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Yields of the Field Experiments 1950

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50/BD/1 Green Manuring - Woburn

Rothamsted Research

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GREEN MANURING EXPERIMENT

Woburn Stackyard - 1950, 14th year

For details of treatments etc. see Appendix Z.

Cultivations, etc.:

Green manures (Upper half). Ryegrass and clover undersown in Barley: Mar 23. Ploughed Lupin, rape and fallow plots: Sept 7, Oct 5-6. Springtined: Nov 15. 3rd ploughing: Mar 1-2. Springtine and harrowed: Mar 24-25. Rolled rape and lupin plots: Mar 27. Fertilizers applied to green crops: Mar 28-29. Lupins drilled and rape sown, rolled and harrowed: Mar 29. Rape dusted with D.D.T: Apr 21. Lupin plots hoed: May 5 and 10. Fallow plots thistle barred and weeded, lupin plots weeded: May 11. Lupin plots hoed: June 9 and 16.

Cabbages (Upper half). Dung and straw applied to ryegrass, clover and fallow plots, ploughed, rolled, harrowed: May 23-24. Harrowed twice: June 21. Harrowed, rolled and applied manures to half plots for early planting: June 22. Cabbages planted and watered in: June 23-24. Dung and straw applied to rape and lupin plots, ploughed in, harrowed and rolled twice: June 29. Manures applied: June 30. Cabbages planted on rape and lupin plots and on "late" half plots, and watered in: July 4-6. Cabbages hoed: July 19, 24-25, Aug. 4, 8-15 and 18, Sept 12. Weeded: Sept 25-26. Harvested: Feb-Mar. Variety: January King. Previous crop: Barley.

Barley (Lower half). Ploughed: Mar 2-4. Chalk applied: Mar 10. Harrowed: Mar 11 and 16. Seed drilled and harrowed in: Mar 17. Rolled: Mar 18. Sulphate of ammonia applied; clover and ryegrass sown, all plots harrowed: Mar 22. Rolled: Mar 24. Harvested: Aug 10. Variety: Plumage Archer. Previous crop: Cabbages.

Standard Errors per plot:

Cabbages, total yield. Whole plot: 0.560 tons per acre or 8.4% (8 d.f.)
Sub-plot: 0.432 tons per acre or 6.5% (16 d.f.)

Barley, grain. 4.00 cwt per acre or 20.9% (9 d.f.)

Note

The Cabbages were severely infected with club root and the total weight has been corrected to allow for this.

50/Bd/1.2

Upper Half - Cabbage

	None	Lupins	Clover	Rape	Rye-grass	Mean
Total weight: tons per acre (± 0.280)						(± 0.125)
No Dung	5.15	5.92	7.53	6.00	5.29	5.98
Dung	6.74	7.45	8.90	6.22	7.44	7.35
No Straw	5.75	7.00	7.84	6.33	6.75	6.73
Straw	6.14	6.37	8.58	5.89	5.98	6.59
Sulph. amm.						
2 cwt per acre	5.66	6.71	8.13	6.06	5.98	6.51
4 cwt per acre	6.24	6.66	8.30	6.17	6.75	6.82
Sulph. amm. to barley*						
Low	5.61	6.67	7.86	6.05	6.28	6.49
High	6.28	6.70	8.57	6.17	6.45	6.83

Time of Planting			(a) and (b)			(± 0.088)
Early	6.02		8.58		6.49	7.03
Late	5.87		7.85		6.24	6.65
Mean (± 0.198)	5.95	6.68	8.22	6.11	6.37	6.66

(a) ± 0.153 for use in vertical comparisons only.

(b) ± 0.226 for use in all others.

Total number: thousands per acre

No Dung	17.8	17.7	17.8	17.2	17.6	17.6
Dung	18.0	17.8	17.1	18.2	17.8	17.8
No Straw	17.9	18.1	17.6	18.0	18.0	17.9
Straw	17.9	17.5	17.2	17.4	17.4	17.5
Sulph. amm.						
2 cwt per acre	17.8	17.9	17.2	18.2	17.9	17.8
4 cwt per acre	18.0	17.6	17.6	17.1	17.5	17.6
Sulph. amm. to barley*						
Low	17.7	17.6	17.6	17.4	18.0	17.7
High	18.1	18.0	17.2	17.8	17.4	17.7

Time of Planting						
Early	17.6		17.0		17.6	17.4
Late	18.1		17.8		17.8	17.9
Mean	17.9	17.8	17.4	17.6	17.7	17.7

* Sulphate of ammonia to barley and green manure crops, 1949.

