ROTHAMSTED RESEARCH

Yields of the Field Experiments 1965

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Annual Experiments

Rothamsted Research

Rothamsted Research (1966) *Annual Experiments ;* Yields Of The Field Experiments 1965, pp 239 - 282 **- DOI: https://doi.org/10.23637/ERADOC-1-159**

65/Da/2.1

WINTER AND SPRING WHEAT

(RW 201)

Varieties and nitrogen - Long Hoos IV 1965.

Design: 4 randomised blocks of 12 plots each, with 6 winter and 6 spring wheat plots in separate sub-blocks.

Area of each plot: 0.0192. Area harvested: 0.0129.

Treatments: All combinations of:-

1. Varieties: Winter wheat:- Cappelle (C), Rothwell Perdix (R). Seed rate 175 lb.
   Spring wheat:- Kloka (K), Opal (O). Seed rate 188 lb.
2. Nitrogen: 0.5 (N1), 0.75 (N2), 1.00 cwt (N3) N as 'Nitro-Chalk'.

Basal applications:

Winter wheat: 280 lb (6:15:15) combine drilled Mecoprop/2,4-D (Methoxone Extra at 7 pints in 40 gals).
Spring wheat: 210 lb (0:20:20) combine drilled Mecoprop/2,4-D (Methoxone Extra at 6 pints in 40 gals).

Cultivations, etc.: Chisel ploughed: Sept 23, 1964. Winter wheat drilled: Oct 22. Spring wheat drilled: Mar 30, 1965. 'Nitro-Chalk' applied: Spring wheat - Apr 2, winter wheat - Apr 13. Winter wheat sprayed: May 6. Spring wheat sprayed: May 13. Combine harvested: Sept 20. Previous crops: Winter wheat 1963, potatoes 1964.

Standard errors per plot. Grain:

Winter wheat: 2.25 or 6.7% (15 d.f.)
Spring wheat: 2.92 or 9.0% (15 d.f.)

https://doi.org/10.23637/ERADOC-1-159

SUMMARY OF RESULTS

GRAIN

WINTER WHEAT

	N1	N2	N3	Mean
		(±1.12)		(±0.65)
C	34.9	34.2	31.6	33.6
R	33.7	32.0	35.1	33.6
Mean (±0.79)	34.3	33.1	33.4	33.6

Mean D.M. %: 79.4

SPRING WHEAT

		(±1.46)		(±0.84)
K	34.2	33.9	35.4	34.5
O	32.3	28.0	29.9	30.1
Mean (±1.03)	33.3	31.0	32.7	32.3

Mean D.M. %: 79.7

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65/Da/3.1

WINTER WHEAT

(RW 401 and WW 101)

Row spacing, seed rates and N - Rothamsted (R) Whittlocks and Woburn (W) Broadmead III 1965.

Design: 4 randomised blocks of 8 plots, split into 3 for N.

Area of each sub plot: 0.0045.

Treatments: All combinations of:-

Whole plots:

1. Row spacing etc.:
   - Seed broadcast, autumn fertiliser** broadcast (B)
   - Seed drilled, 4 inch rows, autumn fertiliser broadcast (C)
   - Seed drilled, 7 inch rows, autumn fertiliser broadcast (W)
   - Seed drilled, 7 inch rows, with autumn fertiliser combine drilled. (W*)
2. Seed rates:
   - Whittlocks (R): 128 lb (L), 236 lb (H)
   - Broadmead I (W): 139 lb (L), 231 lb (H).

Sub plots:

3. Nitrogen: 0.4 (N1), 0.8 (N2), 1.2 (N3) cwt N as 'Nitro-Chalk' broadcast in spring.

** (6:15:15) to all plots - rate 330 lb.

Basal application: Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 7 pints in 40 gals).

Cultivations, etc.:-

Whittlocks (R): Chisel ploughed: Oct 5, 1964. Seed sown, autumn fertiliser applied: Oct 27. 'Nitro-Chalk' applied: Apr 14, 1965. Sprayed: Apr 30. Combine harvested: Sept 14. Variety: Cappelle. Previous crops: Spring wheat 1963, potatoes 1964.

Broadmead III (W): Chisel ploughed: Oct 17, 1964. Autumn fertiliser applied, seed sown: Oct 23. 'Nitro-Chalk' applied: Apr 7. Sprayed: May 6. Combine harvested: Sept 15. Variety: Cappelle. Previous crops: Barley 1963, potatoes 1964.

NOTE: Whittlocks (R)

(1) Plant counts were made on Mar 18, 1965.

(2) Owing to a fault in the combine harvester the yields from two adjacent sub plots (WL N2 and WL N3) were bulked. Estimated yields were used in the analysis.

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Standard errors per plot. Grain:
Whittlocks (R) Whole plot: 2.24 or 5.6% (20 d.f.)
Sub plot: 2.13 or 5.3% (47 d.f.)
Broadmead III (W) Whole plot: 2.07 or 5.5% (21 d.f.)
Sub plot: 5.80 or 15.4% (48 d.f.)

SUMMARY OF RESULTS

GRAIN

ROTHAMSTED

	B	C	W	W*	Mean
		(±1.12)			(±0.56)
L	44.3	42.7	44.0	42.8	43.5
H	37.6	36.4	35.2	36.7	36.5
		(1) and (2)			(±0.38)
N1	44.6	44.1	42.9	43.7	43.8
N2	39.4	39.2	39.9	40.2	39.7
N3	38.8	35.3	36.1	35.4	36.4
Mean (±0.79)	40.9	39.6	39.6	39.8	40.0

	L	H
	(3) and (4)	
N1	46.4	41.2
N2	43.6	35.8
N3	40.4	32.5

Mean D.M. %: 78.5

(1) ±0.75 (3) ±0.53 For use in vertical and interaction comparisons.
(2) ±1.00 (4) ±0.71 For use in horizontal and diagonal comparisons.

https://doi.org/10.23637/ERADOC-1-159

65/Da/3.3

GRAIN

WOBURN

	B	C	W	W*	Mean
		(±1.04)			(±0.52)
L	42.4	38.9	37.8	39.8	39.7
H	38.0	35.5	35.3	34.1	35.7
		(1) and (2)			(±1.03)
N1	45.3	39.0	39.3	39.8	40.8
N2	40.0	37.8	39.4	35.3	38.1
N3	35.3	34.7	31.0	35.8	34.2
Mean (±0.73)	40.2	37.2	36.6	37.0	37.7

	L	H
	(3) and (4)	
N1	41.6	40.1
N2	41.1	35.1
N3	36.4	32.0

Mean D.M. %: 80.7

(1) ±2.05 (3) ±1.45 For use in vertical and interaction comparisons.
(2) ±1.83 (4) ±1.29 For use in horizontal and diagonal comparisons.

https://doi.org/10.23637/ERADOC-1-159

65/Da/1

WINTER WHEAT

(RW 301)

Varieties and nitrogen - Highfield Drive 1965.

