ROTHAMSTED RESEARCH

Yields of the Field Experiments 1967

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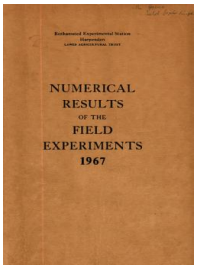

Rotation Experiments

Rothamsted Research

Rothamsted Research (1968) *Rotation Experiments ;* Yields Of The Field Experiments 1967, pp 39 - 113 **- DOI: https://doi.org/10.23637/ERADOC-1-157**

LEY AND ARABLE ROTATIONS

(HLA and FLA)

Highfield and Fosters Field 1967, the 19th year.

For details of treatments, rotations etc., see 'Details' and 'Results' 63/B/1.1, 64/B/1.1, 65/B/1.1, 66/B/1.1.

The variety of oats is now Manod.

Erratum to 'Results' 66/B/1.5. Fosters. '3rd year Treatment Crops:- Oats:' - Seed combine drilled at 160 lb: Mar 7. 'Nitro-Chalk' applied: Mar 9.

HIGHFIELD

1st year Treatment Crops:

All-grass ley: Ploughed: Sept 12, 1966. Basal PK compound applied: Mar 28, 1967. 'Nitro-Chalk' applied, seeds sown at 33 lb: Mar 31. Sprayed with ioxynil/mecoprop (Actril C at 5 pints in 20 gals): May 31. Cut three times: July 4, Aug 16, Nov 8. NK compound applied after first two cuts.

Clover-grass ley: Ploughed: Sept 12, 1966. Basal PK compound applied: Mar 28, 1967. Seeds sown at 34 lb: Mar 31. Sprayed with 2,4-DB/MCPA (Embutox Plus at 5 pints in 20 gals): May 31. Topped twice: June 20, July 3. Cut three times: July 18, Aug 16, Nov 8. Muriate of potash applied after first two cuts.

Lucerne: Ploughed: Sept 12, 1966. Basal PK compound applied: Mar 28, 1967. Seed drilled at 25 lb: Mar 30. Cut three times: July 14, Aug 29, Nov 13.

Hay (H and RH): Ploughed: Sept 12, 1966. Basal PK compound applied, seeds sown at 40 lb: Sept 13. 'Nitro-Chalk' applied: Mar 28, 1967. Cut twice: June 1, July 17. NK compound applied after first cut.

2nd year Treatment Crops:

All-grass ley: Basal PK compound applied: Jan 13, 1967. NK compound applied: Apr 3. Cut four times: May 26, July 4, Aug 16, Nov 8. NK compound applied after first three cuts.

Clover-grass ley: Basal PK compound applied: Jan 13, 1967. Muriate of potash applied: Apr 3. Cut four times: May 26, July 4, Aug 16, Nov 8. Muriate of potash applied after first three cuts.

Lucerne: Basal PK compound applied: Jan 13, 1967. Sprayed with paraquat at 2 lb ion in 37 gals: Feb 6. Cut four times: June 2, July 14, Aug 29, Nov 13.

Sugar beet: Ploughed: July 11 - 22, 1966. Ploughed second time:

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Sept 12. Muriate of potash applied: Jan 30, 1967. Basal NPK compound and 'Nitro-Chalk' applied, seed drilled at 10 lb: Mar 22. Singled: May 17. Sprayed with demeton-s-methyl at 3 oz in 37 gals: June 7, and at 2.5 oz in 20 gals by hand: July 12. Lifted: Oct 13.

3rd year Treatment Crops:

All-grass ley: Basal PK compound applied: Jan 13, 1967. NK compound applied: Apr 3. Cut four times: May 26, July 4, Aug 16, Nov 8. NK compound applied after first three cuts.

Clover-grass ley: Basal PK compound applied: Jan 13, 1967. Muriate of potash applied: Apr 3. Cut four times: May 26, July 4, Aug 16, Nov 8. Muriate of potash applied after first three cuts.

Lucerne: Basal PK compound applied: Jan 13, 1967. Sprayed with paraquat at 2 lb ion in 37 gals: Feb 6. Cut four times: June 2, July 14, Aug 29, Nov 13.

Oats: Ploughed: Dec 21, 1966. Seed combine drilled at 160 lb: Mar 8, 1967. 'Nitro-Chalk' applied: Mar 13. Sprayed wih ioxynil/mecoprop (Actril C at 5 pints in 20 gals): May 12. Combine harvested: Aug 17.

1st Test Crop, Wheat:-

Half of basal PK compound applied, plots ploughed: Sept 14, 1966. Remainder of basal PK compound applied, seed drilled at 165 lb: Oct 27. 'Nitro-Chalk' applied: Apr 17, 1967. Sprayed with ioxynil/mecoprop (Actril C at 6 pints in 32 gals): Apr 26. Combine harvested: Aug 30.

2nd Test Crop, Potatoes:-

Dung applied, plots ploughed: Oct 17, 1966. NPK fertilisers applied: Mar 22 - Apr 4, 1967. Rotary cultivated, potatoes machine planted: Apr 5. Sprayed with linuron at 1 lb and paraquat at 0.75 lb ion in 37 gals: May 9. Sprayed four times with mancozeb at 1.2 lb in 30 gals: June 29, July 20, Aug 4, Aug 24. Sprayed with undiluted BOV at 15 gals: Sept 7. 15 ft length at South end of plots 99, 101, 103, 107, (all a and b) hand dug and potatoes discarded because of an attack of Blackleg (Rhizoctonia solani): Sept 12. Lifted: Sept 13.

3rd Test Crop, Barley:-

Ground chalk applied: Oct 31, 1966. Ploughed: Nov 10. Seed combine drilled at 140 lb: Mar 2, 1967. 'Nitro-Chalk' applied: Mar 13. Sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in 30 gals): May 12. Combine harvested: Aug 18.

Permanent grasses: 17th, 18th and 19th experimental years permanent (old) grass, all blocks, 17th, 18th and 19th years reseeded grass, blocks 1, 4, 6, 7, 9 and 12. Ground chalk applied to blocks 5 and 8: Oct 31, 1966. Basal PK compound applied: Jan 13, 1967. NK compound

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applied to 'all grass' half plots, muriate of potash to 'clover-grass' half plots: Apr 3. Cut four times: May 31, July 4, Aug 16, Sept 26. NK compound and muriate of potash applied to appropriate half plots after each cut except the last.

FOSTERS

1st year Treatment Crops:

All-grass ley: Ploughed: Sept 5, 1966. Basal PK compound applied: Mar 28, 1967. 'Nitro-Chalk' applied, seeds sown at 33 lb: Mar 31. Sprayed with ioxynil/mecoprop (Actril C at 5 pints in 20 gals): May 31. Cut three times: July 4, Aug 16, Nov 8. NK compound applied after first two cuts.

Clover-grass ley: Ploughed: Sept 5, 1966. Basal PK compound applied: Mar 28, 1967. Seed sown at 34 lb: Mar 31. Sprayed with 2,4-DB/MCPA (Embutox Plus at 5 pints in 20 gals): May 31. Topped twice: June 20, July 3. Cut three times: July 18, Aug 16, Nov 8. Muriate of potash applied after first two cuts.

Lucerne: Ploughed: Sept 5, 1966. Basal PK compound applied: Mar 28, 1967. Seed sown at 25 lb: Mar 30. Cut three times: July 14, Aug 29, Nov 13.

Hay (H and RH): Ploughed: Sept 5, 1966. Basal PK compound applied, seed sown at 40 lb: Sept 13. 'Nitro-Chalk' applied: Mar 28, 1967. Cut twice: June 1, July 17. NK compound applied after first cut.

2nd year Treatment Crops:

All-grass ley: Basal PK compound applied: Jan 13, 1967. NK compound applied: Apr 3. Cut four times: May 23, July 4, Aug 15, Nov 8. NK compound applied after first three cuts.

Clover-grass ley: Basal PK compound applied: Jan 13, 1967. Muriate of potash applied: Apr 3. Cut four times: May 26, July 4, Aug 15, Nov 8. Muriate of potash applied after first three cuts.

Lucerne: Basal PK compound applied: Jan 13, 1967. Sprayed with paraquat at 2 lb ion in 37 gals: Feb 6. Cut four times: June 2, July 14, Aug 29, Nov 13.

Sugar beet: Ploughed: July 11 - 22, 1966. Ploughed second time: Sept 12. Muriate of potash applied: Jan 30, 1967. Basal NPK compound applied, seed drilled at 10 lb: Mar 22. Singled: May 18. Sprayed with demeton-s-methyl at 3 oz in 37 gals: June 7, and at 2.5 oz in 20 gals by hand: July 12. Lifted: Oct 13.

3rd year Treatment Crops:

All-grass ley: Basal PK compound applied: Jan 13, 1967. NK compound applied: Apr 3. Cut four times: May 23, July 4, Aug 15, Nov 8. NK compound applied after first three cuts.

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Clover-grass ley: Basal PK compound applied: Jan 13, 1967. Muriate of potash applied: Apr 3. Cut four times: May 23, July 4, Aug 16, Nov 8. Muriate of potash applied after first three cuts.
Lucerne: Basal PK compound applied: Jan 13, 1967. Sprayed with paraquat at 2 lb ion in 37 gals: Feb 6. Cut four times: June 2, July 14, Aug 29, Nov 13.
Oats: Ploughed: Dec 21, 1966. Seed combine drilled at 160 lb: Mar 8, 1967. 'Nitro-Chalk' applied: Mar 13. Sprayed with ioxynil/mecoprop (Actril C at 5 pints in 20 gals): May 12. Combine harvested: Aug 17.

1st Test Crop, Wheat:-
Basal PK compound applied, plots ploughed: Sept 14, 1966. Basal PK compound applied, seed drilled at 165 lb: Oct 26. 'Nitro-Chalk' applied: Apr 17, 1967. Sprayed with ioxynil/mecoprop (Actril C at 6 pints in 32 gals): Apr 26. Combine harvested: Aug 30.

2nd Test Crop, Potatoes:-
Dung applied, plots ploughed: Oct 14, 1966. NPK fertiliser applied: Mar 22 - Apr 4, 1967. Rotary cultivated, potatoes machine planted: Apr 5. Sprayed with linuron at 1 lb and paraquat 0.75 lb in 37 gals: May 9. Sprayed four times with mancozeb at 1.2 lb in 30 gals: June 29, July 20, Aug 4, Aug 24. Sprayed with undiluted BCV at 15 gals: Sept 7. Lifted: Sept 13.

3rd Test Crop, Barley:-
Ploughed: Nov 9, 1966. Seed combine drilled at 140 lb: Mar 2, 1967. 'Nitro-Chalk' applied: Mar 13. Sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in 30 gals): May 12. Combine harvested: Aug 18.

Permanent grasses:-
17th, 18th and 19th years reseeded grass, blocks 1, 3, 6, 8, 9 and 11. Basal PK compound applied: Jan 13, 1967. NK compound applied to 'all-grass' half plots and muriate of potash to 'clover-grass' half plots: Apr 3, 1967. Cut four times: May 31, July 4, Aug 15, Sept 27. NK compound and muriate of potash applied to appropriate half plots after first three cuts.

Standard errors per plot. Test crops:
Potatoes. Total tubers:
Highfield: Sub plot: 0.475 or 2.0% (12 d.f.)
Fosters: Sub plot: 1.041 or 4.8% (12 d.f.)

