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Yields of the Field Experiments 1966

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Annual Experiments

Rothamsted Research

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66/Da/1.1

WINTER WHEAT

(RW101 and WW101)

Row spacing, seed rates and N - Rothamsted (R) Great Knott I and Woburn (W) Workhouse 1966.

Design: 2 replicates of a 4 x 2 x 4 factorial arranged in 4 blocks of 8 whole plots, with N on half plots. (4 - 3 + 2 - 1 on whole plots Great Knott I (R), 3 - 2 + 1 - 0 on Workhouse (W)).

Area of each sub plot: 0.0069. Area harvested: 0.0069.

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: 140 lb (L), 240 lb (H).

Sub plots:

3. Nitrogen in spring:

- Great Knott I (R): 0.4 (N1), 0.8 (N2), 1.2 (N3), 1.6 (N4) cwt N as 'Nitro-Chalk' broadcast.
- Workhouse (W): None (NO), 0.4 (N1), 0.8 (N2), 1.2 (N3) cwt N as 'Nitro-Chalk' broadcast.

** Great Knott I (R): (6:15:15) to all plots - rate 340 lb.
Workhouse (W): (8:20:16) to all plots - rate 310 lb.

NOTE: At Rothamsted because of a mistake in an instruction nitrogen was applied to the wrong plots: in order to achieve balance certain additions were made making the total applications listed.

Basal applications: Great Knott I (R): Ioxynil/MCPA (Actril A at 2 pints in 40 gals).

66/Da/1.2

Cultivations, etc.:

Great Knott I (R): Deep-tine cultivated twice: Nov 3 and 4, 1965.
Seed sown, NPK applied: Nov 5. 'Nitro-Chalk' applied: Apr 13, 1966,
completed: Apr 21. Sprayed: Apr 29. Combine harvested: Aug 24.
Variety: Cappelle. Previous crops: Barley 1964, potatoes 1965.
Workhouse (W): Deep-tine cultivated: Oct 27, 1965. Seed sown,
NPK applied: Nov 3. 'Nitro-Chalk' applied: Apr 27, 1966.
Combine harvested: Aug 27. Variety: Cappelle. Previous crops:
Grass 1964, potatoes 1965.

Standard errors per plot. Grain:

Great Knott I (R).	Whole plot: 2.57 or 5.3% (14 d.f.)
	Sub plot: 3.11 or 6.4% (16 d.f.)
Workhouse (W).	Whole plot: 2.88 or 5.2% (14 d.f.)
	Sub plot: 3.98 or 7.1% (16 d.f.)

66/Da/1.3

SUMMARY OF RESULTS

GREAT KNIGHT I (R)

GRAIN

	B	C	W	W*	Mean
Mean (± 0.91)	49.2	48.7	48.9	46.4	48.3
	(± 1.29)				(± 0.64)
L	49.3	50.6	50.9	48.3	49.8
H	49.0	46.8	47.0	44.5	46.8
	(1) and (2)				(3) and (4)
N1	49.9	49.8	47.3	47.0	48.5
N2	52.0	51.3	50.7	48.1	50.5
N3	46.4	48.1	49.4	45.0	47.2
N4	48.4	45.6	48.3	45.4	47.0
	L	H			
	(5) and (6)				
N1	49.6	47.4			
N2	50.9	50.2			
N3	48.7	45.7			
N4	49.9	44.0			

- (1) (± 1.56) (5) (± 1.10) For use in vertical and interaction comparisons involving N4-N2 or N3-N1
 (2) (± 1.69) (6) (± 1.20) For use in all other comparisons
 (3) (± 0.78) For use in comparisons N4-N2 or N3-N1
 (4) (± 0.85) For use in all other comparisons

66/Da./1.4

WORKHOUSE (W)

GRAIN

	B	C	W	W*	Mean
Mean (± 1.02)	55.9	56.7	55.4	55.3	55.8
		(± 1.44)			(± 0.72)
L	56.5	57.7	56.1	54.9	56.3
H	55.4	55.8	54.6	55.6	55.3
		(1) and (2)			(3) and (4)
NO	52.8	55.3	53.7	53.0	53.7
N1	57.4	60.1	59.8	57.5	58.7
N2	59.6	58.8	56.2	56.7	57.8
N3	53.9	52.6	52.0	53.8	53.1
	L	H			
		(5) and (6)			
NO	52.4	55.0			
N1	57.8	59.6			
N2	59.3	56.4			
N3	55.8	50.3			

- (1) (± 1.99) (5) (± 1.41) For use in vertical and interaction comparisons involving N3-N1 or N2-NO
- (2) (± 2.02) (6) (± 1.43) For use in all other comparisons
- (3) (± 1.00) For use in comparisons N3-N1 or N2-NO
- (4) (± 1.01) For use in all other comparisons

66/Da/2.1

WINTER WHEAT

(RW 301)

Spun and drilled seed, and cultivations, Great Knott I 1966.