Design: 4 randomised blocks of 6 plots each.

Area of each plot: 0.0145. Area harvested: 0.0094.

Treatments. All combinations of:-
1. Varieties: Cappelle (C), Rothwell Perdix (R).
2. Nitrogen: 0.5 (N1), 0.75 (N2), 1.00 (N3) cwt N as 'Nitro-Chalk'.

Basal applications: 280 lb (6: 15: 15) combine drilled Mecoprop/2,4-D (Methoxone Extra at 7 pints in 40 gals).

Cultivations, etc.: Ploughed: Oct 16, 1964. Seed drilled at 175 lb: Oct 22. 'Nitro-Chalk' applied: Apr 13, 1965. Sprayed: Apr 30. Combine harvested: Aug 26. Previous crops: Winter wheat 1963, barley 1964.

NOTE: All plots were severely damaged by birds shortly before harvest.

Standard error per plot.
Grain: 3.27 or 14.1% (15 d.f.)

SUMMARY OF RESULTS

GRAIN

	N1	N2	N3	Mean
		(±1.63)		(±0.94)
C	22.5	24.1	23.9	23.5
R	22.5	22.6	23.4	22.8
Mean (±1.16)	22.5	23.3	23.6	23.2

Mean D.M. %: 75.2

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65/Da/4.1

WINTER WHEAT

(RW 501)

Spun seed and cultivations, Whittlocks 1965.

Design: 4 randomised blocks of 3 plots, split into 2 for seed rate (unrandomised).

Area of each sub-plot: 0.0103. Area harvested: 0.0068.

Treatments: All combinations of:-

1. Seedbed cultivations: Harrow, sow, harrow (S), sow, spring-tine cultivate, harrow (P), sow, harrow (R).
2. Seed rates: 220 (L), 280 lb (H) broadcast across plots by spinner.

Basal applications: 310 lb (6:15:15) applied by spinner before sowing, 0.84 cwt N as 'Nitro-Chalk' top-dressed in spring. Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 7 pints in 40 gals).

Cultivations, etc.: Chisel ploughed: Oct 5, 1964. Spring-tine cultivated: Oct 22. Basal NPK applied, S plots harrowed, seed sown, P plots spring-tine cultivated, all plots harrowed: Oct 28. All plots harrowed: Apr 7, 1965. 'Nitro-Chalk' applied: Apr 21. Sprayed: Apr 30. Combine harvested: Sept 14. Variety: Cappelle. Previous crops: Spring wheat 1963, potatoes 1964.

Standard errors per plot. Grain:

Whole plot: 2.85 or 8.0% (6 d.f.)
Sub plot: 3.01 or 8.5% (9 d.f.)

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65/Da/4.2

SUMMARY OF RESULTS

GRAIN

	S	P	R	Mean
	(1) and (2)			
L	40.3	36.5	37.1	38.0
H	34.4	31.7	32.5	32.8
Mean (±1.42)	37.3	34.1	34.8	35.4

Mean D.M. %: 80.0

(1) (±1.78) For use in horizontal comparisons only

(2) (±1.51) For use in interaction comparisons only

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65/Da/5.1

WINTER WHEAT

(BG 1)

Sowing dates and bulb fly, Stackyard 1965.

Design: 4 randomised blocks of 3 plots, split into 2 for covering to prevent egg-laying (unrandomised).

Area of each sub plot: 0.0096. Area harvested: 0.0064.

Treatments: All combinations of:-
Whole plots: 1. Sowing dates: Oct 27 (E), Nov 25 (M), Dec 22 (L).
Sub plots: 2. Not covered (O), covered with polythene sheet July to mid-September (C).

Basal applications: 280 lb (6:15:15) combine drilled, 0.8 cwt N as 'Nitro-Chalk' top-dressed in spring, 25 cwt ground chalk. Seed dressed with organo-mercury fungicide only. Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 7 pints in 40 gals).

Cultivations, etc.: Ploughed: June 18, 1964. Chisel ploughed twice: Oct 13. Ground chalk applied at 25 cwt: Oct 26. 'Nitro-Chalk' applied: Apr 14, 1965. Sprayed: May 6. Combine harvested: Sept 13. Variety: Cappelle. Previous crops: Barley and Kale 1963, bare fallow 1964.

NOTE: Samples were taken from late February until mid-May to estimate numbers of plants, shoots, larvae, damaged shoots and damaged larvae. Samples were taken just before harvest and ear number, grain weight, 100 grain weights and straw weights were recorded. Counts of straws were made in samples taken after harvest.

Standard errors per plot. Grain:
Whole plot: 3.44 or 9.3% (6 d.f.)
Sub plot: 4.90 or 13.2% (9 d.f.)

SUMMARY OF RESULTS

GRAIN

	E	M	L	Mean
		(1) and (2)		
O	38.5	36.5	30.3	35.1
C	36.3	42.4	38.7	39.2
Mean (±1.72)	37.4	39.4	34.5	37.1

(1) (±2.44) For use in horizontal comparisons only
(2) (±2.45) For use in interaction comparisons only

Mean D.M.%: 74.8

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65/Da/6.1

SPRING WHEAT

(RW 601)

Effects of CCC - Long Hoos VI 1965.

Design: 2 x 2 x 2 x 2 in 6 blocks of 8 plots plus 2 extra plots per block, each complete block being a half replicate.

Area of each plot: 0.0184. Area harvested: 0.0007.

Treatments: All combinations of:-
1. CCC* in spray at 40 gals: None (O), 2.5 lb (S).
2. Row spacing: Rows 4 (C), 8 in. (W) apart.
3. Seed rate: 180 (L), 360 lb (H).
4. Nitrogen: 0.5 (N1), 1.0 cwt (N2) N as 'Nitro-Chalk'.

In addition the experiment included 4 extra treatments (2 per block), - CWLN4, SWLN4, CWHN4, SWHN4, where N4 represents 2.0 cwt N as 'Nitro-Chalk'.

* 2-chloroethyltrimethylammonium chloride - a dwarfing compound.

NOTE: (1) A wetter was included in the CCC spray.

Basal applications: 2 cwt (0:20:20) broadcast. Weedkiller: 1.12 lb MCPA and 0.08 lb dicamba in 40 gals.

