

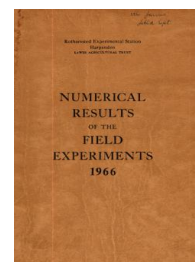
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66/W/WMG/B/5 Market Garden Soil

Rothamsted Research

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66/B/5.1

WOBURN MARKET GARDEN EXPERIMENT

(WMG)

Organic manures, N, P, and K - Lansome Field 1966, the sixth year with revised treatments.

For history, (treatments) etc., see 'Details 1962' and 'Results' 63/B/5, 64/B/5 and 65/B/5.

Area of each sub-plot (globe beet): 0.0031. Area harvested: 0.0006.
Area of each microplot (carrots): 0.0008. Area harvested: 0.0006.

Treatment symbols:

Dung: None (D0), 10 (D1), 20 tons (D2).

PK compound (0:20:20): None (POK0), 1.5 P2O5, 1.5 K2O (P1K1),
3.0 P2O5, 3.0 cwt K2O (P2K2).

Superphosphate: None (SP0), 1.5 (SP1), 3.0 cwt P2O5 (SP2).

Peat: None (0), 12.5 tons (PT).

Treatments: All combinations of:-

Series A (globe beet)

Dung plots: Whole plots: Dung: D1, D2 as previously.

PK: POK0, P1K1, the latter on plots that received NPK in 1965.

Quarter plots: Nitrogen: None (N0), 0.9 (N1), 1.8 (N2), 2.7 cwt N (N3) as 'Nitro-Chalk' with (N3-N2+N1-N0) on half plots.

Fertiliser plots: Whole plots: PK: P1K1 as previously, P2K2 on plots that received P1K2 in 1965.

Quarter plots: Nitrogen: 0.9 (N1), 1.8 (N2), 2.7 (N3), 3.6 cwt N (N4) as 'Nitro-Chalk' with (N4-N3+N2-N1) on half plots.

Series B, microplots (carrots)

Dung plots: Whole plots: PK: POK0, P1K1 as in 1965.

Half plots: Dung: D0, D1, D2 as in 1965.
(D0, D1 on old D1 plots, D0, D2 on old D2 plots).

Quarter plots: Phosphate: SP0, SP1.

Eighth plots: Nitrogen: None (N0), 0.45 cwt N (N1) as 'Nitro-Chalk'.

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Fertiliser plots: Whole plots: PK: P1K1, P2K2 as in 1965.
Half plots: Peat: 0, PT as in 1965.
Quarter plots: Phosphate: SPO, SP1 on plots
that received P1K1. SPO,
SP2 on plots that received
P2K2.
Eighth plots: Nitrogen: 0.45 (N1), 0.90 cwt
N (N2) as 'Nitro-Chalk'.

Basal applications: Series B, microplots (carrots): Weedkiller:
Linuron at 1 lb in 50 gals. Insecticide: Rogor at 0.37 lb in
40 gals, on two occasions.

Cultivations, etc.:-

Globe beet Series A: Ploughed: Aug 12, 1965. Ground chalk applied
at 18 cwt: Sept 13. Dung applied, all plots ploughed:
Feb 3, 1966. Fertilizers applied: Mar 31. Seed drilled at
14 lb: May 10. Singled: June 13. Harvested: July 26,
Aug 16. Variety: Detroit.

Carrots Series B, microplots: Peat applied and all plots rotary
cultivated: Mar 24, 1966. Fertilisers and dung applied, all
plots dug by hand: Mar 29 - 31, Apr 1. Seedbed fertilisers
and peat applied, seedbed worked with drags and levelled with
rakes: Apr 5 - 6. Seed drilled at 10 lb: Apr 26. Sprayed
weedkiller: Apr 27. Fallow area rotary cultivated: June 1.
Singled: June 3, 6, 8. Sprayed insecticide: June 9, June 21.
Fallow areas rotary cultivated: June 21. Lifted: Aug 8 - 10.
Variety: Cluseed New Stump-rooted.

NOTE: Soil samples were taken Aug 16. Crop samples were taken for
determination of dry matter, and samples retained for chemical
analysis.

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Standard errors per plot.