Design:

Spun seed: 6 randomised blocks of 4 plots, with seed rates on strips of 3 blocks.

Drilled seed: 6 randomised blocks of 2 plots.

Area of each plot: 0.0135. Area harvested: 0.0096.

Treatments:

Spun seed: all combinations of:-

To strips of 3 blocks: (1) Seed rate: 190 lb (L), 250 (H).

To plots: (2) Seedbed cultivations: spring-tine cultivate, harrow, sow, harrow (C1). Disc, sow, harrow (C2). Spring-tine cultivate, sow, harrow (C3). Spring-tine cultivate, sow, spring-tine cultivate, harrow (C4).

Drilled seed: Seedbed cultivations C1, C3 as above (all at seed-rate L).

Basal applications: 310 lb (6:15:15) broadcast by distributor, 0.94 cwt N as 'Nitro-Chalk' top dressed in spring. Weedkiller: Ioxynil/MCPA (Actril A at 2 pints in 40 gals).

Cultivations, etc.: Deep-tine cultivated twice: Nov 3, 1965. Basal NPK applied, pre-sowing treatments carried out: Nov 5. Seed sown, post-sowing treatments carried out: Nov 6. Weedkiller applied: Apr 29, 1966. 'Nitro-Chalk' applied: May 2. Combine harvested: Aug 23. Variety: Cappelle. Previous crops: Barley 1964, potatoes 1965.

Standard error per plot (pooled spun and drilled seed):
Grain: 1.84 or 4.1% (17 d.f.)

66/Da/2.2

SUMMARY OF RESULTS

GRAIN

SPUN SEED

	C1	C2	C3	C4	Mean
	(± 1.06)*				
L	48.4	47.2	46.6	45.0	46.8
H	44.1	43.0	43.1	45.9	44.0
Mean (± 0.75)	46.2	45.1	44.9	45.5	45.4

* For use in horizontal and interaction comparisons only

DRILLED SEED

	C1	C3	Mean
	45.0	44.9	45.0
	(± 0.75)		

Pooled mean: 45.3

Pooled mean D.M. %: 82.2

66/Da/3.1

WINTER WHEAT

(BG 13)

Sowing dates and bulb fly, Stackyard 1966.

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 and weedkiller: Nov 2, 1965, sprayed* (ES). Jan 8, 1966, sprayed* (IS) and unsprayed (L-).

Sub plots: 2. Not covered (O), covered with polythene sheet to prevent egg-laying July 1 - Oct 7, 1965 (C).

* With mecoprop/2,4-D (Methoxone Extra at 6.5 pints in 56 gals) on May 13.

Basal applications: 284 lb (6:15:15) combine drilled, 0.8 cwt N as 'Nitro-Chalk' top dressed in spring. Seed dressed with organo-mercury fungicide only.

Cultivations, etc.: Ploughed: Oct 20, 1965. 'Nitro-Chalk' applied: Apr 26, 1966. Combine harvested: Aug 24. Variety: Cappelle. Previous crops: Barley 1964, fallow 1965.

NOTES: (1) Samples were taken from late February until mid-May to estimate numbers of plants, shoots and larvae and damaged plants and shoots. Samples were taken just before harvest to estimate ear number and grain weight. Counts were made for gaps and straw number in stubble after harvest.

(2) The intention was to make sowings in early November, late November and January but the late November sowing could not be made and the treatments listed above were applied.

Standard errors per plot. Grain:

Whole plot: 1.98 or 4.4% (6 d.f.)

Sub plot: 2.75 or 6.1% (8 d.f.)