Cultivations, etc.: Ploughed: Nov 6, 1964. Basal PK compound applied: Mar 30, 1965. Seed drilled, 'Nitro-Chalk' applied: Mar 31. Weedkiller applied, CCC spray applied: May 20. Yields estimated by sampling: Sept 9. Combine harvested: Sept 19. Variety: Opal. Previous crops: Winter wheat 1963, oats 1964.

NOTE: (2) Samples were taken for growth analysis at 5 leaf stage, then 3 weeks later, and at ear emergence and then fortnightly until harvest.

Standard error per plot.
Grain: 3.41 or 11.5% (32 d.f.)

65/Da/6.2

SUMMARY OF RESULTS

GRAIN

Excluding N4 Plots

	C	W	L	H	N1	N2	Mean
	(±0.98)						(±0.70)
O	29.9	28.9	31.1	27.8	26.4	32.5	29.4
S	30.0	28.6	30.3	28.3	25.5	33.1	29.3
		C	31.4	28.4	26.6	33.2	29.9
		W	29.9	27.6	25.2	32.4	28.8
				L	27.0	34.4	30.7
				H	24.9	31.2	28.0
Mean	(±0.70)				25.9	32.8	29.4

N4 Plots

	L	H	Mean
	(±1.97)		(±1.39)
O	34.6	30.8	32.7
S	31.1	27.2	29.2
Mean (±1.39)	32.9	29.0	30.9

Mean D.M. %: 86.9

General mean: 29.7

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65/Db/1.1

BARLEY

(RB 101 and WB 101)

Row spacing, seed rates and N - Rothamsted (R) Great Knott II and Woburn (W) Horsepool 1965.

Design: 4 randomised blocks of 8 plots, split into 3 for N.

Area of each sub plot: Great Knott II (R): 0.0051.
Area harvested: 0.0051.
Horsepool (W): 0.0045.
Area harvested: 0.0045.

Treatments: All combinations of:-
Whole plots:
1. Row spacing etc.:
   - Seed broadcast, PK** broadcast (B)
   - Seed drilled, 4 inch rows, PK broadcast (C)
   - Seed drilled, 7 inch rows, PK broadcast (W)
   - Seed drilled, 7 inch rows, with PK combine drilled (W*)
2. Seed rates: 112 lb (L), 224 lb (H).

Sub plots:
3. Nitrogen: 0.4 (N1), 0.7 (N2), 1.0 (N3) cwt N as 'Nitro-Chalk'.

** (0:20:20) to all plots - rate 224 lb.

Basal applications: Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints, in 34 gals on Great Knott II (R), in 40 gals on Horsepool (W)).

Cultivations, etc.:
Great Knott II (R): Ploughed: Nov 10 - 21, 1964. Seed sown, fertilisers applied: Mar 29, 1965. Sprayed: May 13. Combine harvested: Sept 1. Variety: Maris Badger. Previous crops: Potatoes 1963, winter wheat 1964.
Horsepool (W): Ground chalk applied at 36 cwt: Oct 14, 1964. Ploughed: Nov 18. Fertilisers applied, seed sown: Mar 15, 1965. Sprayed: May 10. Combine harvested: Sept 20. Variety: Maris Badger. Previous crops: Potatoes 1963, winter wheat 1964.

NOTE: Emergence counts were made on Apr 29, 1965 on Great Knott II (R).

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Standard errors per plot. Grain:
Great Knott II (R): Whole plot: 1.73 or 3.9% (21 d.f.)
Sub plot: 2.12 or 4.8% (48 d.f.)
Horsepool (W): Whole plot: 2.49 or 5.1% (21 d.f.)
Sub plot: 3.58 or 7.3% (48 d.f.)

SUMMARY OF RESULTS

GRAIN

ROTHAMSTED

	B	C	W	W*	Mean
			(±0.87)		(±0.43)
L	37.6	46.6	46.1	45.9	44.1
H	42.5	46.6	44.6	46.7	45.1
			(1) and (2)		(±0.38)
N1	41.6	48.0	47.9	48.9	46.6
N2	39.9	46.7	44.6	45.9	44.3
N3	38.7	45.0	43.7	44.1	42.9
Mean (±0.61)	40.1	46.6	45.4	46.3	44.6

	L	H
	(3) and (4)	
N1	46.3	46.9
N2	43.5	45.1
N3	42.4	43.3

Mean D.M. %: 74.7

(1) ±0.75 For use in vertical and interaction comparisons.
(2) ±0.87 For use in horizontal and diagonal comparisons.
(3) ±0.53 For use in vertical and interaction comparisons.
(4) ±0.61 For use in horizontal and diagonal comparisons.

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65/Db/1.3

GRAIN

WOBURN

	B	C	W	W*	Mean
		(±1.25)			(±0.62)
L	49.2	52.1	50.8	49.7	50.5
H	49.9	47.7	45.6	46.2	47.3
		(1) and (2)			(±0.63)
N1	51.0	51.3	49.9	49.0	50.3
N2	50.2	49.8	49.6	48.9	49.6
N3	47.4	48.6	45.1	46.0	46.8
Mean (±0.88)	49.5	49.9	48.2	48.0	48.9

	L	H
	(3) and (4)	
N1	51.9	48.8
N2	52.3	46.9
N3	47.2	46.3

Mean D.M. %: 78.1

(1) ±1.26 For use in vertical and interaction comparisons.
(2) ±1.36 For use in horizontal and diagonal comparisons.
(3) ±0.89 For use in vertical and interaction comparisons.
(4) ±0.96 For use in horizontal and diagonal comparisons.