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67/B/1.5

SUMMARY OF RESULTS

WHEAT 1ST TEST CROP

1964 - 1966

	Lu	LC	LN	AH	Mean
GRAIN					
HIGHFIELD					
Mean	51.7	56.9	51.1	54.3	53.5
To test crop					
N0	53.1	62.1	54.5	48.9	
N1	51.0	60.4	52.9	60.2	
N2	55.1	53.5	53.2	54.5	
N3	47.5	51.6	44.0	53.8	
T0	51.3	55.8	53.2	53.8	53.5
T1	52.1	58.0	49.1	54.9	53.5
FOSTERS					
Mean	63.8	61.5	62.7	60.5	62.1
To test crop					
N0	66.4	61.6	60.2	50.4	
N1	66.6	65.6	66.6	66.1	
N2	63.8	60.3	65.5	65.2	
N3	58.6	58.6	58.6	60.3	
T0	64.9	59.7	62.4	58.4	61.3
T1	62.8	63.4	63.0	62.6	62.9

Mean D.M. %: Highfield: 83.4
Fosters: 84.0

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WHEAT 1ST TEST CROP

1964 - 1966

	Lu	LC	LN	AH	Mean
STRAW					
HIGHFIELD					
Mean	64.4	61.7	55.0	56.0	59.3
To test crop					
N0	53.6	56.5	49.6	45.6	
N1	64.9	61.4	56.6	57.0	
N2	67.9	63.5	56.9	58.1	
N3	71.2	65.2	56.9	63.1	
T0	62.3	58.8	55.0	52.2	57.1
T1	66.5	64.6	55.0	59.7	61.5
FOSTERS					
Mean	62.8	62.9	60.5	55.2	60.4
To test crop					
N0	55.3	54.8	48.6	39.3	
N1	64.4	64.6	64.4	58.1	
N2	66.0	66.0	63.8	62.6	
N3	65.4	66.1	65.4	60.8	
T0	63.5	59.9	58.3	52.9	58.6
T1	62.1	65.9	62.7	57.5	62.1

Mean D.M. %: Highfield: 85.7
Fosters: 88.5

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POTATOES 2ND TEST CROP. TOTAL TUBERS

1963 - 1965

	Lu	LC	LN	AH	Mean
HIGHFIELD					
Mean	23.54	24.28	23.32	22.90	23.51
		(±0.237)*			(±0.119)
F	23.41	24.82	23.36	23.28	23.72
D	23.68	23.75	23.28	22.52	23.31
To wheat 1966					
		(±0.237)*			(±0.119)
N02	23.57	24.86	23.44	23.12	23.75
N13	23.52	23.71	23.20	22.69	23.28
FOSTERS					
Mean	21.58	22.00	21.28	21.14	21.50
		(±0.520)*			(±0.260)
F	21.87	22.33	21.28	21.63	21.78
D	21.30	21.67	21.28	20.65	21.22
To wheat 1966					
		(±0.520)*			(±0.260)
N02	21.60	21.55	21.40	21.22	21.44
N13	21.57	22.45	21.16	21.06	21.56

* For use in vertical and interaction comparisons

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POTATOES 2ND TEST CROP. % WARE

1963 - 1965

	Lu	LC	LN	AH	Mean
HIGHFIELD					
Mean	96.4	95.8	96.5	96.7	96.3
F	96.2	95.5	96.8	96.9	96.3
D	96.5	96.1	96.1	96.6	96.3
To wheat 1966					
N02	96.2	96.2	96.4	96.8	96.4
N13	96.6	95.4	96.5	96.7	96.3
FOSTERS					
Mean	96.1	96.8	96.6	96.2	96.4
F	96.2	96.7	96.8	96.2	96.5
D	96.0	96.8	96.5	96.2	96.4
To wheat 1966					
N02	96.2	96.4	96.7	96.5	96.5
N13	95.9	97.1	96.6	95.9	96.4

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BARLEY 3RD TEST CROP

GRAIN

1962 - 1964

	Lu	LC	LN	AH	R	Mean
			HIGHFIELD			
Mean	42.5	43.4	42.0	40.7	50.0	43.7
1967						
N0	36.4	41.5	39.2	33.4	51.6	40.4
N1	43.5	43.9	37.3	40.0	54.8	43.9
N2	42.8	42.5	44.6	42.9	45.8	43.7
N3	47.4	45.6	47.0	46.6	47.8	46.9
1966						
F	40.7	42.5	41.6	40.3	50.3	43.1
D	44.4	44.2	42.4	41.2	49.7	44.4

Excluding AH

1967

1966	N0	N1	N2	N3	Mean
F	40.9	43.8	43.6	47.0	43.8
D	43.4	46.0	44.4	46.9	45.2

Mean D.M. %: 79.6

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BARLEY 3RD TEST CROP

GRAIN

1962 - 1964

	Lu	LC	LN	AH	R	Mean
			FOSTERS			
Mean	51.8	50.8	50.9	50.4	54.0	51.6
1967						
N0	47.9	49.0	45.8	41.4	53.8	47.6
N1	51.5	52.0	52.9	-	55.6	-
N2	54.6	52.3	53.3	49.8	54.1	52.8
N3	53.1	50.0	51.6	56.5	52.3	52.7
N4	-	-	-	54.1	-	-
1966						
F	50.7	50.0	49.5	49.2	52.2	50.3
D	52.9	51.7	52.3	51.7	55.7	52.9

Excluding AH

1967

1966	N0	N1	N2	N3	Mean
F	48.2	51.6	52.2	50.2	50.6
D	50.0	54.4	54.9	53.2	53.2

Mean D.M. %: 78.9

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67/B/1.11

TREATMENT CROPS ARABLE AND HAY ROTATION

HAY: DRY MATTER (Total of 2 cuts)

After arable crops			After reseeded grass ploughed 1963 - 1964		
F	D	Mean	F	D	Mean
HIGHFIELD					
103.9	100.2	102.0	104.6	105.2	104.9
FOSTERS					
88.5	92.1	90.3	96.6	100.2	98.4

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TREATMENT CROPS ARABLE AND HAY ROTATION

HIGHFIELD Mean		FOSTERS Mean
	SUGAR BEET	
	ROOTS	
22.27		21.14
	SUGAR %	
16.1		16.4
	TOTAL SUGAR	
71.5		69.3
	TOPS	
19.87		17.57
	OATS	
	GRAIN	
41.4		41.0

Oats, grain, mean D.M. %: Highfield 80.6
Fosters 81.5

LUCERNE: DRY MATTER

	HIGHFIELD 1965			FOSTERS 1965		
	F	D	Mean	F	D	Mean
1st year (3 cuts)	57.5	57.2	57.3	53.6	57.2	55.4
2nd year (4 cuts)			76.8			93.4
3rd year (4 cuts)			47.3			60.8

ALL-GRASS LEY: DRY MATTER

	HIGHFIELD 1965			FOSTERS 1965		
	F	D	Mean	F	D	Mean
1st year (3 cuts)	70.5	73.5	72.0	59.6	60.1	59.9
2nd year (4 cuts)			100.6			95.8
3rd year (4 cuts)			85.3			84.1

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CLOVER-GRASS LEY: DRY MATTER

	HIGHFIELD 1965			FOSTERS 1965		
	F	D	Mean	F	D	Mean
1st year (3 cuts)	43.0	44.7	43.9	32.8	36.9	34.8
2nd year (4 cuts)			63.6			64.6
3rd year (4 cuts)			58.9			63.1

PERMANENT GRASS: DRY MATTER

	N0	N1	Mean
	HIGHFIELD		
17th exptl year			
Blocks 9 and 12	38.4	95.6	67.0
Blocks 10 and 11	36.8	95.8	66.2
18th exptl year			
Blocks 5 and 8	49.4	96.0	72.8
Blocks 6 and 7	39.3	103.0	71.2
19th exptl year			
Blocks 1 and 4	46.0	97.4	71.7
Blocks 2 and 3	58.4	93.4	75.9

(N0) Clover-grass management
(N1) All-grass management

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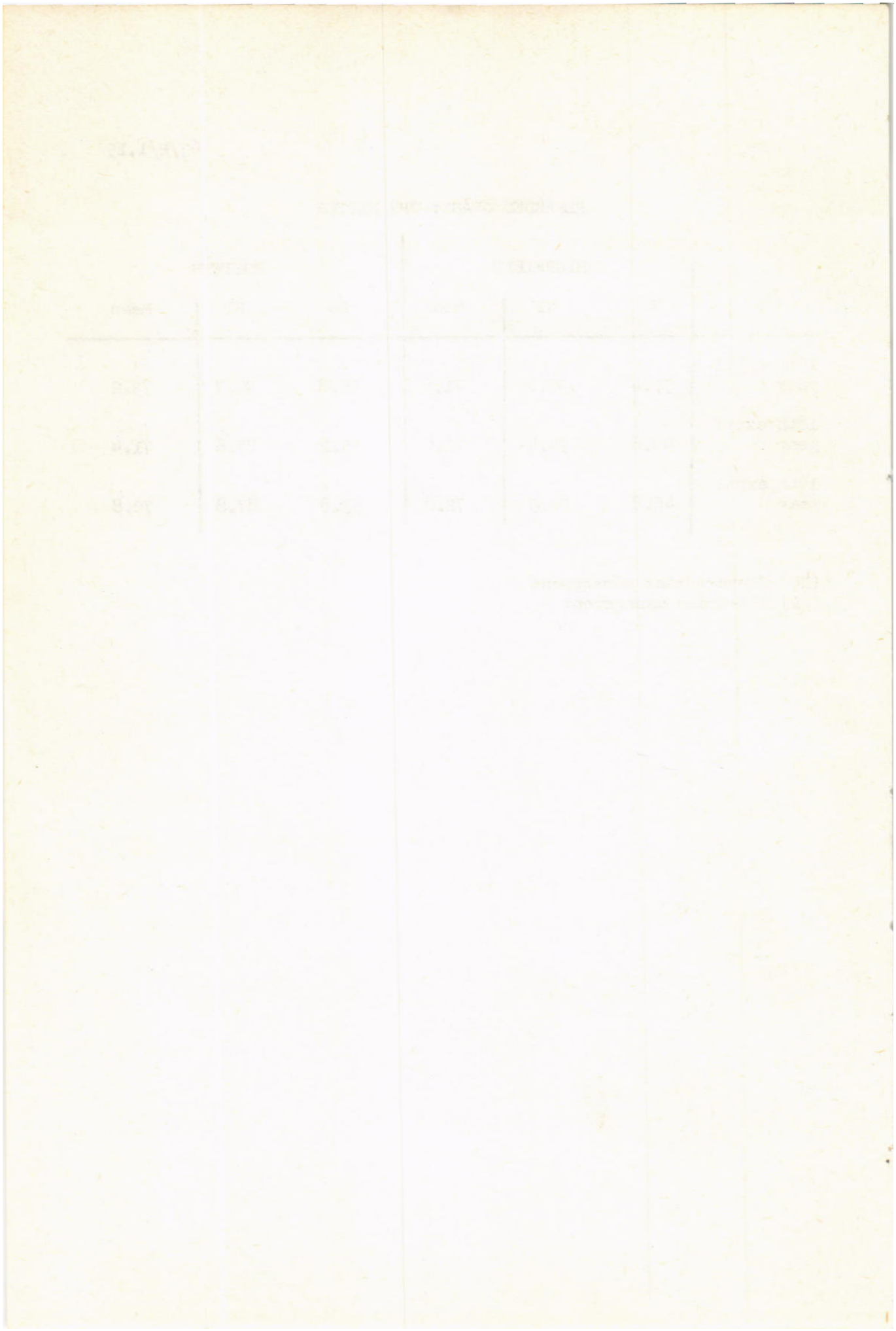

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RESEEDED GRASS: DRY MATTER

	HIGHFIELD			FOSTERS		
	N0	N1	Mean	N0	N1	Mean
17th exptl year	50.4	92.8	71.6	55.8	90.7	73.2
18th exptl year	49.6	94.4	72.0	55.2	87.6	71.4
19th exptl year	46.8	98.9	72.8	53.8	87.8	70.8

(N0) Clover-grass management
(N1) All-grass management

67/B/2.1

REFERENCE PLOTS

ROTHAMSTED (R) GREAT FIELD IV AND HIGHFIELD IX

AND

WOBURN (W) STACKYARD SERIES C, 1967

(ERA, ERG, WERA and WERF)

For details of previous years' results and for rates of fertilisers, etc., see 'Results' 58/Bc/1, 59/Bc/1, 60/B/3, 61/B/2, 62/B/2, 63/B/2, 64/B/2, 65/B/2 and 66/B/2. For conifer seedbeds and transplants see 63/B/2, 64/B/2, 65/B/2 and 66/B/2.

Woburn:

Each plot of the oats was split for a test 0v 3.6 lb Mn as manganese sulphate applied in April, and a test of 0v 45 lb Mg as magnesium sulphate. Each test was made to pairs of quarter plots.

Cultivations, etc.:-

Great Field IV (R):-

Winter wheat: Dug by hand: Sept 23, 1966. P,K,Mg,Ca and S applied: Oct 21, 1966. Seed drilled: Oct 24. First N dressing applied (excluding additional plots): Mar 3, 1967. Second N dressing applied, all N applied to additional plots, trace element spray applied: Apr 17. Harvested: Aug 17.