66/Da/3.2

SUMMARY OF RESULTS

GRAIN

	ES	LS	L-	Mean
	(1) and (2)			
O	47.4	40.7	37.5	41.8
C	49.1	49.3	47.0	48.5
Mean (± 0.99)	48.2	45.0	42.2	45.1

- (1) (± 1.41) For use in horizontal comparisons only
 (2) (± 1.38) For use in interaction comparisons only

Mean D.M. %: 81.4

66/Da/4.1

SPRING WHEAT

(RW 601 and WW 301)

Anhydrous ammonia as a fertiliser - Rothamsted (R) Great Knott III and Woburn (W) Lansome 1966.

Design: 4 randomised blocks of 8 plots.

Area of each plot: 0.0321. Area harvested: Great Knott III (R) - 0.0208, Lansome (W) - 0.0207.

Treatments: All combinations of:-

1. Forms of N: Broadcast 'Nitro-Chalk' (B), injected anhydrous ammonia (I).
2. Levels of N: 0.5 (N1), 1.0 (N2), 1.5 (N3) cwt N together with no nitrogen - without (NO), with (NOI), the injector running empty through the soil.

Basal applications: 280 lb (0:20:20). Weedkiller: Great Knott III (R): Mecoprop/2,4-D (Methoxone Extra at 6 pints in 40 gals). Lansome (W): Ioxynil/mecoprop (Actril C at 5 pints in 35 gals).

Cultivations, etc.:

Great Knott III (R): Ground chalk applied at 22 cwt: Nov 8, 1965. Ploughed: Nov 15, 1965. Anhydrous ammonia injected: Mar 2, 1966. Seed drilled at 170 lb, basal PK and 'Nitro-Chalk' applied: Mar 16, 1966. Sprayed: May 17. Combine harvested: Sept 7. Variety: Kloka. Previous crops: Barley 1964, spring beans 1965.

Lansome (W): Ploughed: Sept 30 - Oct 25, 1965. Anhydrous ammonia injected: Mar 3, 1966. Seed drilled at 160 lb, basal PK and 'Nitro-Chalk' applied: Mar 15. Sprayed: May 13. Combine harvested: Sept 6. Variety: Kloka. Previous crops: Winter wheat 1964, barley 1965.

Standard errors per plot. Grain:

Great Knott III (R): 2.15 or 5.3% (21 d.f.)
Lansome (W): 3.57 or 14.8% (21 d.f.)

66/Da/4.2

SUMMARY OF RESULTS

GREAT KNOTT III (R)

		GRAIN			
		N1	N2	N3	Mean
			(±1.07)		(±0.62)
B		43.7	45.6	43.6	44.3
I		36.6	46.3	46.9	43.3
Mean (±0.76)		40.2	46.0	45.3	43.8

		NO	NOI	Mean
		31.7	31.1	31.4
		(±1.07)		

General mean: 40.7

Mean D.M. %: 83.0

66/Da/4.3

LANSOME (W)

GRAIN

	N1	N2	N3	Mean
		(±1.78)		(±1.03)
B	23.9	32.8	37.2	31.3
I	17.7	30.2	36.5	28.1
Mean (±1.26)	20.8	31.5	36.9	29.7

	NO	NOI	Mean
	6.6	7.6	7.1
	(±1.78)		

General mean: 24.1

Mean D.M. %: 85.2

Table 1

(a) SUMMARY

Year	1978	1979	1980	1981
(1978)	1.25	1.35	1.45	1.55
(1979)	1.35	1.45	1.55	1.65
(1980)	1.45	1.55	1.65	1.75
(1981)	1.55	1.65	1.75	1.85

Year	1978	1979	1980	1981
(1978)	1.25	1.35	1.45	1.55
(1979)	1.35	1.45	1.55	1.65
(1980)	1.45	1.55	1.65	1.75
(1981)	1.55	1.65	1.75	1.85

(b) DETAILS

General notes: 1. 2. 3.

66/Da/5.1

SPRING WHEAT

(WW 201)

Effects of sowing date, and time of nitrogen application on the incidence of take-all - Woburn Lansome 1966.

Design: 3 randomised blocks of 3 plots, split into 2.

Area of each sub-plot: 0.0154. Area harvested: 0.0101.

Treatments: All combinations of:-

Whole plots. 1. Sowing dates: Feb 17, 1966 (F), Mar 15 (M),
Apr 13 (A). Seed drilled at 160 lb.

Sub plots. 2. Time of application of N: 0.8 cwt N at sowing
(T1), 0.4 cwt N at sowing plus 0.4 cwt N in
early May (T2). All N as 'Nitro-Chalk'.

Basal applications: 390 lb (0:14:28) combine drilled. Sprayed with
Ioxynil/mecoprop (Actril C at 5 pints in 35 gals).