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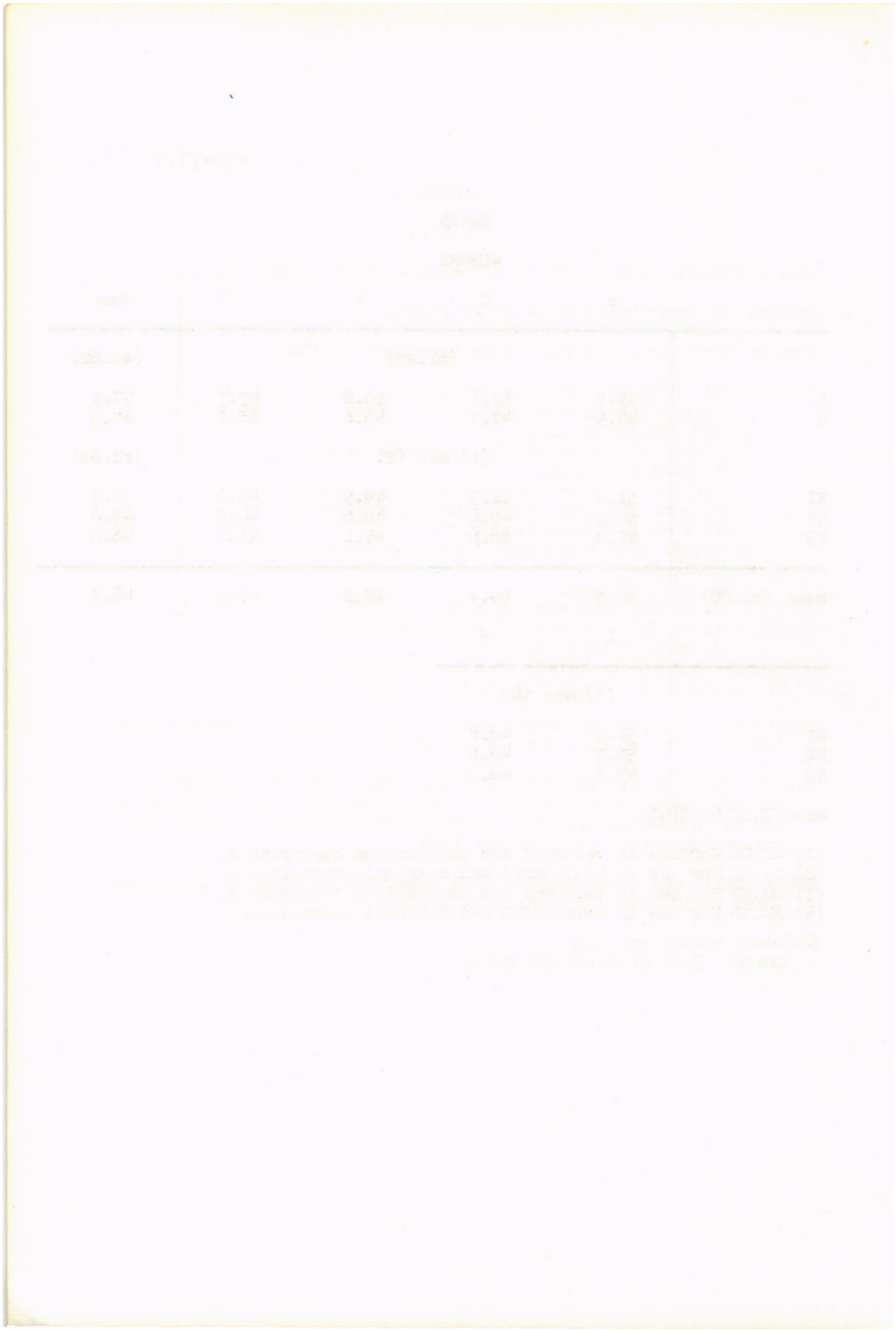

65/Db/2.1

BARLEY

(WB 201)

Urea concentrations in NPK fertilisers - Woburn Great Hill S.W. 1965.

Design: 2 randomised blocks of 20 plots.

Area of each plot: 0.0055. Area harvested: 0.0042.

Treatments: None (0) (4 plots per block) and all combinations of:-

1. Compound fertilisers (all in the proportion N:P2O5:K2O of 2:1:1) combine drilled:-
   Compounds with P as triple superphosphate:-
   - P, N as 100% urea.
   - Q, N as 66% urea and 33% ammonium nitrate.
   - R, N as 33% urea and 66% ammonium nitrate.
   - S, N as 100% ammonium nitrate.

   Compounds with P and part N as monourea phosphate, remaining N as follows:-
   - T, as 100% urea.
   - U, as 66% urea and 33% ammonium nitrate.
   - V, as 33% urea and 66% ammonium nitrate.
   - W, as 100% ammonium nitrate.

   K as muriate of potash in all compounds.
2. Levels: To supply 0.5 (L1), 1.0 (L2) cwt N.

Basal applications: Manures: None. Weedkiller: dichlorprop/MCPA (Cornox RK Extra at 6 pints in 50 gals).

Cultivations, etc.: Ploughed: Nov 27, 1964. Rotary cultivated: Mar 12, 1965. Seed drilled at 140 lb: Mar 15. Sprayed: May 10. Combine harvested: Aug 25. Variety: Maris Badger. Previous crops: Sugar beet 1963, barley 1964.

NOTE: Grain and straw samples were taken for yield and N percentage. Grain yields also were taken at harvest.

Standard errors per plot.
Grain: 3.91 or 10.7% (21 d.f.)

https://doi.org/10.23637/ERADOC-1-159

SUMMARY OF RESULTS

GRAIN

	P	Q	R	S	T	U	V	W	Mean
				(±2.77)					(±0.98)
L1	41.9	39.1	40.7	41.4	37.7	38.3	40.6	33.9	39.2
L2	42.0	43.5	41.6	46.3	38.0	40.5	42.3	42.9	42.2
Mean (±1.96)	42.0	41.3	41.1	43.8	37.9	39.4	41.5	38.4	40.7

Plots receiving no fertiliser: 19.6 (±1.38)

General mean: 36.5

Mean D.M. %: 75.5

https://doi.org/10.23637/ERADOC-1-159

65/Dc/1

WINTER BEANS

(RBe 101)

Row spacing, seed rates, methods of fertiliser application and irrigation - Long Hoos V 1965.

Design: A single replicate of 4 x 2 x 2 x 2 x 2 in 8 blocks of 8 plots. Irrigation on one group of 4 blocks.

Area of each plot: 0.0172.

Treatments: All combinations of:-

Blocks: 1. Irrigation: None, 1.3 ins. water.

Plots: 2. Row spacing: 10.5 ins. (C), 21 ins. (W).
3. Seed rates: 275 lb (L), 412 lb (H).
4. Fertiliser rates: 400 (F1), 560 (F2) lb compound 0:20:20, 500 (N1), 700 (N2) lb 6:15:15.
5. Methods of fertiliser application: Broadcast (B), placed (P).

Basal applications: Manures: None. Simazine at 0.5 lb in 40 gals on 2 occasions.

Cultivations, etc.: Ploughed: Oct 15, 1964. Seed drilled, fertilisers applied: Nov 2. Sprayed: Nov 6, 1964 and Mar 15, 1965. Irrigated: June 2. Combine harvested: Sept 28. Variety: Garton's Pedigree. Previous crops: Winter and spring wheat 1963, barley 1964.

NOTE: The crop was severely attacked by Black Fly (Aphis fabae) and by Chocolate Spot (Botrytis cinerea). The experiment was therefore abandoned and no yields were taken.

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65/Dd/1

POTATOES

(RP 101)

Effects of DSA (dimethylamino-succinamic acid - a dwarfing compound) - Highfield odds and ends III 1965.

Design: A single replicate of 3 x 6 in 6 blocks of 3 plots each.

