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48/BE/1 Market Garden - First Crops

Rothamsted Research

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48/Be/1.1

WOBURN MARKET GARDEN EXPERIMENT

Globe Beet and Peas. First crops of 7th year.

The use of heavy dressings of organic manures for making a market garden soil, and the effect of sulphate of ammonia.

JRB and JPE - Lansome, 1948.

System of replication: 2 series, one of each crop, each consisting of 4 randomized blocks of 10 plots each, certain interactions being confounded with block differences.

Area of each plot: $1/80$ acre.

Treatments:

Organic manures: Dung, sewage sludge compost, sewage sludge (West Middlesex), and vegetable compost, each at 15 and 30 tons per acre.

Sulphate of ammonia: None, 0.2 cwt. N per acre on organic manure plots. None, 0.2, 0.4, 0.6 cwt. N per acre on plots without organic manure.

Basal manuring: Superphosphate, 0.4 cwt. P_2O_5 per acre.
Muriate of potash, 0.5 cwt K_2O per acre.

Cultivations, etc.:

Series A. Globe Beet.

Organic manures applied: Mar 31. Ploughed: Apr 1.
Harrowed: Apr 2. Ground lime applied to all plots receiving sulphate of ammonia (plots 1,7 at 33 cwt per acre, plots 24, 27 at 22 cwt per acre, other plots at 11 cwt per acre). Harrowed in: Apr 5. Rolled, basal manures and sulphate of ammonia dressings applied, seed drilled and harrowed in: Apr 6. Ring rolled: Apr 10. Dusted with Flea beetle dust: Apr 27. Hoed: May 6-10. Hoed and hand weeded: May 13-28. Harvested: July 6,12-13. Variety: Crimson Globe. Previous crop: Leeks.

Series B. Peas.

Organic manures applied: Jan 16-19. Ploughed: Jan 19-20. Springtime harrowed: Feb 17-19. Harrowed: Mar 15. Rolled, basal manures and sulphate of ammonia applied, peas drilled: Mar 16. Ring rolled: Mar 23. Hoed: Apr 29, May 10. Harvested: July 14-26. Variety: Kelvedon Wonder. Previous crop: Winter cabbage*.

Note: The winter cabbage crop failed owing to drought.

Standard errors per plot:

Peas, marketable produce, 11.88 cwt. per acre or 18.3%
Globe beet, weight of marketable produce, 1.272 tons per acre or 24.0%
total plant number, 4.01 thousands per acre or 12.3%
weight of bulbs, 0.719 cwt per acre or 26.4%

48/3e/1.2

Summary of Results

Organic manures	Level of manuring (tons/acre)	Sulphate of ammonia, cwt. N per acre				Mean
		None	0.2	0.4	0.6	

Green peas, marketable produce: cwt. per acre
(± 8.40 , means ± 5.94)

None		66.1	61.8	45.0	71.1	63.9*
Dung	15	96.1	75.0			85.5
Dung	30	79.3	41.3			61.8
Composted	15	75.7	85.0			80.4
sewage sludge	30	80.4	73.9			77.1
Sewage	15	47.1	46.8			47.0
sludge	30	35.7	38.2			37.0
Vegetable	15	85.4	84.3			84.8
compost	30	52.1	57.1			54.6

Globe beet, total produce: tons per acre
(± 0.900 , means ± 0.636)

None		1.30	2.92	3.86	2.37	2.11*
Dung	15	4.50	6.02			5.26
Dung	30	9.34	7.58			8.46
Composted	15	3.07	3.68			3.38
sewage sludge	30	4.72	6.19			5.45
Sewage	15	6.37	5.94			6.15
sludge	30	6.74	6.35			6.54
Vegetable	15	4.32	5.02			4.67
compost	30	6.85	8.78			7.82

Globe beet, weight of bulbs: tons per acre
(± 0.508 , means ± 0.360)

None		0.47	1.37	2.04	1.20	0.92*
Dung	15	2.04	3.20			2.62
Dung	30	5.01	4.12			4.56
Composted	15	1.39	1.77			1.58
sewage sludge	30	2.46	3.26			2.86
Sewage	15	3.25	3.08			3.17
sludge	30	3.50	3.30			3.40
Vegetable	15	2.10	2.62			2.36
compost	30	3.53	4.74			4.14

* These means are for 0.0 and 0.2 cwt. N per acre only

48/Be/1.3

Organic manures	Level of manuring (tons/acre)	Sulphate of ammonia, cwt. N per acre				Mean
		None	0.2	0.4	0.6	
Globe beet, total plant number: thous. per acre (± 2.87 , means ± 2.01)						
None		27.1	32.4	33.4	25.2	29.8*
Dung	15	32.8	31.6			32.2
Dung	30	42.8	29.4			36.1
Composted	15	29.6	35.0			32.4
sewage sludge	30	33.5	34.2			33.9
Sewage	15	37.6	29.9			33.8
sludge	30	28.8	27.2			28.0
Vegetable	15	37.0	39.0			38.0
compost	30	31.8	34.9			33.4

*These means are for 0.0 and 0.2 cwt. N per acre only