- Cultivations, etc.: Ploughed: Sept 30 - Oct 25, 1965. Seed drilled,
seedbed 'Nitro-Chalk' applied - F plots: Feb 17, 1966, - M plots:
Mar 15. Seed drilled - A plots: Apr 13. 'Nitro-Chalk' applied -
A plots: Apr 21. Top dressing 'Nitro-Chalk' applied: May 11.
Combine harvested: Sept 6. Variety: Kloka. Previous crops:
Winter wheat 1964, barley 1965.

NOTE: Plant samples were taken from all plots for incidence of take-all
(*Ophiobolus graminis*) on 24th May and 6th July.

Standard errors per plot. Grain:
Whole plot: 1.96 or 6.1% (4 d.f.)
Sub plot: 2.15 or 6.7% (6 d.f.)

66/Da/5.2

SUMMARY OF RESULTS

GRAIN

	F	M	A	Mean
	(1) and (2)			(± 0.72)
T1	30.4	33.0	33.7	32.3
T2	30.1	33.8	31.7	31.9
Mean (± 1.13)	30.2	33.4	32.7	32.1

- (1) (± 1.43) For use in horizontal and diagonal comparisons
- (2) (± 1.24) For use in vertical and interaction comparisons

Mean D.M. %: 85.5

66/Da/6.1

SPRING WHEAT

(RW 701)

Effects of CCC - Long Hoos III 1966.

Design: 4 randomised blocks of 8 plots.

Area of each plot: 0.0144. Area harvested: 0.0096.

Treatments: All combinations of:-

1. CCC* in spray at 40 gals: None (CO), 2.5 lb (CS) in May at 5 leaf stage.
2. Nitrogen: None (NO), 0.8 (N1), 1.6 (N2), 2.4 (N3) cwt N as 'Nitro-Chalk'.

* 2-chlorotrimethylammonium chloride - a dwarfing compound.

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

Basal applications: 27 cwt ground chalk, 400 lb compound fertiliser (0:14:28) applied broadcast, 340 lb compound fertiliser (0:20:20) combine drilled. Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 40 gals).

Cultivations, etc.: Ground chalk and PK compound applied: Nov 6, 1965. Deep-tine cultivated twice: Feb 4, 1966. Rotary cultivated: Mar 11. Seed drilled at 180 lb, 'Nitro-Chalk' applied: Mar 12. Weedkiller applied, CCC spray applied: May 17. Combine harvested: Sept 7. Variety: Kloka. Previous crops: Winter wheat 1964, potatoes 1965.

NOTE: (2) Counts of shoots were made from time to time.

Standard error per plot.

Grain: 2.85 or 8.7% (21 d.f.)

66/Da/6.2

SUMMARY OF RESULTS

GRAIN

	NO	N1	N2	N3	Mean
		(±1.43)			(±0.71)
CO	19.5	31.5	38.3	38.1	31.8
CS	19.6	34.6	39.7	41.0	33.8
Mean (±1.01)	19.6	33.0	39.0	39.6	32.8

Mean D.M. %: 82.6

66/De/7.1

SPRING WHEAT

(WW 401)

CCC*, irrigation, and nitrogen - Woburn Butt Close (Series III) 1966.

* Chloroethyltrimethylammonium chloride - a dwarfing compound.

Design: 6 blocks of 2 whole plots, CCC on half plots, nitrogen on quarter plots, 2 d.f. for N confounded with quarter plot pairs, one in each direction.

Area of each quarter plot: 0.0143. Area harvested: 0.0032.

Treatments: All combinations of:-

Main plots: 1. Irrigation: None (0), full irrigation (C).

Half plots: 2. CCC: None (0), sprayed with 2.5 lb CCC in 43 gals water (S).

Quarter

plots: 3. Nitrogen: 0.4 (N1), 0.8 (N2), 1.2 (N3), 1.6 (N4)
cwt N as 'Nitro-Chalk'.

Basal applications: 240 lb (0:14:28) combine drilled, sprayed with ioxynil/mecoprop (Actril C at 5 pints in 35 gals).

Cultivations, etc.: Ploughed: Nov 24, 1965. Seed drilled at 160 lb: Mar 14, 1966. 'Nitro-Chalk' applied: Mar 16. Weedkiller applied: May 13. CCC applied: May 16. C plots irrigation applied at 0.5 inches on each occasion: May 25, June 1, June 3, June 9, July 6, July 15, (total 3 inches). Combine harvested: Sept 7. Variety: Kloka.