Area of each plot: 0.0096. Area harvested: 0.0011.

Treatments: All combinations of:-

Blocks: 1. Seed tuber size: 45-50, 50-60, 60-70, 70-80, 80-90, 90 and more grams. Setts hand planted at 15 inches apart within the row.

Plots: 2. DSA: None (S0), 47 oz in 290 gals (S1), 235 oz in 290 gals (S5), applied twice June 17 and July 1.

Basal applications: 7 cwt (17:11:22). Fungicide: Mancozeb at 1.2 lb in 37 gals on 4 occasions. Weedkiller: Linuron at 2lb and paraquat at 0.75 lb ion in 40 gals.

Cultivations, etc.: Ploughed: Oct 16, 1964. Basal NPK applied: Apr 14, 1965. Rotary cultivated: Apr 23. Potatoes planted: Apr 26. Sprayed, weedkiller: June 17, fungicide: June 30, July 27, Aug 9, Aug 13. Lifted: Oct 25. Variety: Majestic. Previous crops: Oats 1963, barley 1964.

NOTE: The crop was sampled on 4 occasions for leaf area, dry weights and tuber yield. ✓

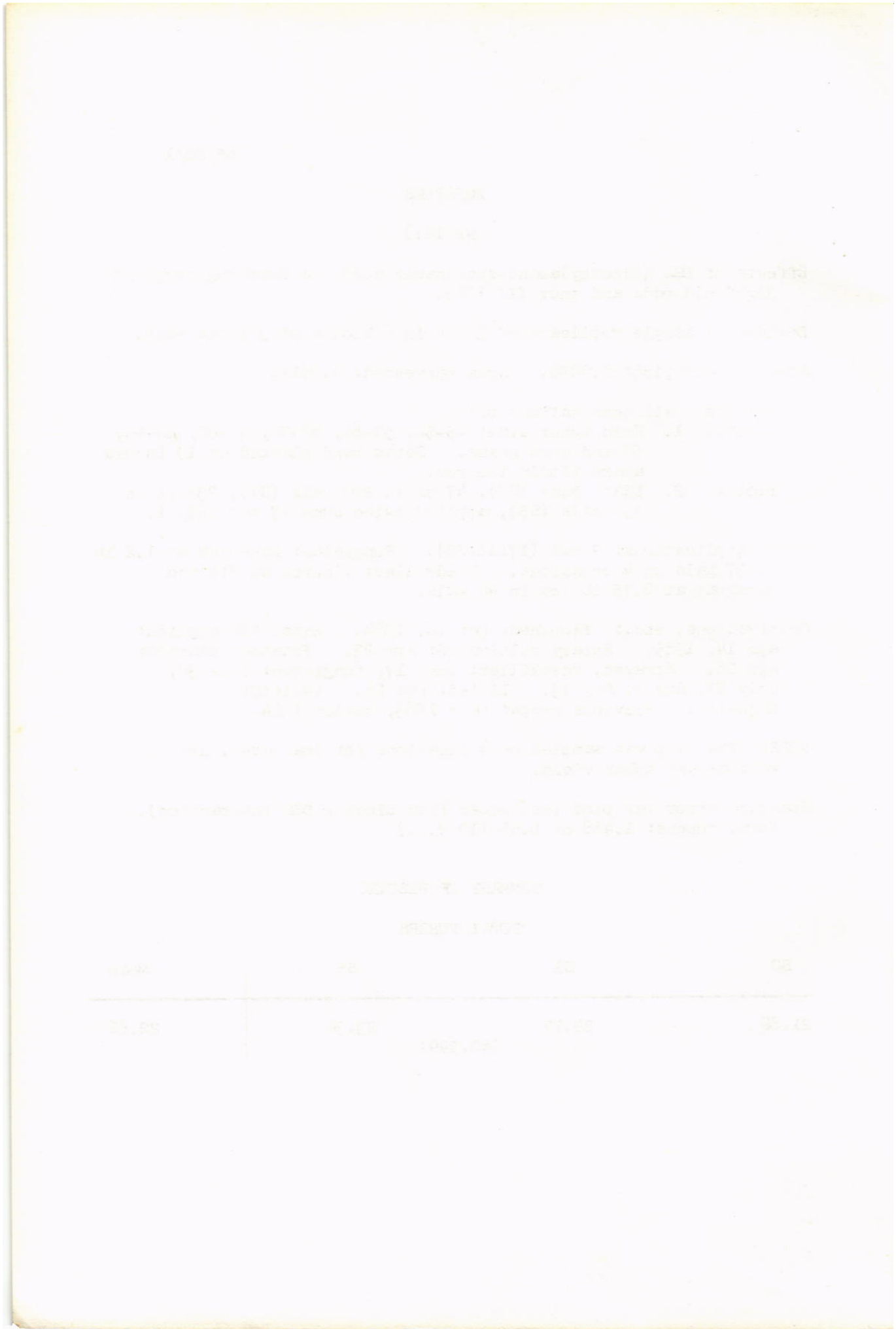
Standard error per plot (estimated from Block x DSA interaction). Total tubers: 1.468 or 6.5% (10 d.f.)

SUMMARY OF RESULTS

TOTAL TUBERS

S0	S1	S5	Mean
21.88	22.77 (±0.599)	23.34	22.66

https://doi.org/10.23637/ERADOC-1-159



65/Dd/2.1

POTATOES

(RP 201)

Effects of gaps - Great Knott I 1965.

Design: 4 randomised blocks of 15 plots each.

Area of each plot: 0.0071. Area harvested: 0.0033.

Treatments: All combinations of:-
1. Time of gapping: At emergence on May 20 (E), just after flowering on July 1 (F), just before harvest on Sept 10 (H).
2. Amount of gapping: None (G0), 4 (G4), 8 (G8), 12 (G12), 16% (G16) of plants removed.

Basal applications: 8 tons dung, 7 cwt (17:11:22).
Fungicide: Mancozeb at 1.2 lb in 37 gals on 4 occasions.

Cultivations, etc.: Dung applied and ploughed in: Nov 20, 1964. Basal NPK applied: Apr 7, 1965. All plots rotary cultivated, potatoes planted: Apr 13. Earthed up: June 14. Sprayed: June 28, July 21, July 27, Aug 9. Sprayed with undiluted BOV at 15 gals: Sept 2. Lifted: Oct 18. Variety: Majestic. Previous crops: Winter and spring wheat 1963, barley 1964.