Globe beet. Dung and fertiliser plots:

Marketable roots. 1st Harvest, whole plot:	1.220 or 22.5%	(10 d.f.)
1/2 plot:	0.589 or 10.9%	(14 d.f.)
1/4 plot:	1.149 or 21.2%	(28 d.f.)
2nd Harvest, whole plot:	2.063 or 16.5%	(10 d.f.)
1/2 plot:	1.078 or 8.6%	(14 d.f.)
1/4 plot:	2.148 or 17.1%	(28 d.f.)
Mean of 2 harvests, whole plot:	1.579 or 17.6%	(10 d.f.)
1/2 plot:	0.688 or 7.7%	(14 d.f.)
1/4 plot:	1.495 or 16.6%	(28 d.f.)
Total produce. 1st Harvest, whole plot:	1.915 or 15.4%	(10 d.f.)
1/2 plot:	0.874 or 7.0%	(14 d.f.)
1/4 plot:	1.609 or 12.9%	(28 d.f.)
2nd Harvest, whole plot:	2.921 or 14.9%	(10 d.f.)
1/2 plot:	1.602 or 8.2%	(14 d.f.)
1/4 plot:	2.803 or 14.3%	(28 d.f.)
Mean of 2 harvests, whole plot:	2.314 or 14.4%	(10 d.f.)
1/2 plot:	1.025 or 6.4%	(14 d.f.)
1/4 plot:	1.946 or 12.1%	(28 d.f.)

Carrots.

Dung plots. Roots,	1/2 plot:	0.496 or 2.3%	(4 d.f.)
	1/4 plot:	0.900 or 4.1%	(8 d.f.)
	1/8 plot:	0.840 or 3.8%	(16 d.f.)
Tops,	1/2 plot:	0.907 or 9.4%	(4 d.f.)
	1/4 plot:	0.806 or 8.3%	(8 d.f.)
	1/8 plot:	0.763 or 7.9%	(16 d.f.)
Fertiliser plots. Roots,	1/2 plot:	1.843 or 10.2%	(6 d.f.)
	1/4 plot:	1.846 or 10.2%	(12 d.f.)
	1/8 plot:	1.248 or 6.9%	(24 d.f.)
Tops,	1/2 plot:	1.021 or 16.0%	(6 d.f.)
	1/4 plot:	0.989 or 15.5%	(12 d.f.)
	1/8 plot:	0.788 or 12.3%	(24 d.f.)

66/B/5.4

SUMMARY OF RESULTS

GLOBE BEET

DUNG PLOTS

MARKETABLE ROOTS

Dung Organic manure applied 1942 - 61*	D1	D2	D1	D2			
	D1	D2	C1	C2	D1+C1	D2+C2	Mean
	1ST HARVEST						
Mean	3.66	8.18	5.32	7.14	4.49	7.66	6.08
		(±0.610)			(±0.431)		
Fertiliser		(±0.863)			(±0.610)		(±0.431)
POKO	2.25	7.29	3.97	5.68	3.11	6.48	4.80
PKL	5.07	9.08	6.67	8.61	5.87	8.84	7.36
		(1) and (2)			(3) and (4)		(±0.251)
N0	0.95	5.27	1.76	4.01	1.36	4.64	3.00
N1	2.54	8.47	5.21	7.40	3.88	7.94	5.91
N2	4.94	9.57	7.31	8.66	6.12	9.12	7.62
N3	6.20	9.42	7.00	8.49	6.60	8.95	7.78

- (1) (±0.933) For use in horizontal and diagonal comparisons
- (2) (±0.502) For use in vertical and interaction comparisons
- (3) (±0.660) For use in horizontal and diagonal comparisons
- (4) (±0.354) For use in vertical and interaction comparisons

* Last applied to Leeks 1961/62

66/B/5.5

GLOBE BEET

DUNG PLOTS

MARKETABLE ROOTS

Dung Organic manure applied 1942 - 61*	D1	D2	D1	D2			
	D1	D2	C1	C2	D1+C1	D2+C2	Mean
	2ND HARVEST						
Mean	10.04	16.60	11.39	15.99	10.72	16.29	13.50
		(±1.031)			(±0.729)		
Fertiliser		(±1.459)			(±1.031)		(±0.729)
POKO	8.28	16.07	10.09	13.95	9.18	15.01	12.10
PKL	11.81	17.13	12.69	18.02	12.25	17.57	14.91
		(1) and (2)			(3) and (4)		(±0.466)
N0	4.38	12.13	4.05	9.69	4.22	10.91	7.56
N1	7.60	15.91	10.68	16.16	9.14	16.04	12.59
N2	12.06	19.54	14.48	18.24	13.27	18.89	16.08
N3	16.15	18.82	16.34	19.85	16.24	19.33	17.79

