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Yields of the Field Experiments 1949

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49/BD/1 Green Manuring - Woburn

49/BD/1 *Green Manuring - Woburn*, Rothamsted Research (1950) Yields Of The Field Experiments 1949, pp 43 - 48

49/Bd/1.1

GREEN MANURING EXPERIMENT

Woburn, Stackyard Series A - 1949

Treatments as given in 1936 Report, p.203, with the exceptions that from 1946 onwards lupins replaced tares, and rape replaced mustard as green manuring crops, while kale has been replaced by winter cabbages as a testing crop. From 1944 to 1948 a top dressing of $1\frac{1}{2}$ cwt per acre of sulphate of ammonia has been applied to half the plots under barley and from 1946 to 1948 this dressing was repeated on the same plots to the green manuring crops. In 1949 this dressing was applied to the fallow, lupin and clover plots; the rape and ryegrass plots which had received top dressing when under barley in 1948 were dressed with 3 cwt per acre sulphate of ammonia, and those which had received no top dressing in 1948 were dressed with $1\frac{1}{2}$ cwt per acre sulphate of ammonia. Since 1944 the experiment has been a half replicate, according to the identity $I \equiv (R + C - M - F - T)DSNA$, A representing the top dressing of sulphate of ammonia.

Cultivations, etc.:

Lower Half. Cabbages.

Dorset Marl clover and Italian Ryegrass undersown in barley: Apr 16, 1948. Harrowed in: Apr 23. Rolled: Apr 26. Ploughed (except ryegrass and clover plots): Sept 6-14. Second ploughing: Nov 22-25, Jan 17. Springtined three times (except ryegrass and clover plots) Feb 19, Mar 3, 28. Harrowed (except ryegrass and clover plots), lupin plots rolled, rape plots ring rolled, sulphate of ammonia applied: Mar 31. Lupins and rape sown on appropriate plots, rape plots harrowed, lupin and rape plots ring rolled: Apr 1. Lupin plots hoed at intervals: Apr 19 - June 15. Rape destroyed by flea beetle. Rape plots thistle-barred: Apr 27. Rape plots harrowed: Apr 28. Rape resown, harrowed and rolled: Apr 29. Rape plots twice dusted with D.D.T. powder: May 7, 25. Fallow plots thistle-barred three times, springtined twice, and harrowed three times: Apr 19 - July 12. Ryegrass and clover cut and carted off plots: June 28, 29. Dung and straw applied to appropriate plots: July 11, 18. Green manures ploughed in, whole area harrowed (clover and ryegrass plots harrowed twice) and rolled: July 19, 20. Basal manures applied: July 21. Sulphate of ammonia applied: July 22. January King cabbages transplanted: July 21 - 29. Many cabbages killed by drought. January King cabbages replanted with water: Aug 2-5. January King cabbages replanted with water: Aug 8-11. Gaps filled with Savoy cabbages: Aug 25, Sept 1-2, 24. Area surrounded by wire netting against rabbits: Aug 16-25. Hoed at intervals: Aug 29 - Sept 8. Cabbages watered: Sept 9.

49/Bd/1.2

Sprayed with nicotine: Sept 29-30. Harvested: Jan 4, 25, Feb 8-14, 21, Mar 1. Variety: January King, filled in with Savoy. Previous crop: Barley.

Upper Half. Barley.

Ploughed: Mar 12-17. Lime at 3 cwt per acre CaO applied: Mar 21-22. Springtined: Mar 22. Sulphate of ammonia applied, harrowed, seed drilled, Broad Red Clover and Italian ryegrass undersown on appropriate plots: Mar 23. Harrowed and rolled: Mar 24. Weeded: June 2. Harvested: Aug 9. Variety: Plumage Archer. Previous crop: Cabbages.

Standard errors per plot:

Cabbages: total yield, 0.568 tons per acre or 12.9%

Barley: grain, 2.25 cwt per acre or 11.9%

straw, 3.09 cwt per acre or 13.9%

All standard errors from 9 degrees of freedom.

49/Bd/1.3

Lower Half - Cabbages

	None	Lupins	Clover	Rape	Rye-grass	Mean
Total weight: tons per acre (± 0.284)						(± 0.127)
No Dung	5.53	4.92	3.90	3.18	3.22	4.15
Dung	5.86	5.59	3.86	3.64	4.28	4.65
No Straw	5.76	5.39	4.14	3.31	4.04	4.53
Straw	5.63	5.12	3.64	3.50	3.45	4.27
Sulph. amm.						
2 cwt per acre	5.55	5.14	3.70	3.15	3.58	4.23
4 cwt per acre	5.83	5.37	4.07	3.66	3.92	4.57
Sulph. amm. to barley*						
Low	5.67	5.47	3.87	3.59	3.47	4.41
High	5.72	5.05	3.90	3.22	4.03	4.36
Mean (± 0.201)	5.69	5.26	3.88	3.41	3.75	4.40

Total number: thousands per acre (± 0.21) (± 0.09)