Standard error per plot.
Total tubers: 2.091 or 10.8% (44 d.f.)

https://doi.org/10.23637/ERADOC-1-159

65/Dd/2.2

SUMMARY OF RESULTS

	G0	G4	G8	G12	G16	Mean
			TOTAL TUBERS			
			(±1.046)			(±0.523)
E		20.75	19.26	20.17	20.81	20.25
F		18.72	20.22	17.64	18.85	18.86
H		19.33	19.16	17.41	17.10	18.25
Mean (±0.604)	20.05	19.60	19.55	18.41	18.92	19.30
			% WARE			
E		96.1	96.3	96.4	96.5	96.3
F		95.9	96.4	95.4	95.7	95.8
H		96.4	96.4	95.7	95.8	96.1
Mean	95.9	96.2	96.4	95.9	96.0	96.1

https://doi.org/10.23637/ERADOC-1-159

65/Dd/3.1

POTATOES

(RP 301)

Effects of skin-spot (Oospora pustulans) - Fosters odds and ends I 1965.

Design: 5 randomised blocks of 2 plots split into 4 for infection.

Area of each plot: 0.0033.

Treatments: All combinations of:-
Whole plots: 1. Varieties: King Edward (E), Majestic (M).
Sub plots: 2. Infection of seed (Oospora pustulans): Clean (A), moderate (B), severe (C), inoculated (D).

Basal applications: 7 cwt (17:11:22). Fungicide: Mancozeb at 1.2 lb in 37 gals on 4 occasions.

Cultivations, etc.: Ploughed: Oct 12, 1964. Basal NPK applied, all plots rotary cultivated, potatoes planted: Apr 13, 1965. Earthed up: June 14. Sprayed: June 29, July 14, July 26, Aug 9. Sprayed with undiluted BCV at 15 gals: Sept 2. Lifted: Oct 18. Previous crops: Italian Ryegrass 1963, barley 1964.

NOTE: Emergence counts were made on May 24 and June 9. Samples of tubers were taken at lifting to estimate the number of infected buds.

Standard errors per plot. Total tubers:
Whole plot: 0.678 or 3.8% (4 d.f.)
Sub plot: 2.218 or 12.4% (24 d.f.)

https://doi.org/10.23637/ERADOC-1-159

65/Dd/3.2

SUMMARY OF RESULTS

	A	B	C	D	Mean
	TOTAL TUBERS				
	(1) and (2)				(±0.303)
E	19.60	19.06	13.65	19.05	17.84
M	19.37	20.19	15.79	16.28	17.91
Mean (±0.701)	19.49	19.63	14.72	17.67	17.88
	% WARE				
E	95.8	95.4	95.7	96.2	95.8
M	97.0	97.3	97.3	97.9	97.4
Mean	96.4	96.3	96.5	97.1	96.6

(1) (±0.911) For use in vertical and diagonal comparisons
(2) (±0.992) For use in horizontal and interaction comparisons

https://doi.org/10.23637/ERADOC-1-159

65/Dd/4.1

POTATOES

(RP 401)

Effects of stem-canker (Rhizoctonia solani) - Fosters odds and ends II 1965.

Design: 5 blocks of 2 plots split into 4 for infection.

Area of each plot: 0.0033.

Treatments: All combinations of:-
Whole plots: 1. Varieties: King Edward (E), Majestic (M).
Sub plots: 2. Infection of seed with Rhizoctonia solani: Clean (A), moderate (B), severe (C), inoculated (D).

Basal applications: 7 cwt (17:11:22). Fungicide: Mancozeb at 1.2 lb in 37 gals on 4 occasions.

Cultivations, etc.: Ploughed: Oct 16 - Nov 24, 1964. Basal NPK applied, all plots rotary cultivated, potatoes planted: Apr 13, 1965. Earthed up: June 14. Sprayed: June 28, July 14, July 26, Aug 9. Sprayed with undiluted BOV at 15 gals: Sept 2. Lifted: Oct 19. Previous crops: Alsike and white clover 1963, barley 1964.

NOTE: Emergence counts were made on May 29 and June 9, and a count of the number of plants infected with Corticium solani on July 9. Tubers were examined macroscopically at harvest for surface infection, and the number of buds infected was estimated.

Standard errors per plot. Total tubers:
Whole plot: 0.896 or 5.1% (4 d.f.)
Sub plot: 1.446 or 8.2% (24 d.f.)

https://doi.org/10.23637/ERADOC-1-159

65/Dd/4.2

SUMMARY OF RESULTS

	A	B	C	D	Mean
	TOTAL TUBERS				
	(1) and (2)				(±0.401)
E	18.89	17.99	17.32	19.93	18.53
M	18.04	18.23	18.02	12.91	16.80
Mean (±0.457)	18.46	18.11	17.67	16.42	17.66
	% WARE				
E	95.3	95.0	93.0	96.3	94.9
M	97.4	97.6	97.2	97.2	97.4
Mean	96.4	96.3	95.1	96.8	96.1

(1) (±0.689) For use in vertical and diagonal comparisons
(2) (±0.647) For use in horizonal and interaction comparisons

https://doi.org/10.23637/ERADOC-1-159

65/Dd/5.1

POTATOES

(RP 501)

Times of burning off haulm - Great Knott I 1965.

Design: 4 randomised blocks of 14 plots (11 for yield).

Area of each plot: 0.0424. Area harvested: 0.0141.

Treatments:

Fungicide sprays* and times of application	Times of burning off**	
None (O)	None (O)	
Early 4 (E+)	None (O)	
Early 3 (E)	(A)	
Early 4 (E+)	(A)	
Late 3 (L)	(A)	
Early 3 (E)	(B)	
Early 4 (E+)	(B)	
Late 3 (L)	(B)	
Late 4 (L+)	(B)	(see below)
Early 4 (E+)	(C)	
Early 4 (E+) (Sprayed with insecticide***)	(I) (B)	

Each block also contained 3 plots for sampling (no yields). Of these 12 plots 6 were treated as OO and 6 as E+O. The early burning off (A) took place when the mean destruction by blight of the remaining tops on the E+O yield plots (50% was already dead) was 4.7%, the second burning off at 15% (50% senility), the third at 29% (55% senility). The first fungicide sprays were applied before the Ministry of Agriculture's blight warning.

NOTE: The final fungicide spray was not applied because blight on the haulm had already reached the stage for acid destruction, therefore L + B = LB.

* 1.2 lb mancozeb in 34 gals.
** With undiluted BOV at 15 gals.
*** Menazon (Saphicol at 0.25 lb in 34 gals).

Basal applications: 8 tons dung, 7 cwt (17:11:22).