50/Bd/1.3

Differential Responses

	Dung		Straw		Sulph. Amm. cwt per acre		Sulph. Amm. Barley		Time of planting	
	Abs.	Pres.	Abs.	Pres.	2	4	Low	High	Early	Late
Mean										
	(±0.177)				(±0.250)				(±0.202)*	
Dung	1.37	-	1.26	1.48	1.54	1.20	1.50	1.24	1.53	1.87
Straw	-0.14	-0.03	-	-	0.08	-0.36	-0.64	0.36	0.02	0.22
Sulph. Amm.	0.32	0.15	0.54	0.10	-	-	0.49	0.15	0.29	0.73
Sulph. Amm. to Barley	0.34	0.21	-0.16	0.84	0.51	0.17	-	-	0.54	0.50
Late-Early Planting	(±0.097)	-0.21	-0.48	(±0.137)	-0.60	-0.16	-0.36	-0.40	-	-
	-0.38			-0.28						

Total weight: tons per acre

*S.E. of horizontal difference between two responses (±0.193)

Total number: thousands per acre

Dung	0.2	-	0.1	0.3	-0.1	0.5	0.4	0.0	-0.5	0.3
Straw	-0.4	-0.3	-	-	-0.3	-0.5	-0.3	-0.5	-0.7	0.1
Sulph. Amm.	-0.2	0.1	-0.1	-0.3	-	-	-0.6	0.2	0.0	0.2
Sulph. Amm. to Barley	0.1	-0.1	0.2	0.0	-0.3	0.5	-	-	-0.3	-0.1
Late-Early Planting	0.5	0.9	0.1	0.9	0.4	0.6	0.4	0.6	-	-

50/Bd/1.4

Lower Half - Barley

Green Manure Crops	None	Lupins	Clover	Rape	Rye-grass	Mean
Grain: cwt per acre (± 2.00)						(± 0.89)
No Dung to cabbages 1949	22.7	19.2	13.3	18.4	14.6	17.6
Dung to cabbages	22.1	23.6	16.2	21.4	19.8	20.6
No straw to cabbages 1949	22.3	20.6	14.5	20.2	17.9	19.1
Straw to cabbages	22.5	22.2	15.0	19.6	16.6	19.2
Sulph. Amm. to cabbages 1949						
2 cwt per acre	21.8	20.8	12.9	19.6	17.0	18.4
4 cwt per acre	22.9	22.1	16.6	20.2	17.5	19.9
Sulph. Amm. to barley						
Nil	20.5	19.6	13.4	18.8	14.4	17.3
$1\frac{1}{2}$ cwt per acre	24.2	23.2	16.0	21.0	20.1	20.9
Mean (± 1.41)	22.4	21.4	14.7	19.9	17.2	19.1
Straw: cwt per acre						
No Dung to cabbages 1949	23.3	19.8	19.0	21.2	20.5	20.8
Dung to cabbages	25.0	27.7	22.5	25.0	27.9	25.6
No straw to cabbages 1949	23.8	22.3	21.0	23.4	24.3	23.0
Straw to cabbages	24.6	25.2	20.6	22.8	24.1	23.4
Sulph. Amm. to cabbages 1949						
2 cwt per acre	23.1	24.2	19.6	23.1	24.4	22.9
4 cwt per acre	25.2	23.4	21.9	23.1	24.0	23.5
Sulph. Amm. to barley						
Nil	20.6	21.5	16.6	21.3	23.2	20.7
$1\frac{1}{2}$ cwt per acre	27.7	26.0	24.9	25.0	25.2	25.8
Mean	24.2	23.8	20.8	23.1	24.2	23.2

50/Bd/1.5

Lower Half - Barley

Mean	Dung to Cabbages Abs. Pres.		Straw to Cabbages Abs. Pres.		Sulph. amm. to cabbages cwt per acre		Sulph. amm. to barley cwt per acre	
	2	4	0	1½				

Grain: cwt per acre

	(±1.26)			(±1.81)					
Dung to Cabbages 1949	3.0	-	-	2.8	3.2	3.0	3.0	2.8	3.2
Straw to Cabbages 1949	0.1	-0.1	0.3	-	-	-1.2	1.4	0.8	-0.6
Sulph. amm. to Cabbages 1949	1.5	1.5	1.5	0.2	2.8	-	-	1.9	1.1
Sulph. amm. to barley	3.6	3.4	3.8	4.3	2.9	4.0	3.2	-	-

Straw: cwt per acre

Dung to Cabbages 1949	4.8	-	-	3.7	5.9	5.7	3.9	4.1	5.5
Straw to Cabbages 1949	0.5	-0.6	1.6	-	-	-0.6	1.6	-0.1	1.1
Sulph. amm. to Cabbages 1949	0.7	1.6	-0.2	-0.4	1.8	-	-	1.9	-0.5
Sulph. amm. to barley	5.1	4.4	5.8	4.5	5.7	6.3	3.9	-	-