Kale: FYM applied, plots dug by hand: Nov 11, 1966. P,K,Mg,Ca and S applied: Feb 9 - Mar 3, 1967. First N dressings applied to additional plots, all plots rotary cultivated, seed sown: Mar 22. N fertiliser applied (excluding additional plots): Apr 17. Second N dressings applied to additional plots: May 26. Trace element spray applied: June 14. Harvested: Oct 23.

Barley: Dug by hand: Nov 16, 1966. P,K,Mg,Ca and S applied: Feb 9 - Mar 3, 1967. N applied, plots rotary cultivated, seed drilled: Mar 7, additional plots: Mar 14. Trace element spray applied: May 31. Harvested: Aug 10.

Grass-clover ley: Undersown in barley: Apr 12, 1966. P,K,Mg,Ca and S applied: Feb 9 - Mar 3, 1967. All N applied: Mar 3. Trace element spray applied: Apr 17. Cut four times: Oct 31, 1966, May 22, 1967, July 16, Sept 27.

Potatoes: FYM applied, plots dug by hand: Nov 15, 1966. P,K,Mg,Ca and S applied: Feb 9 - Mar 3, 1967. First N dressings applied to additional plots, all N applied to

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remaining plots, plots rotary cultivated twice, potatoes planted: Mar 31. Second N dressing applied to additional plots: May 26. Trace element spray applied: June 14. Sprayed with dimethoate at 5 oz in 50 gals and with fentin acetate at 2.4 oz and maneb at 0.8 oz in 50 gals: June 27. Sprayed with dimethoate at 5 oz in 50 gals: July 21. Sprayed with fentin acetate at 2.4 oz and maneb at 0.8 oz in 50 gals: Aug 3. Lifted: Plots with neither K nor FYM (where haulm died early): Aug 3, remainder: Sept 8.

Permanent grass: FYM, P and K applied: Feb 9, 1967. N applied first dressing: Mar 3, second: May 18, third: July 16. Cut three times: May 18, July 16, Oct 6.

NOTES: (1) Yields of dry matter were obtained from each crop.
(2) The percentages of N, P and K were measured in each crop.

ADDENDUM to 'Results' 66/B/2.2:- Under the heading 'Great Field IV (R): Potatoes', insert 'Second N dressing applied: May 31'.

Stackyard Series C (W):-

Winter oats: Plots dug by hand: Sept 26, 1966. P and K applied, seed drilled: Oct 24. Ground chalk applied at 26 cwt: Jan 13, 1967. First N dressing applied: Mar 16. Second N dressing applied: Apr 19. Manganese sulphate applied: Apr 21. Magnesium sulphate applied: May 2. Harvested: Aug 7.

Sugar beet: FYM applied: Dec 5, 1966. Plots dug by hand: Dec 9. Ground chalk applied at 26 cwt: Jan 13, 1967. P and K applied: Feb 15. First N dressing applied, plots rotary cultivated, seed drilled: Mar 28. First dressing of Mg fertiliser applied to half plots: Apr 3. Sprayed five times with dimethoate at 4.8 fl oz in 50 gals: May 24, June 9, June 23, July 10, July 25. Second N dressing applied: May 25. Singled: June 8. Second dressing of Mg fertiliser applied to same half plots: June 27. Harvested, Mg applied to other half plots: Oct 5.

Barley: Plots dug by hand: Dec 5, 1966. Ground chalk applied at 26 cwt: Jan 13, 1967. P and K applied: Feb 15. First N dressing applied, rotary cultivated, seed drilled: Mar 16. Second N dressing applied: May 2. Harvested: Aug 11.

Grass-clover ley: Undersown in barley: Mar 8, 1966. Ground chalk applied at 26 cwt: Jan 3, 1967. P and K applied: Feb 15. All N applied: Mar 16. Cut four times: Oct 17, 1966, May 25, 1967, July 18, Sept 28.

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Potatoes: FYM applied: Dec 5, 1966. Plots dug by hand: Dec 9. Ground chalk applied at 26 cwt: Jan 13, 1967. P and K applied: Feb 15. First N dressing applied, plots rotary cultivated, setts planted: Apr 3. Second N dressing applied: May 25. Sprayed with dimethoate at 4.8 fl oz in 50 gals: June 9. Sprayed twice with fentin acetate at 2.4 oz plus maneb at 0.8 oz in 50 gals: June 29, Aug 4. Lifted: Sept 7.

Permanent grass: FYM, P and K applied: Feb 15, 1967. First N dressing applied: Mar 16. Second N dressing applied: May 25. Third N dressing applied: July 18. Cut three times: May 25, July 18, Oct 5.

NOTES: (1) Samples were taken for determination of dry matter for each crop, and the percentage N, P and K.
(2) The percentage of Mg in the leaves of sugar beet was determined.
(3) Surface soil samples were taken from each block for a determination of soil pH on Nov 3, 1966.

Grazed Reference Plots (Highfield IX (R)):-

Cultivations, etc.: P and K fertilisers applied, ground chalk applied to appropriate plots: Dec 14, 1966. First N dressings applied: Mar 3, 1967. Sample cuts taken four times: May 3, June 20, Aug 30, Nov 2. All plots topped: June 20. Sampling cages moved after each cut. N dressing applied after each cut except the last.

NOTES: (1) The percentages of N, P and K in the dry grass were measured.
(2) Visual estimates were made of the percentage surface area covered by clover leaves.
(3) The pH and available P and K content of the soil were measured.

Conifer seedbeds and transplants:

Bed 1: Formalin (250 ml. in 4 l. water) applied: Dec 15, 1966. All manures (other than N) dug in: Mar 8, 1967. Seed sown: Mar 17 - 20. T.V.O. pre-emergence spray: Apr 14. N top-dressed: June 15, July 13, Aug 18, Sept 7.

Bed 2: Seedbeds as for Bed 1. Transplants plots lined out: Mar 20. All manures (other than N) as for seedbeds. N topdressed on transplants: May 2, June 1, July 13, Aug 10.

NOTES: (1) Height assessments and samples for analyses as in 1966.
(2) Plots lacking N, P, K and Mg had typical deficiency symptoms.

https://doi.org/10.23637/ERADOC-1-157

Standard errors per plot.

Highfield IX (R), Dry matter:

1st cut:	3.87	or 21.0% (39 d.f.)
2nd cut:	5.58	or 11.3% (39 d.f.)
3rd cut:	4.18	or 11.4% (39 d.f.)
4th cut:	5.89	or 23.2% (39 d.f.)
Total of 4 cuts:	9.84	or 7.6% (39 d.f.)

Stackyard Series C (W), Sitka Spruce Bed 1:

Mean height:	0.160	or 7.7% (11 d.f.)
Plant number:	139.7	or 14.7% (11 d.f.)

https://doi.org/10.23637/ERADOC-1-157

SUMMARY OF RESULTS

GREAT FIELD IV (R): ORIGINAL PLOTS

Treatment	Winter wheat: GRAIN	STRAW	Kale: TOTAL WEIGHT	Barley: GRAIN	STRAW	Ley: DRY MATTER 1st cut	2nd cut	3rd cut	4th cut	Total of 4 cuts	Potatoes: TOTAL TUBERS	Permanent grass: DRY MATTER 1st cut	2nd cut	3rd cut	Total of 3 cuts
None	34.9	40.5	10.24	31.2	26.8	2.9	19.1	23.8	21.0	66.8	1.82	8.9	13.3	14.9	37.1
N1	41.4	49.9	10.42	37.5	32.6	1.4	23.9	18.9	17.0	61.2	2.38	15.5	13.0	19.6	48.1
P	45.5	58.2	12.50	40.8	34.9	2.8	13.9	14.1	5.5	36.3	2.32	8.1	10.8	14.4	33.3
N1P	31.5	46.9	20.66	38.7	34.5	2.4	24.0	14.1	5.6	46.1	1.34	20.5	13.9	20.5	54.9
K	45.8	57.5	7.12	29.3	24.4	5.3	23.3	36.9	16.6	82.1	10.24	10.9	11.8	14.7	37.4
N1K	54.8	72.8	7.12	38.2	33.5	2.4	28.1	32.5	21.7	84.7	9.03	25.7	19.0	24.4	69.1
PK	45.4	60.0	17.36	37.4	32.0	9.4	31.3	43.8	21.2	105.7	13.80	12.1	17.6	18.5	48.2
N1PK	57.9	83.3	21.36	44.6	40.6	3.2	40.0	35.2	27.3	105.7	13.28	22.2	20.7	21.9	64.8
N2PK	53.3	87.8	24.83	49.8	45.2	3.5	52.6	37.4	34.7	128.2	12.68	40.1	23.2	30.3	93.6
D	58.1	72.2	17.71	42.4	39.3	3.7	37.2	36.2	32.4	109.5	13.72	38.4	16.3	17.8	72.5
N1PKD	55.9	91.6	29.17	53.1	50.1	6.1	41.8	39.8	31.5	119.2	19.44	45.7	22.4	23.9	92.0
N2PKD	50.1	95.9	33.16	58.7	56.2	2.0	47.9	32.8	30.0	112.7	22.57	50.8	23.7	33.3	107.8
Mean D.M. %:	78.1	73.4		77.7	48.4	20.0	21.4	28.1	23.6	23.3		21.3	30.9	22.8	25.0

67/B/2.5

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GREAT FIELD IV (R): ADDITIONAL PLOTS

Treatment	Winter wheat: GRAIN	STRAW	Kale: TOTAL WEIGHT	Barley: GRAIN	STRAW	Ley: DRY MATTER 1st cut	2nd cut	3rd cut	4th cut	Total Potatoes: of 4 cuts	TOTAL TUBERS
None	33.4	40.6	14.58	32.2	26.4	4.8	29.0	33.3	31.2	98.3	2.68
N2 PK	63.4	88.6	24.83	57.9	60.4	7.0	51.9	43.3	32.9	135.1	14.32
N2 PK Mg Ca	56.7	83.9	32.82	53.2	50.8	7.2	52.4	43.1	30.5	133.2	13.80
N2 PK Mg S	59.1	83.4	31.78	58.1	52.1	9.6	53.4	45.1	32.0	140.1	14.58
N2 PK Ca S	51.8	63.6	29.00	62.2	66.7	7.8	55.5	46.6	37.3	147.2	14.32
N2 PK Mg Ca S	57.5	80.6	30.90	56.7	54.9	5.7	51.5	41.9	30.3	129.4	15.62
N2 PK Mg Ca S TE	61.2	82.6	27.26	55.2	58.8	5.5	47.5	40.1	37.7	130.8	13.37
Mean D.M. %	78.1	77.4		80.8	71.4	17.9	18.6	24.9	21.8	20.8	

67/B/2.6

STACKYARD SERIES C (W)

Treatment	Oats: GRAIN	Oats: STRAW	Sugar beet: ROOTS	Barley: GRAIN	Barley: STRAW	Ley: DRY MATTER 1st cut	Ley: DRY MATTER 2nd cut	Ley: DRY MATTER 3rd cut	Ley: DRY MATTER 4th cut	Total of 4 cuts	Potatoes: TOTAL TUBERS	Permanent grass: DRY MATTER 1st cut	Permanent grass: DRY MATTER 2nd cut	Permanent grass: DRY MATTER 3rd cut	Total of 3 cuts
None	17.8	16.7	6.02	17.8	16.0	8.3	25.8	21.0	14.5	69.6	2.93	14.8	3.9	6.3	25.0
N1	30.9	42.8	9.26	26.5	28.0	5.0	35.3	20.6	13.4	74.3	3.40	21.7	11.2	15.6	48.5
P	19.1	19.8	7.87	17.2	15.3	7.9	28.1	17.0	11.0	64.0	2.93	14.0	3.8	5.1	22.9
N1P	34.1	40.1	6.02	19.1	19.8	4.3	34.3	15.9	12.6	67.1	2.86	22.7	11.8	16.3	50.8
K	18.4	18.9	7.87	22.4	21.8	12.9	31.3	29.9	13.1	87.2	4.32	20.0	10.8	7.0	37.8
N1K	31.9	41.1	9.88	32.4	34.5	11.4	41.1	32.0	15.1	99.6	6.72	27.8	13.7	15.0	56.5
PK	19.2	20.6	6.48	18.9	16.8	12.6	36.2	28.0	12.8	89.6	5.09	22.9	12.3	8.3	43.5
N1PK	32.6	46.6	12.66	37.5	45.4	11.7	44.0	25.8	13.0	94.5	7.18	28.1	12.6	16.5	57.2
N2PK	43.2	66.5	10.80	41.2	58.2	8.1	59.2	27.0	17.4	111.7	8.34	34.0	11.8	19.4	65.2
D	24.9	26.5	11.58	29.3	29.5	13.7	34.4	31.8	15.3	95.2	10.18	26.4	8.4	8.1	42.9
N1PKD	36.5	50.4	16.05	38.7	50.5	14.7	44.0	32.3	16.8	107.8	12.19	38.0	11.9	17.4	67.3
N2PKD	42.2	74.1	18.06	39.2	60.4	10.2	57.2	30.9	21.5	119.8	16.74	53.9	16.0	22.1	92.0
Mean D.M. %	82.2	52.0		78.1	65.7	15.0	17.0	31.2	23.6	21.7		20.2	38.8	28.9	29.3