- (1) (±1.600) For use in horizontal and diagonal comparisons
- (2) (±0.931) For use in vertical and interaction comparisons
- (3) (±1.132) For use in horizontal and diagonal comparisons
- (4) (±0.658) For use in vertical and interaction comparisons

* Last applied to Leeks 1961/62

66/B/5.6

GLOBE BEET

DUNG PLOTS

MARKETABLE ROOTS

Dung Organic manure applied 1942 - 61*	D1	D2	D1	D2			
	D1	D2	C1	C2	D1+C1	D2+C2	Mean
	MEAN OF 2 HARVESTS						
Mean	6.85	(±0.790) 12.39	8.35	11.56	(±0.558) 7.60	11.98	9.79
Fertiliser		(±1.117)			(±0.790)		(±0.558)
PK0	5.26	11.68	7.03	9.82	6.15	10.75	8.45
PK1	8.44	13.11	9.68	13.31	9.06	13.21	11.13
		(1) and (2)			(3) and (4)		(±0.315)
N0	2.67	8.70	2.91	6.85	2.79	7.78	5.28
N1	5.07	12.19	7.95	11.78	6.51	11.99	9.25
N2	8.50	14.56	10.89	13.45	9.70	14.00	11.85
N3	11.17	14.12	11.67	14.17	11.42	14.14	12.78

- (1) (±1.203) For use in horizontal and diagonal comparisons
- (2) (±0.631) For use in vertical and interaction comparisons
- (3) (±0.850) For use in horizontal and diagonal comparisons
- (4) (±0.446) For use in vertical and interaction comparisons

* Last applied to Leeks 1961/62

66/B/5.7

GLOBE BEET

DUNG PLOTS

TOTAL PRODUCE

Dung Organic manure applied 1942 - 61*	D1	D2	D1	D2			
	D1	D2	C1	C2	D1+C1	D2+C2	Mean
	1ST HARVEST						
Mean	9.51	16.89	11.89	15.33	10.70	16.11	13.40
		(±0.958)			(±0.677)		
Fertiliser		(±1.354)			(±0.958)		(±0.677)
POK0	7.25	15.52	10.01	13.90	8.63	14.71	11.67
PK1	11.76	18.26	13.76	16.76	12.76	17.51	15.13
		(1) and (2)			(3) and (4)		(±0.359)
N0	4.28	11.75	6.51	10.02	5.40	10.88	8.14
N1	8.18	16.59	11.32	15.35	9.75	15.97	12.86
N2	11.96	19.03	14.63	17.00	13.30	18.02	15.66
N3	13.61	20.20	15.08	18.94	14.34	19.57	16.95

- (1) (±1.446) For use in horizontal and diagonal comparisons
- (2) (±0.717) For use in vertical and interaction comparisons
- (3) (±1.023) For use in horizontal and diagonal comparisons
- (4) (±0.507) For use in vertical and interaction comparisons

* Last applied to Leeks 1961/62

66/B/5.8

GLOBE BEET

DUNG PLOTS

TOTAL PRODUCE

Dung Organic manure applied 1942 - 61*	D1	D2	D1	D2			Mean
	D1	D2	C1	C2	D1+C1	D2+C2	
	2ND HARVEST						
Mean	16.31	(±1.461) 25.55	18.20	25.01	(±1.033) 17.26	25.28	21.27
Fertiliser		(±2.066)			(±1.461)		(±1.033)
POKO	14.24	25.60	16.77	23.01	15.51	24.30	19.91
PlKl	18.39	25.49	19.62	27.01	19.01	26.25	22.63
		(1) and (2)			(3) and (4)		(±0.638)
N0	8.53	19.23	8.43	15.18	8.48	17.20	12.84
N1	13.04	24.13	16.98	25.22	15.01	24.67	19.84
N2	18.96	29.38	22.46	28.10	20.71	28.74	24.73
N3	24.73	29.44	24.93	31.53	24.83	30.49	27.66

- (1) (±2.254) For use in horizontal and diagonal comparisons
- (2) (±1.275) For use in vertical and interaction comparisons
- (3) (±1.594) For use in horizontal and diagonal comparisons
- (4) (±0.901) For use in vertical and interaction comparisons

