963	1,000,000	100,000	\$1,000,000	1,000,000	1963
1964	1,000,000	100,000	\$1,000,000	1,000,000	1964
1965	1,000,000	100,000	\$1,000,000	1,000,000	1965
1966	1,000,000	100,000	\$1,000,000	1,000,000	1966
1967	1,000,000	100,000	\$1,000,000	1,000,000	1967
1968	1,000,000	100,000	\$1,000,000	1,000,000	1968
1969	1,000,000	100,000	\$1,000,000	1,000,000	1969
1970	1,000,000	100,000	\$1,000,000	1,000,000	1970
1971	1,000,000	100,000	\$1,000,000	1,000,000	1971
1972	1,000,000	100,000	\$1,000,000	1,000,000	1972
1973	1,000,000	100,000	\$1,000,000	1,000,000	1973
1974	1,000,000	100,000	\$1,000,000	1,000,000	1974
1975	1,000,000	100,000	\$1,000,000	1,000,000	1975
1976	1,000,000	100,000	\$1,000,000	1,000,000	1976
1977	1,000,000	100,000	\$1,000,000	1,000,000	1977
1978	1,000,000	100,000	\$1,000,000	1,000,000	1978
1979	1,000,000	100,000	\$1,000,000	1,000,000	1979
1980	1,000,000	100,000	\$1,000,000	1,000,000	1980
1981	1,000,000	100,000	\$1,000,000	1,000,000	1981
1982	1,000,000	100,000	\$1,000,000	1,000,000	1982
1983	1,000,000	100,000	\$1,000,000	1,000,000	1983
1984	1,000,000	100,000	\$1,000,000	1,000,000	1984
1985	1,000,000	100,000	\$1,000,000	1,000,000	1985
1986	1,000,000	100,000	\$1,000,000	1,000,000	1986
1987	1,000,000	100,000	\$1,000,000	1,000,000	1987
1988	1,000,000	100,000	\$1,000,000	1,000,000	1988
1989	1,000,000	100,000	\$1,000,000	1,000,000	1989
1990	1,000,000	100,000	\$1,000,000	1,000,000	1990
1991	1,000,000	100,000	\$1,000,000	1,000,000	1991
1992	1,000,000	100,000	\$1,000,000	1,000,000	1992
1993	1,000,000	100,000	\$1,000,000	1,000,000	1993
1994	1,000,000	100,000	\$1,000,000	1,000,000	1994
1995	1,000,000	100,000	\$1,000,000	1,000,000	1995
1996	1,000,000	100,000	\$1,000,000	1,000,000	1996
1997	1,000,000	100,000	\$1,000,000	1,000,000	1997
1998	1,000,000	100,000	\$1,000,000	1,000,000	1998
1999	1,000,000	100,000	\$1,000,000	1,000,000	1999
2000	1,000,000	100,000	\$1,000,000	1,000,000	2000
2001	1,000,000	100,000	\$1,000,000	1,000,000	2001
2002	1,000,000	100,000	\$1,000,000	1,000,000	2002
2003	1,000,000	100,000	\$1,000,000	1,000,000	2003
2004	1,000,000	100,000	\$1,000,000	1,000,000	2004
2005	1,000,000	100,000	\$1,000,000	1,000,000	2005
2006	1,000,000	100,000	\$1,000,000	1,000,000	2006
2007	1,000,000	100,000	\$1,000,000	1,000,000	2007
2008	1,000,000	100,000	\$1,000,000	1,000,000	2008
2009	1,000,000	100,000	\$1,000,000	1,000,000	2009
2010	1,000,000	100,000	\$1,000,000	1,000,000	2010
2011	1,000,000	100,000	\$1,000,000	1,000,000	2011
2012	1,000,000	100,000	\$1,000,000	1,000,000	2012
2013	1,000,000	100,000	\$1,000,000	1,000,000	2013
2014	1,000,000	100,000	\$1,000,000	1,000,000	2014
2015	1,000,000	100,000	\$1,000,000	1,000,000	2015
2016	1,000,000	100,000	\$1,000,000	1,000,000	2016
2017	1,000,000	100,000	\$1,000,000	1,000,000	2017
2018	1,000,000	100,000	\$1,000,000	1,000,000	2018
2019	1,000,000	100,000	\$1,000,000	1,000,000	2019
2020	1,000,000	100,000	\$1,000,000	1,000,000	2020
2021	1,000,000	100,000	\$1,000,000	1,000,000	2021
2022	1,000,000	100,000	\$1,000,000	1,000,000	2022
2023	1,000,000	100,000	\$1,000,000	1,000,000	2023
2024	1,000,000	100,000	\$1,000,000	1,000,000	2024
2025	1,000,000	100,000	\$1,000,000	1,000,000	2025

Total 1,000,000 acres

Total 1,000,000 acres

64/A/10.1

SAXMUNDHAM

ROTATION I

(SA)

The long term effects of manuring on a poor clay-loam soil - Harwoods Field 1964, the sixty fifth year. See Rothamsted Report for 1964, pp 228-232.

Rotation: Mangolds and sugar beet, barley, peas, winter wheat.

Design: 4 blocks of 10 plots each, one block for each crop.

Area of each plot: 0.0546. Area harvested: Wheat and barley - 0.0500, sugar beet and mangolds - 0.0114.

Treatments: 6 tons dung (D), 4 cwt bone meal (B) and all combinations of:-

1. Nitrate of soda (N): None, 2 cwt
2. Superphosphate (P): None, 2 cwt
3. Muriate of potash (K): None, 1 cwt.

Basal dressing: None.