67/B/2.7

67/B/2.8

STACKYARD C (W). Bed 1

SITKA SPRUCE

Treatment	MEAN HEIGHT: INCHES	PLANT NUMBER: PER SQ YARD
	(±0.113)	(±98.8)
None	1.82 (1)	987 (2)
PK Mg	2.06	999
NK Mg	1.20	924
NP Mg	1.81	1032
NPK	2.09	975
NPK Mg	2.27 (1)	938 (2)
NPK Mg F	2.25	957
C	2.16	642
C NPK Mg	2.72	1002
L NPK Mg	2.55	1017
Mean	2.08	950

(1) (±0.080) (2) (±69.8)

Bed 2 plots 1 - 6

	O	A	B	Mean
	MEAN HEIGHT: INCHES			
SS	8.16	9.77	10.45	9.46
NS	6.11	7.29	8.04	7.14

https://doi.org/10.23637/ERADOC-1-157

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Bed 2 PLOTS 7 - 12

	O	A	B	Mean
		MEAN HEIGHT: INCHES		
SS	1.68	2.66	3.11	2.48
NS	1.34	2.09	2.38	1.94
		PLANT NUMBER: PER SQ YD		
SS	1164	1152	906	1074
NS	1110	1056	1194	1120

67/B/2.10

HIGHFIELD IX (R)

GRASS: DRY MATTER

	1st cut	2nd cut	3rd cut	4th cut	Total of 4 cuts
PK	(±1.94)	(±2.79)	(±2.09)	(±2.95)	(±4.92)
NO 00	6.6	34.2	26.5	23.1	90.4
N1 00	17.7	48.9	37.2	28.7	132.5
A1 00	15.8	48.3	38.9	26.1	129.2
NO 10	7.2	43.6	27.1	18.5	96.4
N1 10	28.5	52.5	41.3	27.9	150.3
A1 10	22.7	48.1	37.4	27.1	135.4
NO 01	8.2	40.1	29.3	20.0	97.7
N1 01	24.1	51.0	40.1	25.7	141.0
A1 01	20.3	49.8	33.6	28.8	132.5
NO 11	9.8	38.8	34.3	19.2	102.0
N1 11	23.6	55.5	39.1	28.6	146.8
A1 11	22.2	61.2	37.8	30.0	151.2
N2 11	25.9	62.5	44.7	25.3	158.4
A2 11	25.2	60.4	47.5	26.6	159.7
Mean	18.4	49.6	36.8	25.4	130.2

Mean D.M. %: 1st cut: 20.9
2nd cut: 21.7
3rd cut: 24.4
4th cut: 17.8
Total of 4 cuts: 21.2

https://doi.org/10.23637/ERADOC-1-157

67/B/3.1

GREEN MANURING EXPERIMENT

(WGM)

Woburn Stackyard 1967 (Lower half only).

For history, treatments, etc., see 'Details' 1962 and 'Results' 64/B/3, 65/B/3 and 66/B/3.

Area of each sub plot: 0.0223. Area harvested: 0.0144.

Treatments: All combinations of:-
Whole plots: A plots (no previous green manures): Green manures undersown 1966: Trefoil (T), ryegrass (R).
B plots (green manures 1936-63): Green manures undersown 1966: None (O), trefoil (T), ryegrass (R).
C plots (green manures 1936-65): No green manures 1966.
Half plots: Levels of nitrogen: 0.3 (N1), 0.6 (N2), 0.9 (N3), 1.2 cwt N (N4) as 'Nitro-Chalk'.

Cultivations, etc.: Fallow plots ploughed: Oct 22, Dec 5-14, 1966. All plots ploughed: Feb 2-3, 1967. Seed combine drilled at 140 lb: Mar 4. 'Nitro-Chalk' applied: Mar 16. Sprayed with ioxynil/mecoprop (Actril C at 5 pints in 25 gals): May 9. Sprayed with ioxynil/mecoprop (Actril C at 5 pints in 25 gals): May 31. (The second application was made because the first had little effect). Combine harvested: Aug 21. Variety: Maris Badger.

NOTE: Estimates of take-all (Ophiobolus graminis) were made in July.

https://doi.org/10.23637/ERADOC-1-157

67/B/3.2

SUMMARY OF RESULTS

GRAIN

	N1	N2	N3	N4	Mean
		A PLOTS			
T	29.2	34.7	37.6	35.9	34.3
R	18.8	22.4	33.1	31.2	26.4
Mean	24.0	28.5	35.4	33.5	30.4
		B PLOTS			
O	15.4	22.5	29.0	28.0	23.8
T	29.4	35.8	33.2	31.2	32.4
R	23.2	29.6	29.9	37.4	30.0
Mean	22.7	29.3	30.7	32.2	28.7
		C PLOTS			
T	16.8	24.9	29.7	30.4	25.4
R	17.6	26.4	32.7	30.0	26.7
Mean	17.2	25.6	31.2	30.2	26.1

Mean D.M. %: 86.5

https://doi.org/10.23637/ERADOC-1-157

LEY AND ARABLE ROTATIONS

(WLA)

Woburn Stackyard 1967 - the 30th year.

For history, treatments etc., see 'Details' 1962 and 'Results' 63/B/4, 64/B/4, 65/B/4 and 66/B/4.

Potatoes: Because of the poor appearance of the crop in June plots were split for a test of nitrogen and magnesium sulphate:-
None (O), 1.84 lb N as 4% solution of urea per acre (U) and
None (OMg), 0.5 lb Mg as 5% solution of $MgSO_4$, 7 H_2O (Mg)
hand sprayed at 50 gal. The solutions contained 'Shellastol' wetter at 0.01%.
There was no apparent improvement in the appearance of the crop and yields taken of the sub plots were not taken separately.

Rye: The crop partially failed and was replaced with spring wheat, variety Kloka, which received a basal dressing of 0.6 cwt N as 'Nitro-Chalk' 21.

Corrective K dressings (in cwt K_2O) as muriate of potash, and the K equivalent of FYM for Block 5 (sugar beet 1967)

Continuous rotations	No dung plots	Dung plots
Ley	2	1
Sainfoin	4	3
Arable with hay	5	4
Arable	2	2
Alternating rotations		
Last 2 rotations in order		
Ley/arable	2	0
Sainfoin/arable with hay	3	3
Arable with hay/sainfoin	4	4
Arable/ley	3	2

NOTE: K equivalent of dung: In 1967 plots not receiving dung received 1.9 cwt K_2O as muriate of potash.

Cultivations, etc.:
Treatment crops.
Ley 1st year: Ploughed: Sept 29, 1966. Fertilisers applied: Mar 23, 1967. Seed sown at 40 lb: Mar 31. NK fertiliser applied: July 17, Aug 26. Grazed 4 circuits: July 5 - Oct 23.
Ley 2nd year: NK fertiliser applied to all plots: Mar 10, 1967, Aug 26. NK fertiliser applied to plots 31 and 32: June 28, and to plots 27 and 28: July 10. Grazed 9 circuits: Apr 18 - Oct 11.

https://doi.org/10.23637/ERADOC-1-157

Ley 3rd year: NK fertiliser applied: Mar 10, 1967, June 20, Aug 26. Grazed 9 circuits: Apr 18 - Oct 11.

Sainfoin 1st year: Ploughed: Sept 29, 1966. Fertilisers applied: Mar 23, 1967. Seed drilled at 70 lb: Apr 3. Cut once: Aug 7.
Sainfoin 2nd year: Sprayed with paraquat at 1 lb ion in 33 gals: Feb 6, 1967. N and K fertilisers applied: Mar 10. Cut twice: June 13, Aug 7.
Sainfoin 3rd year: Sprayed with paraquat at 1 lb ion in 33 gals: Feb 6, 1967. N and K fertilisers applied: Mar 10. Cut twice: June 13, Aug 7.

Arable rotations.

Potatoes: Ploughed: Sept 29, 1966. Fertilisers applied and potatoes planted: Mar 22, 1967. Earthed up: May 10. Test urea and magnesium sulphate sprayed on by hand: June 23. Sprayed with mancozeb at 1.2 lb in 30 gals: July 1, July 26, Aug 8. Sprayed with undiluted BOV at 15 gals: Aug 18. Harvested: Sept 12.
Rye: Deep-tine cultivated: Oct 20, 1966. Seed combine drilled at 150 lb: Oct 26. Crop partially failed, and sprayed with paraquat at 1 lb ion in 33 gals: Feb 7, 1967.
Spring wheat (replacing rye): Drilled at 170 lb: Mar 4, 1967. 'Nitro-Chalk' applied: Mar 20. Combine harvested: Aug 22.
Seeds hay: Seeds undersown in rye at 30 lb: Apr 26, 1966. NPK fertiliser applied: Mar 10, 1967. NK fertiliser applied: June 5. Cut twice: June 1, July 21.
Carrots: Ploughed: Sept 29, 1966. Deep-tine cultivated: Nov 16. Fertilisers applied, and seed drilled at 3.5 lb: Apr 3, 1967. Sprayed with linuron at 1 lb in 40 gals: May 31. Sprayed with demeton-s-methyl (Metasystox at 12 fluid oz in 35 gals): June 9, June 20, July 10. Lifted: Sept 29, Oct 2.

Test crops.

Sugar beet: Dung equivalent K, and half corrective K applied: Oct 28, 1966. Dung applied: Nov 2. Ploughed: Nov 2 - 3. Remaining corrective K, basal muriate of potash, and half basal superphosphate applied: Feb 14, 1967. Remaining basal superphosphate, basal magnesium sulphate, and test 'Nitro-Chalk' applied: Mar 29. Seed drilled at 5 lb: Mar 30. Singled: May 22 - 23. Sprayed with demeton-s-methyl (Metasystox at 12 fluid oz in 30 gals): June 9, July 10. Lifted: Oct 16.

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Barley: Ground chalk applied at 40 cwt: Nov 4, 1966. Ploughed: Nov 5. Balancing muriate of potash, basal superphosphate, and 'Nitro-Chalk' applied: Mar 2, 1967. Seed drilled at 140 lb: Mar 4. Sprayed with ioxynil/mecoprop (Actril C at 5 pints in 35 gals): May 9. Combine harvested: Aug 18 - 21.

Standard errors per plot.