* Last applied to Leeks 1961/62

66/E/5.9

GLOBE BEET

DUNG PLOTS

TOTAL PRODUCE

Dung Organic manure applied 1942 - 61*	D1	D2	D1	D2			
	D1	D2	C1	C2	D1+C1	D2+C2	Mean
	MEAN OF 2 HARVESTS						
Mean	12.91	21.22	15.04	20.17	13.98	20.69	17.33
	(±1.157)				(±0.818)		
Fertiliser					(±1.157)		(±0.818)
POKO	10.74	20.56	13.39	18.45	12.07	19.51	15.79
PKL	15.08	21.87	16.69	21.88	15.89	21.88	18.88
		(1) and (2)			(3) and (4)		(±0.423)
N0	6.41	15.49	7.47	12.60	6.94	14.04	10.49
N1	10.61	20.36	14.15	20.28	12.38	20.32	16.35
N2	15.46	24.21	18.55	22.55	17.00	23.38	20.19
N3	19.17	24.82	20.00	25.24	19.59	25.03	22.31

- (1) (±1.745) For use in horizontal and diagonal comparisons
- (2) (±0.858) For use in vertical and interaction comparisons
- (3) (±1.234) For use in horizontal and diagonal comparisons
- (4) (±0.607) For use in vertical and interaction comparisons

* Last applied to Leeks 1961/62

66/B/5.10

GLOBE BEET
FERTILISER PLOTS
MARKETABLE ROOTS

	N1	N2	N3	N4	Mean
1ST HARVEST					
		(1) and (2)			(±0.610)
P1K1	2.25	4.01	5.29	5.21	4.19
P2K2	3.49	5.54	6.43	6.01	5.37
Mean	2.87	4.78 (±0.354)	5.86	5.61	4.78
2ND HARVEST					
		(1) and (2)			(±1.031)
P1K1	6.03	10.50	12.68	14.25	10.86
P2K2	6.92	11.90	14.83	15.45	12.27
Mean	6.47	11.20 (±0.658)	13.75	14.85	11.57

	1st harvest	2nd harvest	
(1)	(±0.933)	(±1.600)	For use in vertical and diagonal comparisons
(2)	(±0.502)	(±0.931)	For use in horizontal and interaction comparisons

66/B/5.11

GLOBE BEET

FERTILISER PLOTS

	N1	N2	N3	N4	Mean
MARKETABLE ROOTS					
MEAN OF 2 HARVESTS					
		(1) and (2)			(±0.790)
P1K1	4.14	7.26	8.98	9.73	7.53
P2K2	5.20	8.72	10.63	10.73	8.82
Mean	4.67	7.99	9.81	10.23	8.17
		(±0.446)			
TOTAL PRODUCE					
1ST HARVEST					
		(1) and (2)			(±0.958)
P1K1	7.09	10.80	12.33	12.64	10.71
P2K2	8.84	12.58	13.82	13.94	12.29
Mean	7.97	11.69	13.07	13.29	11.50
		(±0.507)			

	Marketable roots	Total produce	
(1)	(±1.203)	(±1.446)	For use in vertical and diagonal comparisons
(2)	(±0.631)	(±0.717)	For use in horizontal and interaction comparisons

66/B/5.12

GLOBE BEET
FERTILISER PLOTS
TOTAL PRODUCE

	N1	N2	N3	N4	Mean
2ND HARVEST					
		(1) and (2)			(±1.461)
PK1	10.45	16.53	19.65	21.92	17.14
P2K2	11.63	17.89	22.27	23.59	18.84
Mean	11.04	17.21	20.96	22.75	17.99
		(±0.901)			
MEAN OF 2 HARVESTS					
		(1) and (2)			(±1.157)
PK1	8.77	13.66	15.99	17.28	13.93
P2K2	10.23	15.23	18.04	18.76	15.57
Mean	9.50	14.45	17.02	18.02	14.75
		(±0.607)			

(1)	2nd harvest (±2.254)	Mean of 2 harvests (±1.745)	For use in vertical and diagonal comparisons
(2)	(±1.275)	(±0.858)	For use in horizontal and interaction comparisons

66/B/5.13

CARROTS

FERTILISER PLOTS P1K1

	SPO	SP1	N1	N2	Mean
ROOTS					
O	(1) and (2)		(3) and (4)		(±0.921)
	15.55	16.18	14.36	17.38	15.87
PT	17.17	16.79	15.42	18.55	16.98
			(5) and (6)		(±0.653)
		SPO	15.10	17.62	16.36
		SP1	14.67	18.30	16.49
		Mean (±0.312)	14.89	17.96	16.42
	SPO	SP1	N1	N2	Mean
TOPS					
O	4.60	5.32	4.41	5.50	4.96
	5.92	5.60	4.85	6.67	5.76
		SPO	4.66	5.86	5.26
		SP1	4.60	6.32	5.46
		Mean	4.63	6.09	5.36