Cultivations, etc.: Dung applied, all plots ploughed: Nov 20, 1964. Fertiliser applied: Apr 7, 1965. Rotary cultivated, potatoes machine planted: Apr 8. Earthed up: June 14. First spraying with mancozeb (E,E+): June 28. Menazon spray applied and second spraying with mancozeb (E,E+,L,L+): July 14. Third spraying with

mancozeb (E,E+,L,L+): July 26, fourth (E+,L,L+): Aug 9. A plots sprayed with BOV: Aug 13, B plots: Aug 19, C plots: Sept 2. Lifted: Oct 13. Variety: King Edward. Previous crops: Spring wheat 1963, barley 1964.

NOTE: Destruction of foliage was assessed at weekly intervals from the blight outbreak until total destruction. Periodic samples were taken from the sample plots for weights of tubers and blight assessment in tubers.

Standard error per plot.
Total tubers: 1.226 or 7.0% (31 d.f.)

SUMMARY OF RESULTS

		Total tubers	% ware
		(±0.613)	
O	O	16.04	94.8
E+	O	19.57	96.6
E	A	16.11	94.8
E+	A	16.55	96.1
L	A	16.90	95.0
E	B	17.39	95.5
E+	B	17.42	95.9
L	B	17.20 (±0.434)	95.3
E+	C	18.51	96.0
E+I	B	18.49	95.3
Mean		17.40	95.5

https://doi.org/10.23637/ERADOC-1-159

65/Dd/6.1

POTATOES

(RP 701)

Control of blight (Phytophthora infestans) by copper and tin fungicides - Long Hoos III 1965.

Design: 6 x 6 Latin square.

Area of each plot: 0.0129. Area harvested: 0.0077.

Treatments: No fungicide (0)
Commercial copper oxychloride wettable powder at 2.5 lb Cu (1)
Copper oxychloride at 2.5 lb Cu with 10 lb wax (2)
Fentin acetate at 0.1 lb plus maneb at 0.03 lb (3)
Fentin acetate at 0.3 lb plus maneb at 0.1 lb (4)
Fentin acetate at 0.1 lb plus maneb at 0.03 lb plus 10 lb wax (5)
All sprays applied twice in 100 gals.

Basal applications: 7 cwt (17:11:22). Weedkillers: 2 lb linuron plus 0.75 lb paraquat in 40 gals. Insecticide: 1.5 lb phorate with seed.

Cultivations, etc.: Ploughed: Nov 23, 1964. Basal NPK applied: Apr 5, 1965. Rotary cultivated, potatoes machine planted: Apr 21. Sprayed, weedkiller: May 14, treatment fungicides: July 9 and 26. Sprayed with undiluted BCV at 15 gals: Sept 2. Lifted: Oct 21. Variety: King Edward. Previous crops: Potatoes 1963, winter wheat and barley 1964.

Standard error per plot.
Total tubers: 1.160 or 7.8% (20 d.f.)

https://doi.org/10.23637/ERADOC-1-159

65/Dd/6.2

SUMMARY OF RESULTS

0	1	2	3	4	5	Mean
			TOTAL TUBERS			
			(±0.474)			
13.61	14.14	15.55	14.46	15.83	15.16	14.79
			% WARE			
94.2	94.4	94.4	94.9	95.5	95.1	94.8

https://doi.org/10.23637/ERADOC-1-159

65/Dd/7.1

POTATOES

(RP 801)

Soil fungicides and blight, Long Hoos III 1965.

Design: 6 randomised blocks of 9 plots with cultivation treatment by blocks.

Area of each plot: 0.0043. Area harvested: 0.0021.

Treatments:
To blocks:
1. Earthing up: Rounded (R), pointed (P) ridges.

To plots: None (0) and all combinations of:-
2. Fungicides: Copper oxychloride at 2.5 lb Cu (C), triphenyltin at 0.66 lb (T).
3. Form and time of application: Granular applied after planting (G), soil spray applied by hand sprayer at 50% crop emergence (S1) or at first blight damage (S2), foliar spray at first blight damage (F).

Basal applications: 7 cwt (17:11:22). Weedkillers: Paraquat at 0.75 lb ion plus linuron at 2 lb in 40 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals on 2 occasions. Insecticide: 1.5 lb phorate with seed.

Cultivations, etc.: Ploughed: Nov 23, 1964. Basal NPK applied: Apr 5, 1965. Rotary cultivated, potatoes machine planted (15 in. spacing): Apr 21. CG treatment applied: Apr 26. TG treatment applied: Apr 28. P treatments earthed up: May 13. Sprayed, weedkiller: May 14. CS1 and TS1 treatments applied: May 21. Sprayed, fungicide: June 30 and July 28. CS2, TS2, CF and TF treatments applied: July 29. Sprayed with undiluted BCV at 15 gals: Sept 2. Lifted: Oct 21. Variety: King Edward (chitted seed). Previous crops: Potatoes and winter wheat 1963, winter wheat 1964.

NOTE: Tubers were examined for blight infection at harvest.

Standard error per plot.
Total tubers: 1.446 or 8.6% (32 d.f.)

https://doi.org/10.23637/ERADOC-1-159

SUMMARY OF RESULTS

TOTAL TUBERS

	O	OG	OS1	OS2	OF	TG	TS1	TS2	TF	Mean
					(±0.835)*					
R	17.90	16.41	15.27	16.64	17.42	16.05	17.63	17.00	18.23	16.95
P	16.24	17.52	15.53	16.41	16.66	17.82	17.47	17.15	15.17	16.66
Mean (±0.590)	17.07	16.96	15.40	16.53	17.04	16.94	17.55	17.07	16.70	16.81

* For use in horizontal and interaction comparisons only.

65/Dd/8.1

POTATOES

Soil fungicides, Long Hoos III 1965.

Design: 4 randomised blocks of 11 plots.

Area of each plot: 0.0011.

Treatments: None*(0) and all combinations of:-

1. Fungicides:
   - Triphenyltin acetate (A)
   - Tributyltin acetate (B)
   - Bis(triphenyltin)sulphide (C)
   - Triphenyltin chloride (D)

   at 0.175 lb metallic Sn in 210 lb kaolin, applied to the soil and lightly forked in.
   - Tetrachloro-iso-phthalonitrile wettable powder (E)

   sprayed into soil at 15 lb in 500 gals.
2. Times of application: June 28 - 30 (1), at first foliage blight (July 27 - 29) (2).

* 210 lb kaolin dust was applied on June 28.

Basal applications: 7 cwt (17:11:22). Weedkiller: 2 lb linuron plus 0.75 lb ion paraquat in 40 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals. Insecticide: 1.5 lb phorate with seed.

Cultivations, etc.: Ploughed: Nov 23, 1964. Basal NPK applied: Apr 5, 1965. Rotary cultivated, potatoes machine planted: Apr 21. Sprayed (weedkiller): May 14, fungicide: June 30. Sprayed with undiluted BCV at 15 gals: Sept 2. Harvested: Aug 31. Variety: King Edward. Previous crops: Winter wheat 1963 and 1964.