Sugar beet 1/8 plot:	
Roots:	0.878 or 4.7% (9 d.f.)
Total sugar:	2.63 or 4.5% (9 d.f.)
Tops:	1.109 or 7.2% (9 d.f.)
Barley, grain:	
Whole plot:	1.34 or 3.1% (4 d.f.)
1/2 plot:	1.91 or 4.5% (4 d.f.)

https://doi.org/10.23637/ERADOC-1-157

SUMMARY OF RESULTS

TREATMENT CROPS

LEY, SHEEP DAYS OF GRAZING

1st year	2nd year	3rd year
1168	2240	2168

SAINFOIN, DRY MATTER

	1st cut	2nd cut	Total
	1ST YEAR		
1965			
D0	14.8		14.8
D1	15.7		15.7
Lu	12.9		12.9
AR	17.6		17.6
Mean	15.2		15.2
	2ND YEAR		
1964			
D0	23.1	11.7	34.8
D1	22.2	10.0	32.2
Lu	23.2	9.3	32.5
AH	22.0	12.4	34.4
Mean	22.6	10.8	33.4

https://doi.org/10.23637/ERADOC-1-157

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SAINFOIN, DRY MATTER

	1st cut	2nd cut	Total
	3RD YEAR		
1963			
D0	54.6	13.4	68.0
D1	50.6	13.1	63.7
Lu	50.8	11.6	62.4
AH	54.3	14.8	69.1
Mean	52.6	13.2	65.8

https://doi.org/10.23637/ERADOC-1-157

TREATMENT CROPS

	POTATOES		SPRING WHEAT	
	TOTAL TUBERS	% WARE	GRAIN	STRAW
D0	5.38	79.2	28.5	26.4
D1*	6.66	83.8	30.6	27.9
Ley	8.20	81.6	37.4	37.3
Lu	9.64	89.4	31.0	25.4
AH	3.80	81.0	17.6	16.6
AR	2.43	74.0	32.1	29.4
Mean	6.02	81.5	29.6	27.2

HAY

DRY MATTER

	1st cut	2nd cut	Total
1963			
D0	60.9	26.6	87.5
D1*	61.7	24.7	86.4
Ley	62.4	26.7	89.1
AH	60.2	24.6	84.8
Mean	61.3	25.6	86.9

* Dung applied: Potatoes - for test crop sugar beet in 1965
Rye - for test crop sugar beet in 1964
Hay - for test crop sugar beet in 1963

Mean D.M. %: Spring wheat, grain: 81.9
straw: 89.3

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CARROTS

	Roots	Tops
1963		
D0	33.18	10.33
D1*	35.68	9.32
Lu	36.00	9.57
AR	32.86	10.08
Mean	34.43	9.82

* Dung applied for test crop sugar beet in 1963

https://doi.org/10.23637/ERADOC-1-157

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1ST TEST CROP

SUGAR BEET

ROOTS

	N1.	N2	N3	N4	N5	N6
			(±0.621)*			
D0 Ley	17.22	19.66	18.60	19.95	-	-
Sa	17.89	17.30	18.60	18.10	-	-
AH	-	-	19.19	20.58	18.10	19.32
AR	-	16.67	16.92	16.12	17.55	-
D1 Ley	18.94	19.87	19.53	19.66	-	-
Sa	17.93	18.73	18.77	18.65	-	-
AH	-	-	19.99	18.86	20.20	20.84
AR	-	17.85	16.84	18.98	17.89	-

	Ley	Sa	AH	AR	Mean
CON	19.65	17.65	19.93	17.67	18.72
ALT	18.71	18.85	19.34	17.04	18.48
Mean	19.18	18.25	19.64	17.35	18.60

* For use in horizontal and interaction comparisons only.

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1ST TEST CROP

SUGAR BEET

SUGAR %

	N1	N2	N3	N4	N5	N6
DO Ley	16.6	15.9	15.5	15.2	-	-
Sa	16.3	15.8	15.7	15.3	-	-
AH	-	-	16.7	16.4	15.8	15.8
AR	-	16.7	16.9	15.6	15.6	-
D1 Ley	15.9	15.4	15.1	15.0	-	-
Sa	16.1	15.6	15.4	15.2	-	-
AH	-	-	15.7	15.3	15.1	15.1
AR	-	16.3	15.5	15.5	15.3	-

	Ley	Sa	AH	AR	Mean
CON	15.8	15.6	15.7	16.2	15.8
ALT	15.4	15.8	15.8	15.6	15.7
Mean	15.6	15.7	15.7	15.9	15.7

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1ST TEST CROP

SUGAR BEET

TOTAL SUGAR

	N1	N2	N3	N4	N5	N6
			(±1.86)*			
D0 Ley	57.1	62.7	57.8	60.6	-	-
Sa	58.4	54.6	58.4	55.3	-	-
AH	-	-	64.3	67.3	57.3	61.2
AR	-	55.8	57.2	50.4	54.8	-
D1 Ley	60.4	61.4	59.1	58.9	-	-
Sa	57.8	58.5	57.9	56.6	-	-
AH	-	-	62.6	57.7	61.1	62.7
AR	-	58.0	52.2	58.8	54.6	-

	Ley	Sa	AH	AR	Mean
CON	61.8	55.0	62.4	57.1	59.1
ALT	57.6	59.4	61.1	53.3	57.9
Mean	59.7	57.2	61.8	55.2	58.5

* For use in horizontal and interaction comparisons only.

https://doi.org/10.23637/ERADOC-1-157

1ST TEST CROP

SUGAR BEET

TOPS

	N1	N2	N3	N4	N5	N6
			(±0.785)*			
DO Ley	11.79	16.08	17.68	17.93	-	-
Sa	12.21	15.91	15.24	17.43	-	-
AH	-	-	11.87	16.42	16.16	16.25
AR	-	9.34	9.85	13.97	14.90	-
D1 Ley	14.65	16.16	16.75	17.26	-	-
Sa	14.82	16.16	17.85	18.69	-	-
AH	-	-	15.74	15.32	15.66	17.09
AR	-	13.64	16.16	17.68	18.52	-

	Ley	Sa	AH	AR	Mean
CON	15.17	15.22	16.23	13.41	15.01
ALT	16.90	16.86	14.90	15.11	15.94
Mean	16.04	16.04	15.56	14.26	15.47

* For use in horizontal and interaction comparisons only.

https://doi.org/10.23637/ERADOC-1-157

2ND TEST CROP

BARLEY

	Ley	Lu	AH	AR	Mean
1966		GRAIN			
		(1) and (2)			(±0.68)
D0	46.3	45.9	38.2	36.1	41.6
D1	44.4	43.7	43.5	42.5	43.5
Mean (±0.95)	45.3	44.8	40.9	39.2	42.6
1966		STRAW			
D0	45.3	45.0	31.1	35.0	39.1
D1	45.8	49.2	38.7	43.5	44.3
Mean	45.5	47.1	34.9	39.3	41.7

Mean D.M. %: Grain: 83.9
Straw: 89.2

(1) (±1.35) For use in horizontal and diagonal comparisons only.
(2) (±1.35) For use in vertical and interaction comparisons only.

https://doi.org/10.23637/ERADOC-1-157

WOBURN MARKET GARDEN EXPERIMENT

(WMG)

Organic manures, N, P and K - Lansome Field 1967, the seventh year with revised treatments.

For history, past treatments, etc., see 'Details 1967' and 'Results' 63/B/5, 64/B/5, 65/B/5 and 66/B/5.

Area of each sub-plot: carrots - 0.0062, sugar beet - 0.0017. Area harvested: carrots - 0.0007, sugar beet - 0.0016.

Treatment symbols:
FYM: None (D0), 10 (D1), 20 tons (D2).
PK compound (0:20:20): None (P0K0), 1.5 P_2O_5, 1.5 K_2O (P1K1), 3.0 P_2O_5, 3.0 cwt K_2O (P2K2).
Seed: All viable (S1), 3 parts killed, 5 parts viable (S2).
Peat: None (0), 12.5 tons (PT).

Treatments: All combinations of:
Series A (carrots)
FYM plots: Whole plots: FYM: D1, D2 as previously.
PK: P0K0, P1K1 as in 1966.
Half plots: Seed: S1, S2 (to strips of 4 half plots).
Fertiliser plots: Whole plots: PK: P1K1, P2K2 as in 1966.
Half plots: Seed: S1, S2 (to strips of 4 half plots).

NOTE: FYM plots received no N-fertiliser, remainder 0.9 cwt N as 'Nitro-Chalk'.

Series B, microplots, (sugar beet)
FYM plots: Whole plots: PK: P0K0, P1K1 as in 1966.
Half plots: FYM: D0, D1 on old D1 plots, D0, D2 on old D2 plots, as in 1966.
Quarter plots: Nitrogen: None (N0), 0.7 (N1), 1.4 (N2), 2.1 cwt N (N3) as 'Nitro-Chalk'.
Fertiliser plots: Whole plots: PK: P1K1, P2K2 as in 1966.
Half plots: Peat: 0, PT as in 1966.
Quarter plots: Nitrogen: None (N0), 0.7 (N1), 1.4 (N2), 2.1 cwt N (N3) as 'Nitro-chalk', with (N3-N2+N1-N0) on half plots.

https://doi.org/10.23637/ERADOC-1-157

Basal applications: Series A (carrots): Weedkiller: Linuron at 0.5 lb in 40 gals. Insecticide: Demeton-s-methyl 3 oz in 35 gals: June 9, and 3 oz in 30 gals: June 20.
Series B, microplots (sugar beet): Insecticide: Dimethoate at 3 fluid oz in 40 gals.

Cultivations, etc.:-
Carrots Series A: Dung applied, all plots ploughed: Jan 16, 1967. Fertilisers applied: Apr 3. Seed drilled at 3.25 lb: Apr 4. Weedkiller applied: May 31. Insecticide applied: June 9, June 20. Lifted (1st harvest): July 18 - 20. (2nd harvest): Aug 2 - 4. Variety: Early Market.
Sugar beet Series B, microplots: Ground chalk applied at 40 cwt: Jan 13, 1967. PK fertiliser, peat and dung applied, plots dug by hand: Jan 24, 26. N fertiliser applied, seed drilled at 10 lb: Mar 30. Singled: May 23, 24, 25. Insecticide applied: June 9, 23, July 10, 25. Lifted: Oct 13, 16. Variety: Klein E.

NOTE: Soil samples were taken on Oct 5, 16, 1967 for an analysis of the amount of zinc and other heavy metals.

Standard errors per plot.
Carrots.

Marketable roots.	1st harvest:	Whole plots:	1.733 or 42.4%	(6 d.f.)
		1/2 plots:	0.637 or 15.6%	(8 d.f.)
	2nd harvest:	Whole plots:	2.973 or 25.7%	(6 d.f.)
		1/2 plots:	1.550 or 13.4%	(8 d.f.)
	Mean of 2 harvests:	Whole plots:	2.231 or 28.5%	(6 d.f.)
		1/2 plots:	0.974 or 12.4%	(8 d.f.)
Total produce.	1st harvest:	Whole plots:	3.658 or 41.7%	(6 d.f.)
		1/2 plots:	1.170 or 13.3%	(8 d.f.)
	2nd harvest:	Whole plots:	4.639 or 25.5%	(6 d.f.)
		1/2 plots:	2.387 or 13.1%	(8 d.f.)
	Mean of 2 harvests:	Whole plots:	3.905 or 29.0%	(6 d.f.)
		1/2 plots:	1.608 or 11.9%	(8 d.f.)

https://doi.org/10.23637/ERADOC-1-157

67/B/5.3

SUMMARY OF RESULTS

CARROTS

MARKETABLE ROOTS

DUNG PLOTS

Dung Organic manure applied	10 D1	20 D2	10 C1	20 C2	D1+C1	D2+C2	Mean
			1ST HARVEST				
		(±0.866)			(±0.613)		
Mean	2.31	4.89	3.50	5.67	2.90	5.28	4.09
		(±1.225)			(±0.866)		(±0.613)
POKO	2.57	5.04	3.51	5.79	3.04	5.42	4.23
P1K1	2.05	4.73	3.48	5.55	2.77	5.14	3.95
		(1) and (2)			(3) and (4)		(±0.159)
S1	2.17	5.46	3.40	6.03	2.79	5.75	4.27
S2	2.45	4.31	3.59	5.30	3.02	4.81	3.91

(1) (±0.895) (3) (±1.266) For use in vertical and interaction comparisons
(2) (±0.318) (4) (±0.225) For use in horizontal and diagonal comparisons

https://doi.org/10.23637/ERADOC-1-157

67/B/5.4

CARROTS

MARKETABLE ROOTS

DUNG PLOTS

Dung Organic manure applied	10 D1	20 D2	10 C1	20 C2	D1+C1	D2+C2	Mean
			2ND HARVEST				
			(±1.487)		(±1.051)		
Mean	8.47	13.57	10.03	14.17	9.25	13.87	11.56
			(±2.102)		(±1.487)		(±1.051)
POKO	8.82	13.74	10.47	14.79	9.64	14.27	11.96
P1K1	8.11	13.40	9.59	13.55	8.85	13.47	11.16
			(1) and (2)		(3) and (4)		(±0.388)
S1	9.37	13.76	10.34	14.73	9.85	14.25	12.05
S2	7.57	13.38	9.72	13.61	8.64	13.49	11.07

(1) (±1.584) (3) (±2.241) For use in vertical and interaction comparisons
(2) (±0.775) (4) (±0.548) For use in horizontal and diagonal comparisons

https://doi.org/10.23637/ERADOC-1-157

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CARROTS

MARKETABLE ROOTS

DUNG PLOTS

Dung Organic manure applied	10 D1	20 D2	10 C1	20 C2	D1+C1	D2+C2	Mean
		MEAN OF 2 HARVESTS					
		(±1.116)			(±0.789)		
Mean	5.39	9.23	6.76	9.92	6.08	9.57	7.82
		(±1.578)			(±1.116)		(±0.789)
POKO	5.69	9.39	6.99	10.29	6.34	9.84	8.09
P1K1	5.08	9.07	6.53	9.55	5.81	9.31	7.56
		(1) and (2)			(3) and (4)		(±0.244)
S1	6.52	10.15	6.12	9.84	6.32	10.00	8.16
S2	6.16	9.53	5.50	8.77	5.83	9.15	7.49