No Dung	17.7	17.6	18.0	17.5	17.3	17.6
Dung	17.7	17.6	17.8	17.9	17.8	17.8
No Straw	17.5	17.5	17.9	17.9	17.6	17.7
Straw	17.9	17.7	18.0	17.5	17.5	17.7
Sulph. amm.						
2 cwt per acre	17.8	17.8	18.1	17.8	17.1	17.7
4 cwt per acre	17.6	17.5	17.8	17.6	18.1	17.7
Sulph. amm. to barley*						
Low	17.6	17.4	17.6	17.9	17.3	17.6
High	17.9	17.8	18.2	17.5	17.8	17.8
Mean (± 0.15)	17.7	17.6	17.9	17.7	17.6	17.7

*Sulphate of ammonia to barley and green manure crops, 1948.

fallow, lupins, clover	Low	High	
rape, ryegrass	0	3	cwt per acre
	$1\frac{1}{2}$	$4\frac{1}{2}$	" " "

49/E1/1.4

Lower Half - Cabbages

Differential responses

Mean	Dung		Straw		Sulph. amm. cwt per acre		Sulph. amm. to barley	
	Abs.	Pres.	Abs.	Pres.	2	4	Low	High

Total weight: tons per acre

	(± 0.180)			(± 0.257)					
Dung	0.50	-	-	0.64	0.55	0.58	0.41	0.85	0.14
Straw	-0.26	-0.11	-0.40	-	-	-0.20	-0.31	-0.23	-0.28
Sulph. amm.	0.35	0.43	0.26	0.40	0.25	-	-	0.58	0.32
Sulph. amm. to barley	-0.03	0.32	-0.38	0.0	-0.05	0.0	-0.06	-	-

Total number: thousands per acre

	(± 0.13)			(± 0.19)					
Dung	0.1	-	-	0.1	0.0	0.0	0.0	0.3	-0.1
Straw	0.0	0.0	0.0	-	-	0.0	0.0	0.2	-0.2
Sulph. amm.	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Sulph. amm. to barley	0.3	0.5	0.0	0.5	0.0	0.2	0.3	-	-

* Sulphate of ammonia to barley and green manure crops, 1948

	Low	High	
fallow, lupins, clover	0	3	cwt per acre
rape, ryegrass	1½	4½	cwt per acre

49/Bd/1.5

Upper Half - Barley

Green Manure Crops					Rye-	Mean
	None	Lupins	Clover	Rape	grass	
	Grain: cwt per acre (± 1.12)					(± 0.50)
No Dung to cabbages 1948	19.1	19.8	15.0	15.7	17.7	17.5
Dung to cabbages	21.3	21.6	19.3	19.9	19.6	20.3
No straw	21.6	20.8	17.1	17.6	17.5	18.9
to cabbages 1948	18.8	20.6	17.3	17.9	19.8	18.9
Sulph. amm. to cabbages 1948						
2 cwt per acre	21.9	19.2	16.5	17.8	17.1	18.5
4 cwt per acre	18.4	22.2	17.8	17.8	20.2	19.3
Sulph. amm. to barley						
Nil	17.1	17.8	15.7	13.7	14.6	15.8
1½ cwt per acre	23.3	23.6	18.6	21.9	22.7	22.0
Mean (± 0.79)	20.2	20.7	17.2	17.8	18.6	18.9
	Straw: cwt per acre (± 1.54)					(± 0.69)
No Dung to cabbages 1948	20.8	22.4	19.0	17.5	22.6	20.5
Dung to cabbages	24.4	26.4	21.9	24.1	23.4	24.1
No straw	23.7	24.3	20.6	20.6	22.0	22.2
to cabbages 1948	21.5	24.6	20.3	21.0	24.0	22.3
Sulph. amm. to cabbages 1948						
2 cwt per acre	23.8	24.0	19.1	19.6	21.3	21.6
4 cwt per acre	21.5	24.9	21.8	22.0	24.7	23.0
Sulph. amm. to barley						
Nil	18.8	19.1	17.6	15.4	17.3	17.6
1½ cwt per acre	26.4	29.8	23.3	26.2	28.7	26.9
Mean (± 1.09)	22.6	24.4	20.5	20.8	23.0	22.3

49/Bd/1.6

Upper Half - Barley

Differential responses

	Mean	Dung to Cabbages		Straw to Cabbages		Sulph. amm. to cabbages cwt		Sulph. amm. to barley cwt	
		Abs.	Pres.	Abs.	Pres.	per acre 2	per acre 4	per acre 0	per acre 1½
Grain: cwt per acre									
	(±0.71)								
Dung to Cabbages 1948	2.9	-	-	4.5	1.2	3.9	1.8	4.2	1.5
Straw to Cabbages 1948	0.0	1.6	-1.6	-	-	0.6	-0.6	-0.2	0.2
Sulph. amm. to cabbages 1948	0.8	1.8	-0.2	1.4	0.1	-	-	1.7	-0.1
Sulph. amm. to barley	6.2	7.5	4.8	5.9	6.4	7.1	5.2	-	-
Straw: cwt per acre									
	(±0.98)								
Dung to Cabbages 1948	3.6	-	-	5.1	2.0	3.4	3.7	5.4	1.7
Straw to Cabbages 1948	0.0	1.5	-1.5	-	-	0.0	0.0	-0.5	0.5
Sulph. amm. to cabbages 1948	1.4	1.2	1.5	1.3	1.4	-	-	1.6	1.1
Sulph. amm. to barley	9.2	11.0	7.3	8.6	9.7	9.4	8.9	-	-