NOTE: Weekly samples of 3 feet of row lengths were taken from each plot for chemical analysis, April - June.

Standard error per plot (pooled).

Grain: 4.23 or 10.5% (30 d.f.)

66/Da/7.2

SUMMARY OF RESULTS

GRAIN

	N1	N2	N3	N4	Mean
Mean (± 1.22)	28.1	40.5	45.8	47.3	40.4
		(± 1.73)			(± 0.86)
O	25.5	38.5	40.6	41.8	36.6
C	30.7	42.5	51.1	52.8	44.3
O	28.3	41.8	43.5	46.6	40.0
S	28.0	39.1	48.2	48.1	40.8
	O	S			
	(± 1.22)				
O	35.5	37.7			
C	44.5	44.0			

Mean D.M.: 82.3

66/Da/8.1

WINTER AND SPRING WHEAT

(RW 401)

Varieties and nitrogen - Great Knott I 1966.

Design: 4 randomised blocks of 8 plots.

Area of each plot: 0.0212. Area harvested: 0.0141.

Treatments: All combinations of:-

1. Varieties: Winter wheat - Cappelle (C), Rothwell Perdix (P), spring wheat - Kloka (K), Jufy I (J).
2. Nitrogen: 0.4 (N1), 1.0 (N2) cwt N as 'Nitro-Chalk', top-dressed, in addition to basal.

Basal applications: 300 lb (6:15:15) combine drilled. Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 36 gals).

Cultivations, etc.: Deep-tine cultivated twice: Nov 3, 1965.
Seed drilled at 190 lb: Feb 17, 1966*. 'Nitro-Chalk' applied:
Apr 14. Sprayed: May 14. Combine harvested: Sept 6.
Previous crops: Barley 1964, potatoes 1965

Standard error per plot.

Grain: 2.13 or 5.1% (21 d.f.)

* Drilling of winter wheat was delayed by weather and so all varieties were sown on the same date.

66/Da/8.2

SUMMARY OF RESULTS

GRAIN

	C	P	K	J	Mean
		(±1.06)			(±0.53)
N1	40.5	38.3	37.5	42.9	39.8
N2	45.3	40.5	43.5	44.1	43.3
Mean (±0.75)	42.9	39.4	40.5	43.5	41.6

Mean D.M. %: 83.0

66/Db/1.1

BARLEY

(RB101 and WB101)

Row spacing, seed rates and N - Rothamsted (R) Whittlocks N.E. and Woburn (W) Horsepool E. 1966.

Design: 2 replicates of 4 x 2 x 4 factorial arranged in 4 blocks of 8 whole plots, with N on half plots. (3 - 2 + 1 - 0 on whole plots.)

Area of each sub-plot: 0.0069. Area harvested: 0.0069.

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: 110 lb (L), 220 lb (H).

Sub-plots:

3. Nitrogen: None, 0.4, 0.7, 1.0 cwt N as 'Nitro-Chalk'.

** (0:20:20) to all plots - rate 220 lb.

Basal applications: Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 36 gals).

Cultivations, etc.:

Whittlocks N.E. (R): Ploughed: Nov 1-9, 1965. Seed sown, fertilisers applied: Mar 10, 1966. Sprayed: May 11. Combine harvested: Aug 19. Variety: Maris Badger. Previous crops: Potatoes 1964, winter wheat 1965.

Horsepool E. (W): Ploughed: Oct 28, 1965. PK fertiliser applied and seed sown: Mar 11, 1966. 'Nitro-Chalk' applied: Mar 14. Sprayed: May 13. Combine harvested: Aug 19. Variety: Maris Badger. Previous crops: Potatoes 1964, barley 1965.

Standard errors per plot. Grain:

Whittlocks N.E. (R) Whole plot: 2.10 or 4.6% (14 d.f.)

Sub plot: 2.18 or 4.7% (16 d.f.)

Horsepool E. (W) Whole plot: 2.10 or 4.4% (14 d.f.)

Sub plot: 3.67 or 7.7% (16 d.f.)