(1) (±1.168) (3) (±1.651) For use in vertical and interaction comparisons
(2) (±0.487) (4) (±0.344) For use in horizontal and diagonal comparisons

https://doi.org/10.23637/ERADOC-1-157

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CARROTS

TOTAL PRODUCE

DUNG PLOTS

Dung / Organic manure applied	10 D1	20 D2	10 C1	20 C2	D1+C1	D2+C2	Mean
			1ST HARVEST				
		(±1.829)			(±1.293)		
Mean	4.97	10.88	7.30	11.92	6.14	11.40	8.77
		(±2.587)			(±1.829)		(±1.293)
P0K0	5.45	11.27	7.56	12.26	6.50	11.77	9.14
P1K1	4.50	10.48	7.03	11.57	5.77	11.03	8.40
		(1) and (2)			(3) and (4)		(±0.292)
S1	5.00	11.82	7.27	12.87	6.14	12.35	9.24
S2	4.94	9.93	7.33	10.96	6.14	10.45	8.29

(1) (±1.875) (3) (±2.652) For use in vertical and interaction comparisons
(2) (±0.585) (4) (±0.414) For use in horizontal and diagonal comparisons

https://doi.org/10.23637/ERADOC-1-157

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CARROTS

TOTAL PRODUCE

DUNG PLOTS

Dung Organic manure applied	10 D1	20 D2	10 C1	20 C2	D1+C1	D2+C2	Mean
			2ND HARVEST				
			(±2.320)			(±1.640)	
Mean	13.34	21.36	15.87	22.18	14.60	21.77	18.19
			(±3.280)			(±2.320)	(±1.640)
P0K0	13.85	21.35	16.53	23.36	15.19	22.36	18.77
P1K1	12.84	21.37	15.20	21.01	14.02	21.19	17.60
			(1) and (2)			(3) and (4)	(±0.597)
S1	14.62	21.78	16.34	23.20	15.48	22.49	18.99
S2	12.06	20.94	15.39	21.16	13.73	21.05	17.39

(1) (±2.468) (3) (±3.491) For use in vertical and interaction comparisons
(2) (±1.194) (4) (±0.844) For use in horizontal and diagonal comparisons

https://doi.org/10.23637/ERADOC-1-157

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CARROTS

TOTAL PRODUCE

DUNG PLOTS

Dung Organic manure applied	10 D1	20 D2	10 C1	20 C2	D1+C1	D2+C2	Mean
	MEAN OF 2 HARVESTS						
	(±1.953)				(±1.381)		
Mean	9.16	16.12	11.58	17.05	10.37	16.58	13.48
	(±2.761)				(±1.953)		(±1.381)
POKO	9.65	16.31	12.04	17.81	10.85	17.06	13.95
P1K1	8.67	15.93	11.12	16.29	9.89	16.11	13.00
	(1) and (2)				(3) and (4)		(±0.402)
S1	9.81	16.80	11.80	18.04	10.81	17.42	14.11
S2	8.50	15.44	11.36	16.06	9.93	15.75	12.84

(1) (±2.034) (3) (±2.876) For use in vertical and interaction comparisons
(2) (±0.804) (4) (±0.569) For use in horizontal and diagonal comparisons

https://doi.org/10.23637/ERADOC-1-157

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CARROTS

MARKETABLE ROOTS

NO ORGANIC PLOTS

	S1	S2	Mean
	1ST HARVEST		
	(1) and (2)		(±0.858)
P1K1	2.79	2.50	2.64
P2K2	2.72	2.32	2.52
Mean (±0.135)	2.76	2.41	2.58

(1) (±0.890) For use in vertical and interaction comparisons
(2) (±0.332) For use in horizontal and diagonal comparisons

2ND HARVEST

	(1) and (2)		(±1.513)
P1K1	10.86	8.55	9.70
P2K2	6.47	7.27	6.87
Mean (±0.340)	8.66	7.91	8.29

(1) (±1.623) For use in vertical and interaction comparisons
(2) (±0.833) For use in horizontal and diagonal comparisons

https://doi.org/10.23637/ERADOC-1-157

67/B/5.10

CARROTS

MARKETABLE ROOTS

NO ORGANIC PLOTS

	S1	S2	Mean
	MEAN OF 2 HARVESTS (1) and (2)		(±1.127)
P1K1	6.82	5.53	6.17
P2K2	4.60	4.79	4.70
Mean (±0.218)	5.71	5.16	5.44

(1) (±1.188) For use in vertical and interaction comparisons
(2) (±0.533) For use in horizontal and diagonal comparisons

https://doi.org/10.23637/ERADOC-1-157

67/B/5.11

CARROTS

TOTAL PRODUCE

NO ORGANIC PLOTS

	S1	S2	Mean
	1ST HARVEST		
	(1) and (2)		(±1.869)
P1K1	5.47	4.78	5.13
P2K2	6.00	4.99	5.49
Mean (±0.284)	5.74	4.88	5.31

(1) (±1.933) For use in vertical and interaction comparisons
(2) (±0.696) For use in horizontal and diagonal comparisons

2ND HARVEST

	(1) and (2)		(±2.441)
P1K1	16.52	13.08	14.80
P2K2	10.30	11.25	10.77
Mean (±0.529)	13.41	12.16	12.79

(1) (±2.607) For use in vertical and interaction comparisons
(2) (±1.296) For use in horizontal and diagonal comparisons

https://doi.org/10.23637/ERADOC-1-157

67/B/5.12

CARROTS

TOTAL PRODUCE

NO ORGANIC PLOTS

	S1	S2	Mean
	MEAN OF 2 HARVESTS (1) and (2)		(±2.053)
P1K1	11.00	8.93	9.96
P2K2	8.15	8.12	8.13
Mean (±0.364)	9.58	8.52	9.05

(1) (±2.148) For use in vertical and interaction comparisons
(2) (±0.892) For use in horizontal and diagonal comparisons

https://doi.org/10.23637/ERADOC-1-157

67/B/5.13

SUGAR BEET

FERTILISER PLOTS

	N0	N1	N2	N3	0	PT	Mean
			CLEAN BEET				
P1K1	8.23	13.96	14.03	15.28	11.84	13.91	12.88
P2K2	10.90	16.45	17.63	17.42	15.15	16.05	15.60
Mean	9.56	15.21	15.83	16.35	13.50	14.98	14.24
0	9.19	13.64	15.42	15.74			
PT	9.94	16.78	16.24	16.95			
			SUGAR %				
P1K1	15.1	16.0	15.7	15.3	15.4	15.7	15.6
P2K2	15.8	16.3	16.2	15.4	16.0	15.9	15.9
Mean	15.5	16.1	16.0	15.4	15.7	15.8	15.7
0	15.4	16.2	15.8	15.3			
PT	15.6	16.0	16.1	15.5			
			TOTAL SUGAR				
P1K1	25.1	44.7	44.3	46.8	36.6	43.9	40.2
P2K2	34.5	53.3	57.0	53.8	48.4	50.9	49.6
Mean	29.8	49.0	50.7	50.3	42.5	47.4	44.9
0	28.7	44.2	49.0	48.1			
PT	30.9	53.8	52.4	52.5			

https://doi.org/10.23637/ERADOC-1-157

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SUGAR BEET

FERTILISER PLOTS

	N0	N1	N2	N3	0	PT	Mean
			TOPS				
P1K1	6.70	10.40	13.00	14.85	11.11	11.36	11.24
P2K2	8.16	12.89	14.57	18.88	12.96	14.28	13.62
Mean	7.43	11.65	13.78	16.86	12.04	12.82	12.43
0	6.87	10.86	13.61	16.81			
PT	7.98	12.43	13.96	16.92			
			PLANT NUMBER				
P1K1	30.5	30.6	30.0	29.4	30.3	29.9	30.1
P2K2	30.6	31.0	29.8	31.6	30.8	30.7	30.8
Mean	30.6	30.8	29.9	30.5	30.6	30.3	30.4
0	31.1	30.3	30.0	30.8			
PT	30.0	31.3	29.8	30.2			

https://doi.org/10.23637/ERADOC-1-157

67/B/5.15

SUGAR BEET

DUNG PLOTS

	D1	D2	D1R	D2R	Mean
			CLEAN BEET		
Mean	17.31	20.48	15.44	17.97	17.80
F00	16.73	19.92	14.13	16.64	16.86
F11	17.89	21.04	16.75	19.30	18.74
N0	15.13	18.85	12.08	15.63	15.42
N1	18.21	20.26	15.77	18.28	18.13
N2	17.91	21.63	16.71	19.33	18.89
N3	18.00	21.18	17.19	18.64	18.75
			SUGAR %		
Mean	15.5	15.2	15.6	15.5	15.5
F00	15.5	15.2	15.4	15.3	15.3
F11	15.5	15.2	15.9	15.8	15.6
N0	16.0	15.9	15.6	15.3	15.7
N1	15.5	15.3	16.4	16.0	15.8
N2	15.5	15.2	15.4	15.6	15.4
N3	14.9	14.5	15.1	15.2	14.9
			TOTAL SUGAR		
Mean	53.4	62.3	48.2	55.9	54.9
F00	51.7	60.8	43.4	50.9	51.7
F11	55.0	63.8	53.0	60.9	58.2
N0	48.3	59.7	37.9	48.0	48.5
N1	56.4	62.0	51.3	58.5	57.1
N2	55.3	65.6	51.5	60.6	58.3
N3	53.4	61.9	52.0	56.4	55.9

https://doi.org/10.23637/ERADOC-1-157

67/B/5.16

SUGAR BEET

DUNG PLOTS

	D1	D2	D1R	D2R	Mean
			TOPS		
Mean	14.46	20.28	11.90	15.64	15.57
F00	14.39	19.98	11.37	15.35	15.27
F11	14.53	20.59	12.43	15.92	15.87
N0	10.65	16.41	7.72	11.72	11.63
N1	14.63	20.84	10.16	14.28	14.98
N2	14.14	19.90	13.85	17.21	16.28
N3	18.41	23.97	15.85	19.34	19.39
			PLANT NUMBER		
Mean	30.0	30.5	31.0	31.8	30.8
F00	30.3	30.2	30.7	32.0	30.8
F11	29.7	30.7	31.3	31.5	30.8
N0	30.1	30.2	32.5	31.7	31.1
N1	29.6	31.1	30.4	32.5	30.9
N2	30.7	30.9	29.6	31.1	30.6
N3	29.6	29.8	31.7	31.8	30.7

67/B/6.1

RESIDUAL PHOSPHATE ROTATION

(RP)

The long term and residual effects of phosphate fertilisers - Great Field IV and Sawyers I, revised 1967, the 8th year.

For treatments and results 1960 - 1965, see 'Details 1967'.

Design: Great Field IV: 1 randomised block of 12 plots per crop.
Sawyers I: 2 randomised blocks of 12 plots per crop.

Rotation: Potatoes, barley, swedes (Barley 1967 followed potatoes 1965 - whole area fallow in 1966).

Area of each plot:
Great Field IV: 0.0193. Area harvested: Potatoes and barley - 0.0129, swedes - 0.0096.
Sawyers I: 0.0212. Area harvested: Potatoes and barley - 0.0141, swedes - 0.0106.