Cultivations, etc.:-

Mangolds and sugar beet. Dung applied: Sept 17, 1963. Ploughed: Oct 11. Bone meal applied: Mar 2, 1964. Superphosphate applied: Mar 12. Seed drilled at 7 lb per acre: Apr 13. Nitrate of soda applied: Apr 30. DDT applied at 14 lb powder: May 6. Muriate of potash applied: May 7. Singled: May 22. Sugar beet sprayed (no details): June 27. Sugar beet sprayed with demeton methyl: July 24. Harvested: Sept 30. Varieties: Mangolds - Golden Tankard, sugar beet - Klein E.

Barley. Dung applied: Oct 28, 1963. Ploughed: Oct 29. Bone meal applied: Mar 2, 1964. Superphosphate applied, seed drilled at 2.75 bushels: Mar 11. Nitrate of soda applied: Apr 30. Muriate of potash applied: May 7. Harvested: Aug 13. Variety: Proctor.

Peas. Dung applied: Oct 28, 1963. Ploughed: Oct 29. Bone meal applied: Mar 2, 1964. Superphosphate applied: Mar 12. Nitrate of soda applied: Mar 23. Seed drilled at 12 stones: Apr 9. Muriate of potash applied: Apr 30. Peas ploughed up because of bird damage: June 23. Variety: Lincoln Blue.

Winter wheat. Dung applied: Sept 15, 1963. Ploughed: Sept 16. Bone meal, superphosphate and muriate of potash applied: Sept 26. Seed drilled: Sept 27. Nitrate of soda applied: Mar 23, 1964. Harvested: Aug 5. Variety: Cappelle.

64/A/10.2

SUMMARY OF RESULTS

Former Treatment plot no.	1964	Mangolds Roots + tops	Roots	Sugar beet Sugar %	Sugar Total sugar Tops	Barley Grain Straw	Wheat Grain Straw
1	D	11.86	9.78	19.9	39.0	21.3	25.3
2	B	3.97	3.20	18.9	12.1	7.4	18.2
3	N	1.65	0.71	17.5	2.5	11.7	21.3
4	P	3.85	3.10	19.0	11.8	5.2	19.7
5	K	0.98	0.65	18.5	2.4	2.0	9.9
6	O	1.41	1.10	18.5	4.1	2.8	13.9
7	PK	2.55	2.28	19.6	8.9	3.1	18.1
8	NK	1.10	0.92	19.6	3.6	11.1	20.8
9	NP	7.62	5.48	19.5	21.4	14.4	27.4
10	NPK	8.25	7.13	20.0	28.5	16.1	25.2
Mean		4.33	3.44	19.1	13.4	9.5	20.0
Mean D.M. %:						84.1	83.5
						89.3	87.0
							34.2

64/A/11.1

SAXMUNDHAM

ROTATION II

(SB)

The long-term effects of manuring on a poor clay-loam soil - Harwood's Field 1964, the sixty fifth year. See Rothamsted Report for 1964, pp 228-232.

Rotation: Mangolds and sugar beet, barley, peas, winter wheat - two courses present each year (1964 mangolds and sugar beet, winter wheat).

Design: 2 blocks of 7 plots each, one block for each course present.

Area of each plot: 0.0545. Area harvested: Mangolds and sugar beet - 0.0114, winter wheat - 0.0500.

Treatments: 10 tons dung (D), 1.5 cwt nitrate of soda (N), 7.5 cwt superphosphate (P) applied as follows:-

	Plot						
Crop	1	2	3	4	5	6	7
Roots	-	-	NP	D	D	P	P
Barley	-	-	-	-	-	-	N
Peas	-	-	-	-	P	-	-
Wheat	-	D	D	NP	N	DN	D

Basal dressing: None.

Cultivations, etc.:-

Mangolds and sugar beet. Dung applied: Sept 11, 1963. Ploughed: Sept 12. Superphosphate applied: Mar 11, 1964. Seed drilled at 7 lb: Apr 8. Nitrate of soda applied: Apr 30. DDT applied at 14 lb powder: May 5. Singled: May 19 - 27. Sprayed (no details): June 27. Sprayed with demeton methyl: July 24. Harvested: Sept 28. Varieties: Sugar beet - Klein E, mangolds - Golden Tankard.

Winter wheat. Nitrate of soda applied: Mar 23, 1964. Harvested: Aug 5. Variety: Cappelle.

64/A/11.2

SUMMARY OF RESULTS

Plot no.	Treatment 1964	Mangolds Roots + tops	Sugar beet			
			Roots	Sugar %	Total sugar	Tops
1	-	0.75	0.88	20.0	3.5	0.47
2	-	4.44	2.71	20.9	11.3	0.86
3	NP	12.96	7.78	21.2	32.9	2.20
4	D	7.70	4.42	20.9	18.5	1.18
5	D	10.88	6.13	20.9	25.7	1.81
6	P	9.07	6.76	20.7	28.0	2.00
7	P	8.05	7.03	20.6	29.0	2.16
Mean		7.69	5.10	20.7	21.3	1.53

		Wheat	
		Grain	Straw
1	-	10.6	18.4
2	D	26.7	43.2
3	D	28.0	40.5
4	NP	29.3	45.3
5	N	27.4	46.0
6	DN	33.3	55.6
7	D	30.2	45.2
Mean		26.5	42.0
Mean D.M. %:		83.2	80.2