(1) (±1.129) (3) (±0.973) (5) (±0.723) For use in vertical and diagonal comparisons
 (2) (±0.923) (4) (±0.441) (6) (±0.441) For use in horizontal and interaction comparisons

66/B/5.14

CARROTS

FERTILISER PLOTS F2K2

	SPO	SP2	N1	N2	Mean
ROOTS					
	(1) and (2)		(3) and (4)		(±0.921)
O	19.72	19.56	17.83	21.45	19.64
PT	20.21	19.24	18.30	21.16	19.73
			(5) and (6)		(±0.653)
		SPO	18.57	21.36	19.96
		SP2	17.56	21.25	19.40
		Mean (±0.312)	18.06	21.30	19.68
	SPO	SP2	N1	N2	Mean
TOPS					
	7.03	6.92	6.00	7.95	6.98
O	8.31	7.33	6.88	8.75	7.82
PT					
		SPO	6.81	8.52	7.67
		SP2	6.07	8.18	7.12
		Mean	6.44	8.35	7.40

(1) (±1.129) (3) (±0.973) (5) (±0.723) For use in vertical and diagonal comparisons
 (2) (±0.923) (4) (±0.441) (6) (±0.441) For use in horizontal and interaction comparisons

66/E/5.15

CARROTS
 OLD D1 PLOTS
 ROOTS

	DO	D1	SPO	SP1	NO	N1	Mean
	$(\pm 0.351)^*$		$(\pm 0.450)^*$		$(\pm 0.297)^*$		
POKO	19.54	23.12	20.64	22.01	20.68	21.97	21.33
PLK1	19.09	23.05	20.26	21.88	20.62	21.52	21.07
			(1) and (2)		(3) and (4)		(± 0.248)
		DO	18.41	20.21	18.39	20.23	19.31
		D1	22.48	23.68	22.91	23.25	23.08
					(5) and (6)		(± 0.318)
			SPO		19.92	20.98	20.45
			SP1		21.38	22.51	21.94
			Mean		20.65	21.74	21.20
			(± 0.210)				

(1) (± 0.403) (3) (± 0.325) (5) (± 0.381) For use in vertical and diagonal comparisons

(2) (± 0.450) (4) (± 0.297) (6) (± 0.297) For use in horizontal and interaction comparisons

* For use in horizontal and interaction comparisons

66/B/5.16

CARROTS

OLD D1 PLOTS

TOPS

	DO	D1	SPO	SP1	NO	NI	Mean
POKO	6.75	9.80	8.25	8.29	7.67	8.88	8.27
PLKI	7.43	11.36	8.87	9.93	8.86	9.94	9.40
		DO	6.78	7.40	6.17	8.02	7.09
		D2	10.34	10.81	10.36	10.80	10.58
			SPO		7.96	9.16	8.56
			SP1		8.56	9.66	9.11
			Mean		8.26	9.41	8.84

66/B/5.17

CARROTS
 OLD D2 PLOTS
 ROOTS

	DO	D2	SPO	SP1	NO	N1	Mean
	$(\pm 0.351)^*$		$(\pm 0.450)^*$		$(\pm 0.297)^*$		
POKD	19.31	25.03	22.17	22.17	21.52	22.82	22.17
PIK1	21.22	24.42	23.09	22.55	22.01	23.63	22.82
			(1) and (2)		(3) and (4)		(± 0.248)
		DO	20.28	20.26	19.24	21.29	20.27
		D2	24.98	24.47	24.29	25.16	24.72
					(5) and (6)		(± 0.318)
			SPO		21.58	23.68	22.63
			SP1		21.94	22.78	22.36
			Mean		21.76	23.23	22.50
			(± 0.210)				

- (1) (± 0.403) (3) (± 0.325) (5) (± 0.381) For use in vertical and diagonal comparisons
 (2) (± 0.450) (4) (± 0.297) (6) (± 0.297) For use in horizontal and interaction comparisons

*For use in horizontal and interaction comparisons

66/B/5.18

CARROTS

OLD D2 PLOTS

TOPS

	D0	D2	SPO	SP1	NO	N1	Mean
POKD	8.27	13.38	10.78	10.86	10.18	11.46	10.82
PIK1	7.69	12.68	10.37	9.99	9.55	10.81	10.18
		DC	7.91	8.04	7.06	8.89	7.98
		D2	13.24	12.81	12.67	13.39	13.03
				SPO	9.82	11.33	10.58
				SP1	9.90	10.95	10.43
				Mean	9.86	11.14	10.50