Treatments, (cwt P205):

1st and 2nd Crop rotations 1960 - 65. All superphosphate as granular superphosphate

3rd and 4th Crop rotations 1967 - 72. All treatments as granular superphosphate 24.4% P205

Material and crop year applied	Total P205	Old Symbol	When applied	Total P205	New Symbol
None	0	(1)	None	0	(0)
Superphosphate annually	1.5	(2)	Annually	1.5	(A1)
Superphosphate annually	3.0	(3)	Annually	3.0	(A2)
Nitrophosphate I 1960	3.0	(6)	Annually	6.0*	(A3)
Nitrophosphate II 1960	3.0	(7)	Annually	9.0*	(A4)
Superphosphate in 1962,1965	1.5	(4)	1969, 1972	1.5	(T1)
Superphosphate in 1962,1965	3.0	(5)	1969, 1972	3.0	(T2)
Nitrophosphate III 1960	3.0	(8)	1967	3.0*	(R2)
Basic slag 1960	3.0	(10)	1967	6.0*	(R3)
Potassium metaphosphate 1960	3.0	(11)	1967	9.0*	(R4)
Gafsa in 1960	3.0	(9)	None	0	(G1)
Superphosphate in 1960	3.0	(12)	None	0	(S1)

* Allocated at random to old treatments 6 7 8 10 11 within each block.

https://doi.org/10.23637/ERADOC-1-157

Basal applications: Broadcast in spring before sowing or planting:
N as 'Nitro-Chalk':
To potatoes: 1.2 cwt, to swedes: 0.5 cwt, to barley (Sawyers I only): 0.6 cwt.
K2O as sulphate of potash:-
To potatoes: 1.5 cwt, to barley: 1.0 cwt, to swedes: 1.0 cwt.

Varieties: Potatoes - Majestic, barley - Maris Badger, swedes - Wilhelmsburger.

Cultivations, etc. (both fields): Ploughed: Great Field IV - Dec 8, 1965 - Jan 4, 1966, Sawyers I - Jan 7. Rotary cultivated: May 19. Granular superphosphate applied (treatments R2, R3 and R4): 1st half dressing - June 9, 2nd half dressing - Sept 9. Ploughed: Sept 15, 1966. Ground chalk applied at 23 cwt: Dec 28, 1966 - Jan 2, 1967.

Potatoes: Fertilisers applied: Apr 13, 1967. Plots rotary cultivated, potatoes planted: Apr 17. Sprayed with paraquat at 0.5 lb ion and linuron at 0.75 lb in 37 gals: May 18. Sprayed four times with mancozeb at 1.2 lb in 30 gals: June 29, July 20, Aug 4, Aug 24. Sprayed with undiluted BOV at 15 gals: Sept 7. Haulm destroyed mechanically: Sept 15. Lifted: Sept 19.
Barley: Fertilisers applied: Feb 8, 1967. Seed drilled at 140 lb: Mar 6. 'Nitro-Chalk' applied: Mar 21. Sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in 30 gals): May 12. Combine harvested: Aug 22.
Swedes: Fertilisers applied: May 10, 1967. Seed drilled at 1.25 lb: May 11. Singled: June 14. Lifted: Nov 10.

Standard errors per plot.
Sawyers I

Potatoes, Total tubers:	0.724 or 4.9% (11 d.f.)
Barley, Grain:	3.18 or 8.2% (11 d.f.)
Swedes:	0.935 or 7.5% (11 d.f.)

https://doi.org/10.23637/ERADOC-1-157

SUMMARY OF RESULTS

POTATOES

Treat-ment	TOTAL TUBERS Great Field IV Mean	TOTAL TUBERS Sawyers I Mean	PERCENTAGE WARE Great Field IV Mean	PERCENTAGE WARE Sawyers I Mean
		(±0.512)		
0	15.73	14.04	97.2	97.7
A1	16.28	13.68	97.1	96.4
A2	17.77	14.30	96.3	97.2
A3	18.02	14.67	96.5	96.9
A4	19.40	15.20	97.4	96.7
T1	15.33	13.56	97.7	97.0
T2	16.96	14.27	97.9	97.4
R2	17.79	16.17	95.9	97.3
R3	20.32	16.62	96.9	95.7
R4	20.75	17.51	96.4	96.6
G1	16.36	13.09	98.8	96.9
S1	16.52	14.52	98.3	97.6
Mean	17.60	14.80	97.2	96.9

BARLEY

	GRAIN		STRAW	
		(±2.25)		
0	17.3	25.7	17.3	14.4
A1	34.9	39.9	23.8	27.1
A2	33.4	39.4	25.7	25.4
A3	32.4	40.5	25.5	26.1
A4	23.6	44.0	19.1	30.4
T1	25.5	34.2	16.1	21.5
T2	35.6	39.6	24.9	22.6
R2	36.1	38.0	29.5	26.0
R3	21.2	48.8	18.5	34.9
R4	39.4	43.9	27.2	31.0
G1	28.8	37.3	22.1	23.4
S1	37.6	37.2	26.0	20.8
Mean	30.5	39.0	23.0	25.3
Mean D.M. %:	82.2	84.5	83.8	90.7

https://doi.org/10.23637/ERADOC-1-157

67/B/6.4

SWEDES, ROOTS

Treat -ment	Great Field IV Mean	Sawyers I Mean
		(±0.661)
0	6.53	6.73
A1	10.28	11.18
A2	14.86	12.59
A3	15.83	14.33
A4	15.28	14.12
T1	11.39	8.27
T2	13.98	13.85
R2	16.02	16.37
R3	16.85	17.89
R4	16.99	17.40
G1	9.08	8.57
S1	11.53	8.73
Mean	13.22	12.50

https://doi.org/10.23637/ERADOC-1-157

67/B/7.1

CULTIVATION - WEEDKILLER ROTATION

(CW)

Great Harpenden 1967 - the 7th year

A comparison of weed-control by various cultivation methods and by pre-emergence weedkillers.

For previous history, rotations, treatments etc., see 'Results' 61/B/10, 62/B/10, 63/B/10, 64/B/9, 65/B/8, 66/B/7.

Area harvested: Beans - 0.0100, wheat, potatoes and barley - 0.0107.

Revised basal dressings:-
Potatoes: 10 cwt (13:13:20).
Spring wheat: 3 cwt (25:10:10).
Barley: 3 cwt (25:10:10).
Wheat and barley: Basal post-emergence weedkiller was applied in 1967, the test of none v. weedkiller being omitted because of unusually large quantities of weeds.

NOTE: After the potato crop of 1966 all plots were spring-tine cultivated twice in autumn and once in spring. The resulting tilth on the A and B plots (which had had no other cultivation) was considered adequate and no other cultivations were done before sowing barley.

Cultivations, etc.:-
Spring beans: T plots deep-tine cultivated, depth 3-4 ins: Nov 5, 1966. T plots deep-tine cultivated, depth 5-6 ins: Nov 11. P and C plots ploughed: Nov 15. R plots rotary cultivated, depth 6 ins: Nov 17. B plots sprayed with paraquat at 0.75 lb ion in 40 gals: Nov 21. B plots deep-tine cultivated, depth 4-5 ins: Nov 29. P, C and T plots spring-tine cultivated: Mar 4, 1967. P, C, T and B plots spring-tine cultivated: Mar 7. A plots rotary cultivated, seed drilled at 200 lb, S plots sprayed: Mar 8. M and C plots tractor-hoed twice: May 2 and June 2. Sprayed with demeton-s-methyl (Metasystox at 12 fluid oz in 37 gals): June 13 and July 7 (the second spray to edges of blocks only). Sprayed by aircraft with demeton-s-methyl (Metasystox at 12 fluid oz in 3 gals): July 11. Combine harvested: Sept 1. Variety: Tarvin.
Spring wheat: Sprayed with aminotriazole at 4 lb and ammonium thiocyanate at 3.7 lb in 40 gals: Sept 19, 1966. T plots deep-tine cultivated, depth 3-4 ins: Nov 5, 1966. T plots deep-tine cultivated, depth 5-6 ins: Nov 12. P and C plots ploughed: Nov 14. R plots rotary cultivated, depth 6 ins: Nov 17. Plots spring-tine cultivated - B plots: Nov 29, P, T, C and B plots: Mar 3, 1967, P and C plots: Mar 7, P, T, R and C plots: Mar 15. A plots rotary cultivated, seed drilled at 175 lb:

Mar 15. All plots rolled: Apr 18. All plots sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in 30 gals): May 12. Combine harvested: Aug 24. Variety: Kloka.

Potatoes: T plots deep-tine cultivated, depth 3-4 ins: Nov 5, 1966. T plots deep-tine cultivated, depth 5-6 ins: Nov 12. P and C plots ploughed: Nov 14. R plots rotary cultivated: Nov 18. P, T and C plots deep-tine cultivated: Mar 20, 1967. Basal compound fertiliser applied: Mar 22. P, T and C plots spring-tine cultivated twice: Mar 29 and Apr 3. R, A and B plots rotary cultivated, potatoes machine planted: Apr 4. Ridges rolled: Apr 28. S plots sprayed: May 9. M and C plots grubbed: May 12. M plots mechanically weeded twice: May 13. C plots mechanically weeded twice: May 19. M and C plots grubbed: June 14. All plots sprayed with mancozeb at 1.2 lb in 30 gals: June 29. M, C and Y plots rotary ridged: June 30. All plots sprayed three times with mancozeb at 1.2 lb in 30 gals: July 20, Aug 4, Aug 24. Sprayed with undiluted BOV at 15 gals: Sept 6. Haulm destroyed mechanically: Sept 13. Lifted: Sept 14. Variety: Pentland Dell.

Barley: All plots sprayed with sodium trichloroacetate at 18 lb in 40 gals: Oct 22, 1966. All plots spring-tine cultivated: Nov 1. All plots sprayed with sodium trichloroacetate at 18 lb in 40 gals: Nov 21. All plots spring-tine cultivated: Nov 29. T plots deep-tine cultivated, first stroke at 20 , second at 40 , depth 6-7 ins, P and C plots ploughed: Jan 17, 1967. R plots rotary cultivated, depth 6 ins: Feb 6. All plots spring-tine cultivated: Mar 4. P, T and C plots spring-tine cultivated, seed drilled at 140 lb: Mar 6. All plots rolled: Apr 18. All plots sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in 30 gals): May 12. Combine harvested: Aug 21. Variety: Maris Badger.

Standard errors per whole plot.

Spring beans.	Grain:	2.93 or 9.6% (8 d.f.)
Wheat.	Grain:	6.22 or 15.7% (8 d.f.)
Potatoes.	Total tubers:	1.887 or 13.7% (8 d.f.)
Barley.	Grain:	1.94 or 4.2% (8 d.f.)

https://doi.org/10.23637/ERADOC-1-157

67/B/7.3

SUMMARY OF RESULTS

	P	R	T	Mean
SPRING BEANS				
GRAIN				
Mean (±1.20)	32.5	29.7	29.9	30.7
M (±2.08)	33.1	28.8	29.8	30.6 (±1.20)
S (±1.47)	32.2	30.1	30.0	30.8 (±0.85)
	A		B	C
	32.9		31.9	30.6

General mean: 31.0

Mean D.M. %: 81.6

SPRING WHEAT				
GRAIN				
Mean (±2.54)	37.5	41.6	40.1	39.7
M (±4.40)	34.6	39.2	41.0	38.3 (±2.54)
S (±3.11)	38.9	42.8	39.6	40.5 (±1.80)
	A		B	C
	42.4		45.8	43.6

General mean: 40.8

Mean D.M.%: 82.2

https://doi.org/10.23637/ERADOC-1-157

	P	R	T	Mean
POTATOES				
TOTAL TUBERS				
Mean (±0.770)	14.76	13.35	13.11	13.74
		(±1.334)		(±0.770)
M	14.38	12.09	11.20	12.56
S	13.89	14.23	14.45	14.19
SY	16.00	13.73	13.68	14.47
		A	B	C
		15.50	14.50	12.23

General mean: 13.82

% WARE				
Mean	97.7	96.5	96.2	96.8
M	97.9	97.2	96.8	97.3
S	97.4	96.5	94.2	96.1
SY	97.9	95.8	97.6	97.1
		A	B	C
		97.4	96.1	97.5