NOTE: Tubers were examined at harvest for blight infection.

Standard error per plot.
Total tubers: 1.555 or 10.6% (30 d.f.)

https://doi.org/10.23637/ERADOC-1-159

65/Dd/8.2

SUMMARY OF RESULTS

TOTAL TUBERS

O	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	Mean
					(±0.778)						
14.69	14.04	14.77	15.76	14.56	14.55	13.65	14.92	15.81	15.43	13.54	14.70

https://doi.org/10.23637/ERADOC-1-159

65/Dd/9.1

POTATOES

(WP 101)

Control of tuber blight (Phytophthora infestans) by fungicide sprays and haulm destruction - Woburn Workhouse Field 1965.

Design: 6 x 6 Latin square.

Area of each plot: 0.0425. Area harvested: 0.0141.

Treatments: No fungicide (0), not burnt off.
Fungicide sprays*: 3 times early (E), burnt off with diquat**
4 times early (E+), burnt off with diquat**
3 times late (L), burnt off with diquat**
In addition two plots per row, on which haulm was not burnt off (one control and one E+ plot) were used for sampling only.

* 1.5 lb fungicide, containing 80% mancozeb, in 34 gals.
** Reglone at 4 pints in 34 gals.

Basal applications: 7 cwt (17:11:22).

Cultivations, etc.: Ploughed: Jan 19 - 26, 1965. Basal dressing applied: Apr 13. Rotary cultivated, potatoes planted: Apr 15. Earthed up: June 14. First spraying with mancozeb (E and E+ plots): July 2, second (E, E+ and L): July 15, third (E, E+ and L): July 30, final (E+ and L): Aug 13. Appropriate plots sprayed with diquat: Aug 27. Haulm destroyed mechanically: Oct 4. Lifted: Oct 13. Variety: King Edward. Previous crops: Grass 1963 and 1964.

NOTE: Periodic samples were taken from the sample plots for weight of tubers and blight assessment in tubers.

Standard error per plot.
Total tubers: 1.787 or 10.8% (15 d.f.)

https://doi.org/10.23637/ERADOC-1-159

65/Dd/9.2

SUMMARY OF RESULTS

O	E	E+	L	Mean
		TOTAL TUBERS		
		(±0.730)		
13.13	18.10	17.71	17.19	16.53
		% WARE		
95.1	96.2	96.9	97.1	96.3

https://doi.org/10.23637/ERADOC-1-159

65/De/1.1

CARROTS

(WCt 101)

The effects of systemic insecticides on yield through control of motley dwarf virus - Woburn Butt Close 1965.

Design: 4 x 4 Latin square.

Area of each plot: 0.0135. Area harvested: 0.0035.

Treatments: All combinations of:-
1. Menazon granules placed: None (0), 0.8 lb menazon (G).
2. Menazon spray: None (0), sprayed 4 times with menazon (Saphicol at 0.5 pints in 37 gals) (S).

Basal application: 8 cwt (10:10:18).

Cultivations, etc.: Ploughed: Nov 24, 1964. Basal NPK applied, seed drilled at 3.5 lb, menazon granules placed: Apr 13, 1965. Menazon sprays applied: June 3, June 21, July 3, July 16. Lifted: Aug 25. Variety: New Model Red Cored. Previous crops: Winter wheat 1963, barley 1964.

NOTE: Weekly sticky-trap records were taken and periodical aphid counts were made on plots. Estimates of virus infection and yield from samples were made early in August. Root-top ratios were estimated.

Standard errors per plot.

Marketable roots:	1.822 or 7.6% (6 d.f.)
Tops from marketable roots:	0.712 or 9.8% (6 d.f.)

https://doi.org/10.23637/ERADOC-1-159

SUMMARY OF RESULTS

	O	S	Mean
	MARKETABLE ROOTS		
	(±0.911)		(±0.644)
O	20.91	26.17	23.54
G	23.56	24.78	24.17
Mean (±0.644)	22.24	25.48	23.86
	TOPS FROM MARKETABLE ROOTS		
	(±0.356)		(±0.252)
O	6.00	8.06	7.03
G	7.42	7.55	7.49
Mean (±0.252)	6.71	7.81	7.26

https://doi.org/10.23637/ERADOC-1-159

65/Df/1.1

KALE

(WK/E)

Urea concentrations in NPK fertilisers - Woburn Butt Close 1965.

Design: 3 randomised blocks of 18 plots.

Area of each plot: 0.0019. Area harvested: 0.0011.

Treatments: None (O) (2 plots per block) and all combinations of:-

1. Compound fertilisers (all in the proportion N: P2O5: K2O of 2:1:1):-

   Compounds with P as triple superphosphate:-

   N 100% urea (P)

   N 66% urea and 33% ammonium nitrate (Q)

   N 33% urea and 66% ammonium nitrate (R)

   N 100% ammonium nitrate (S)

   Compounds with P and part N as monourea phosphate, remaining N as follows:-

   100% urea (T)

   66% urea and 33% ammonium nitrate (U)

   33% urea and 66% ammonium nitrate (V)

   100% ammonium nitrate (W)

   K as muriate of potash in all compounds.

2. Levels: To supply 1.25 (L1), 2.50 (L2) cwt N.

Basal applications: Manures: None. Insecticide: Menazon and BHC (Abol X at 10 fluid oz in 40 gals).

Cultivations, etc.: Ploughed: Nov 24, 1964. Rotary cultivated 4 times (to kill twitch), fertilisers broadcast, seed drilled at 10 lb: May 6, 1965. Sprayed: July 8. Harvested: Oct 15. Variety: Thousand Head. Previous crops: Winter wheat 1963, carrots 1964.

NOTE: Soil samples were taken for determination of mineralisable N. Crop samples were taken for germination count, yield and N percentage. Samples were taken at harvest for yield and N percentage.

Standard error per plot.

Fresh weight: 1.809 or 8.2% (34 d.f.)

https://doi.org/10.23637/ERADOC-1-159

SUMMARY OF RESULTS

FRESH WEIGHT

	O	P	Q	R	S	T	U	V	W	Mean
					(±1.044)					(±0.369)
L1		20.66	21.34	20.05	21.20	21.54	19.78	21.81	20.86	20.90
L2		25.19	25.52	27.21	26.20	25.79	25.52	26.00	26.33	25.97
Mean (±0.738)	10.40	22.92	23.43	23.63	23.70	23.67	22.65	23.90	23.60	21.99*

* General mean.

65/Df/1.2