General mean: 96.8

https://doi.org/10.23637/ERADOC-1-157

67/B/7.5

BARLEY

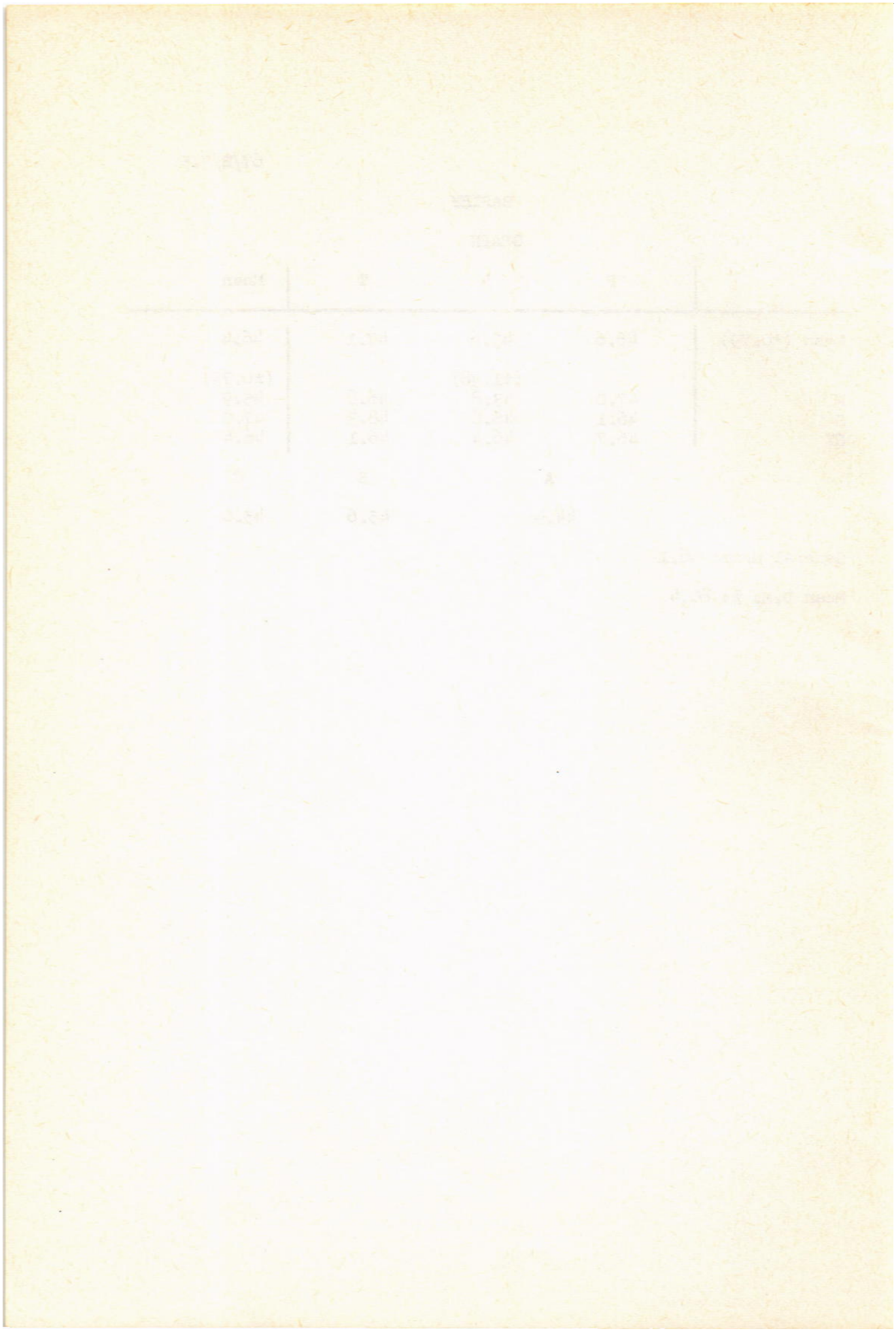
GRAIN

	P	R	T	Mean
Mean (±0.79)	46.6	45.6	47.1	46.4
		(±1.38)		(±0.79)
M	47.0	43.8	46.8	45.9
S	46.1	46.6	48.3	47.0
SY	46.7	46.4	46.1	46.4
		A	B	C
		44.4	45.6	45.0

General mean: 46.1

Mean D.M. %: 80.4

https://doi.org/10.23637/ERADOC-1-157



CULTIVATION - WEEDKILLER ROTATION

(WCW)

A comparison of weed control by various cultivation methods and by a pre-emergence weedkiller - Woburn Great Hill I and II 1967, the eighth year.

For history, rotation, treatments etc., to barley, see 'Results' 60/B/11, 61/B/11, 62/B/11, 63/B/11, 64/B/10, 65/B/9 and 66/B/8.

Area of each plot: 0.0482. Area harvested: Potatoes - 0.0107, barley - 0.0227.

Potatoes.
Treatments: All combinations of:-

1. Primary cultivations: Ploughed (P), rotary cultivated (R), deep-tine cultivated (T).
2. Weedkiller: None, normal cultivations (M), linuron at 0.25 lb, plus paraquat at 0.75 lb ion in 50 gals (S).

NOTE: Weeds grew very vigorously and so all plots were rotary-ridged, except plot 36 where the haulm was exceptionally large and would have been damaged.

Basal applications:
Barley: 340 lb (20:10:10) combine drilled. Weedkiller: Ioxynil/mecoprop (Actril C at 5 pints in 25 gals).
Potatoes: 10 cwt (17:11:22). Weedkiller: Dalapon at 9 lb in 33 gals. Fungicide: Mancozeb at 1.2 lb in 30 gals. Fentin acetate at 4.2 oz plus maneb at 1.4 oz in 30 gals. Haulm destroyer: Undiluted BOV at 15 gals.

Cultivations, etc.:
Potatoes: Weedkiller applied: Oct 7, 1966. Ground chalk applied at 40 cwt: Nov 3. T plots deep-tine cultivated (two strokes): Nov 15. P plots ploughed: Nov 15-16. R plots rotary cultivated: Nov 21. P and T plots spring-tine cultivated, and basal NPK applied: Mar 20, 1967. P and T plots spring-tine cultivated (twice): Mar 22. R plots rotary cultivated, potatoes machine planted: Mar 23. M plots harrowed: Apr 20. M plots re-ridged: Apr 28. S plots sprayed with weedkiller: May 3. M plots earthed up: May 10. All plots (except plot 36) rotary ridged:

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June 9. Sprayed fungicide: July 1 and July 26. Sprayed haulm destroyer: Aug 22. Lifted: Sept 21. Variety: Maris Piper.

Barley: Ground chalk applied at 40 cwt: Nov 3, 1966. T plots deep-tine cultivated (two strokes), and P plots ploughed: Nov 15. R plots rotary cultivated: Nov 21. All plots spring-tine cultivated: Feb 15, 1967. 'Nitro-Chalk' applied: Feb 16. Seed combine drilled at 140 lb: Mar 3. Sprayed weedkiller: Apr 28. Combine harvested: Aug 18. Variety: Maris Badger.

Standard errors per plot.

Potatoes, total tubers:	1.371 or 32.9%	(8 d.f.)
Barley, grain:	1.73 or 6.0%	(8 d.f.)

67/B/8.3

SUMMARY OF RESULTS

POTATOES

	M	S	Mean
	TOTAL TUBERS		
	(±0.970)	(±0.685)	(±0.560)
P	4.67	4.30	4.42
R	3.84	4.51	4.29
T	3.33	4.01	3.79
Mean (±0.560)	3.95	4.28	4.17
	% WARE		
P	80.5	82.5	81.8
R	79.3	81.4	80.7
T	77.6	83.5	81.5
Mean	79.1	82.5	81.4

https://doi.org/10.23637/ERADOC-1-157

67/B/8.4

BARLEY

GRAIN

	N1	N2	N3	Mean
		(±1.23)		(±0.71)
P	26.1	29.0	30.1	28.4
R	26.5	29.3	34.1	29.9
T	24.1	29.1	32.0	28.4
Mean (±0.71)	25.6	29.1	32.0	28.9

Mean D.M. %: 83.7

INTENSIVE CEREALS

(WIC)

Woburn Stackyard Classical Site 1967 - the second year

For treatments and previous years' results, see 'Results' 66/B/9.

Crop sequence symbols

	Year									
	66	67	68	69	70	71	72	73	74	75
C1	L	P	W	W	W	L	P	W	W	W
C2	P	W	W	W	L	P	W	W	W	L
C3	W	W	W	L	P	W	W	W	L	P
C4	W	W	L	P	W	W	W	L	P	W
C5	W	L	P	W	W	W	L	P	W	W
C6	W	W	W	W	W	W	W	W	W	W

Area of each sub plot: 0.0103. Area harvested: Ley - 0.0022, wheat and barley - 0.0066, potatoes - 0.0069.

Basal applications:
All crops: 1.0 cwt P2O5, 2.0 cwt K2O, half ploughed in, half worked into the seedbed.
Potatoes: 1.2 cwt N as 'Nitro-Chalk'.
Ley: 0.4 cwt N as 'Nitro-Chalk'.

Cultivations, etc.:
All plots: Half basal PK applied, ploughed: Sept 14, 1966.
Ley: Remaining basal PK applied, seed sown at 29 lb: Sept 16. 'Nitro-Chalk' applied: Mar 17, 1967. Cut three times for hay: June 1, July 13, Sept 12.
Potatoes: Remaining basal PK, and 'Nitro-Chalk' applied: Mar 17, 1967. Potatoes planted: Mar 22. Earthed up: June 10. Sprayed with mancozeb at 1.2 lb in 30 gals: July 1, July 26, Aug 8. Sprayed with fentin acetate at 4.2 oz plus maneb at 1.4 oz in 30 gals: Aug 21. Sprayed with undiluted BOV at 15 gals: Sept 6. Lifted: Sept 12. Variety: Majestic.
Wheat: Remaining PK applied: Oct 21. Seed drilled at 210 lb: Oct 26. 'Nitro-Chalk' applied: Apr 14, 1967. Sprayed with ioxynil/mecoprop (Actril C at 6 pints in 25 gals): Apr 27. Combine harvested: Aug 22. Variety: Cappelle.
Barley: Remaining PK applied, and seed drilled at 140 lb: Mar 4, 1967. 'Nitro-Chalk' applied: Mar 17. Sprayed with ioxynil/mecoprop (Actril C at 6 pints in 25 gals): Apr 27. Combine harvested: Aug 18. Variety: Maris Badger.

https://doi.org/10.23637/ERADOC-1-157

NOTES: (1) Estimates of eyespot (Cercosporella herpotrichoides) and take-all (Ophiobolus graminis) were made in May and June on barley and in April and July on wheat.

(2) Leaf samples of potato and wheat were taken in June for mineral analysis. N P and K levels were normal while Mn levels were high and Ca and Mg were low.

Standard errors per plot. Grain:
Wheat sub plot: 6.76 or 18.6% (12 d.f.)
Barley sub plot: 2.57 or 6.5% (12 d.f.)

https://doi.org/10.23637/ERADOC-1-157

67/B/9.3

SUMMARY OF RESULTS

LEY (C5)

PERMANENT WHEAT BLOCK

N1	N2	N3	N4	Mean
		1ST CUT		
37.3	40.5	47.0	46.5	42.8
		2ND CUT		
5.7	6.4	7.5	10.7	7.5
		3RD CUT		
12.7	10.8	12.4	10.3	11.5
		TOTAL OF 3 CUTS		
55.7	57.7	66.8	67.5	61.9

Mean D.M. %: 1st cut: 22.5
2nd cut: 28.7
3rd cut: 25.3
Total of 3 cuts: 25.5

https://doi.org/10.23637/ERADOC-1-157

67/B/9.4

LEY

PERMANENT BARLEY BLOCK

N1	N2	N3	N4	Mean
		1ST CUT		
49.6	51.8	59.3	54.7	53.9
		2ND CUT		
8.7	8.3	10.6	10.1	9.4
		3RD CUT		
11.8	10.3	10.0	10.6	10.7
		TOTAL OF 3 CUTS		
70.1	70.5	80.0	75.3	74.0

Mean D.M. %: 1st cut: 22.8
2nd cut: 28.6
3rd cut: 25.2
Total of 3 cuts: 25.6

67/B/9.5

POTATOES

	Permanent wheat block	Permanent barley block
Total tubers	5.16	10.60
% ware	89.1	92.3

WHEAT (C2, C3, C4, C6)

	N1	N2	N3	N4	Mean
		(±4.78)*			[illegible]
C2	39.0	50.5	48.3	53.2	47.7
C3	26.7	33.4	45.6	36.3	35.5
C4	23.4	33.7	28.3	39.2	31.1
C6	24.2	28.5	38.6	32.7	31.0
Mean (±2.39)	28.3	36.5	40.2	40.4	36.3

Mean D.M. %: 84.5

BARLEY (C2, C3, C4, C6)

	N1	N2	N3	N4	Mean
		(±1.81)*			[illegible]
C2	32.8	44.4	45.8	39.7	40.7
C3	31.9	42.9	41.2	39.0	38.8
C4	30.8	44.6	43.3	40.6	39.8
C6	30.2	39.1	41.9	41.4	38.1
Mean (±0.91)	31.4	42.7	43.0	40.2	39.3

Mgan D.M. %: 84.4

* For use in horizontal and interaction comparisons

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