66/D6/1.2

SUMMARY OF RESULTS

WHITFLOCKS N.E. (R)

GRAIN

	B	C	W	W*	Mean
Mean (± 0.74)	45.8	45.9	47.1	45.7	46.1
	(± 1.05)				(± 0.53)
L	46.1	45.8	48.8	46.3	46.8
H	45.6	45.9	45.4	45.0	45.5
	(1) and (2)				(3) and (4)
NO	36.2	37.6	39.8	36.9	37.6
N1	48.1	47.8	49.5	48.2	48.4
N2	50.6	48.9	49.9	48.3	49.4
N3	48.5	49.2	49.3	49.3	49.0
	L	H			
	(5) and (6)				
NO	39.4	35.8			
N1	47.9	48.9			
N2	50.5	48.3			
N3	49.2	48.8			

- (1) (± 1.84) and (5) (± 1.30) For use in vertical and interaction comparisons involving N3-N1 or N2-NO
- (2) (± 1.30) and (6) (± 0.92) For use in all other comparisons
- (3) (± 0.55) For use in comparisons N3-N1 or N2-NO
- (4) (± 0.65) For use in all other comparisons

66/Db/1.3

HORSEPOOL E. (W)

GRAIN

	B	C	W	W*	Mean
Mean (± 0.74)	47.2	47.6	48.1	46.7	47.4
	(± 1.05)				(± 0.52)
L	47.2	49.1	50.1	47.1	48.4
H	47.3	46.1	46.1	46.4	46.5
	(1) and (2)				(3) and (4)
N0	46.0	43.3	45.6	42.6	44.4
N1	48.6	51.3	49.8	48.4	49.5
N2	51.4	49.0	49.5	49.7	49.9
N3	43.0	47.0	47.7	46.3	46.0
	L	H			
	(5) and (6)				
N0	44.4	44.4			
N1	50.8	48.2			
N2	52.2	47.6			
N3	46.3	45.7			

- (1) (± 1.84) and (5) (± 1.30) For use in vertical and interaction comparisons involving N3-N1 or N2-N0
 (2) (± 1.67) and (6) (± 1.18) For use in all other comparisons
 (3) (± 0.92) For use in comparisons N3-N1 or N2-N0
 (4) (± 0.83) For use in all other comparisons

2008		2009			Total
Q1	Q2	Q3	Q4		
100	100	100	100	400	1000
200	200	200	200	800	2000
300	300	300	300	1200	3000
400	400	400	400	1600	4000
500	500	500	500	2000	5000
600	600	600	600	2400	6000
700	700	700	700	2800	7000
800	800	800	800	3200	8000
900	900	900	900	3600	9000
1000	1000	1000	1000	4000	10000

(1) (b)(1) for use in connection with the...
 (2) (b)(2) for use in connection with the...
 (3) (b)(3) for use in connection with the...
 (4) (b)(4) for use in connection with the...

66/Db/2.1

BARLEY

(RB 201)

Spun and drilled seed and cultivations - Whittlocks N.E. 1966.

Design:

Spun seed: 6 randomised blocks of 4 plots with seed rates on strips of 3 blocks.

Drilled seed: 6 randomised blocks of 2 plots.

Area of each plot: 0.0135. Area harvested: 0.0096.

Treatments:

Spun seed. All combinations of:

To strips of 3 blocks: (1) Seed rates 140 (L), 200 (H).

To plots: (2) Seedbed cultivations (all on Mar 10, 1966): Spring-tine cultivate, harrow, sow, harrow (C1). Spring-tine cultivate, sow, spring-tine cultivate, harrow (C2). Spring-tine cultivate twice, sow, harrow (C3). Sow, spring-tine cultivate, harrow (C4).

Drilled seed.

Seedbed cultivations: C1, C3 as above (all at seed rate L).

Basal applications: 4 cwt (20:10:10) broadcast by distributor.

Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 36 gals).

Cultivations, etc.: Ploughed: Nov 1, 1965. Basal dressing applied: Mar 9, 1966. Seed sown: Mar 10. Sprayed: May 11. Combine harvested: Aug 19. Variety: Maris Badger. Previous crops: Potatoes 1964, winter wheat 1965.

Standard error per plot (pooled spun and drilled seed):

Grain: 4.53 or 12.0% (17 d.f.)

66/Db/2.2

SUMMARY OF RESULTS

GRAIN

SPUN SEED

	C1	C2	C3	C4	Mean
	(±2.62)*				
L	39.6	40.1	37.9	35.0	38.2
H	37.3	38.5	38.6	34.0	37.1
Mean (±1.85)	38.5	39.3	38.3	34.5	37.6

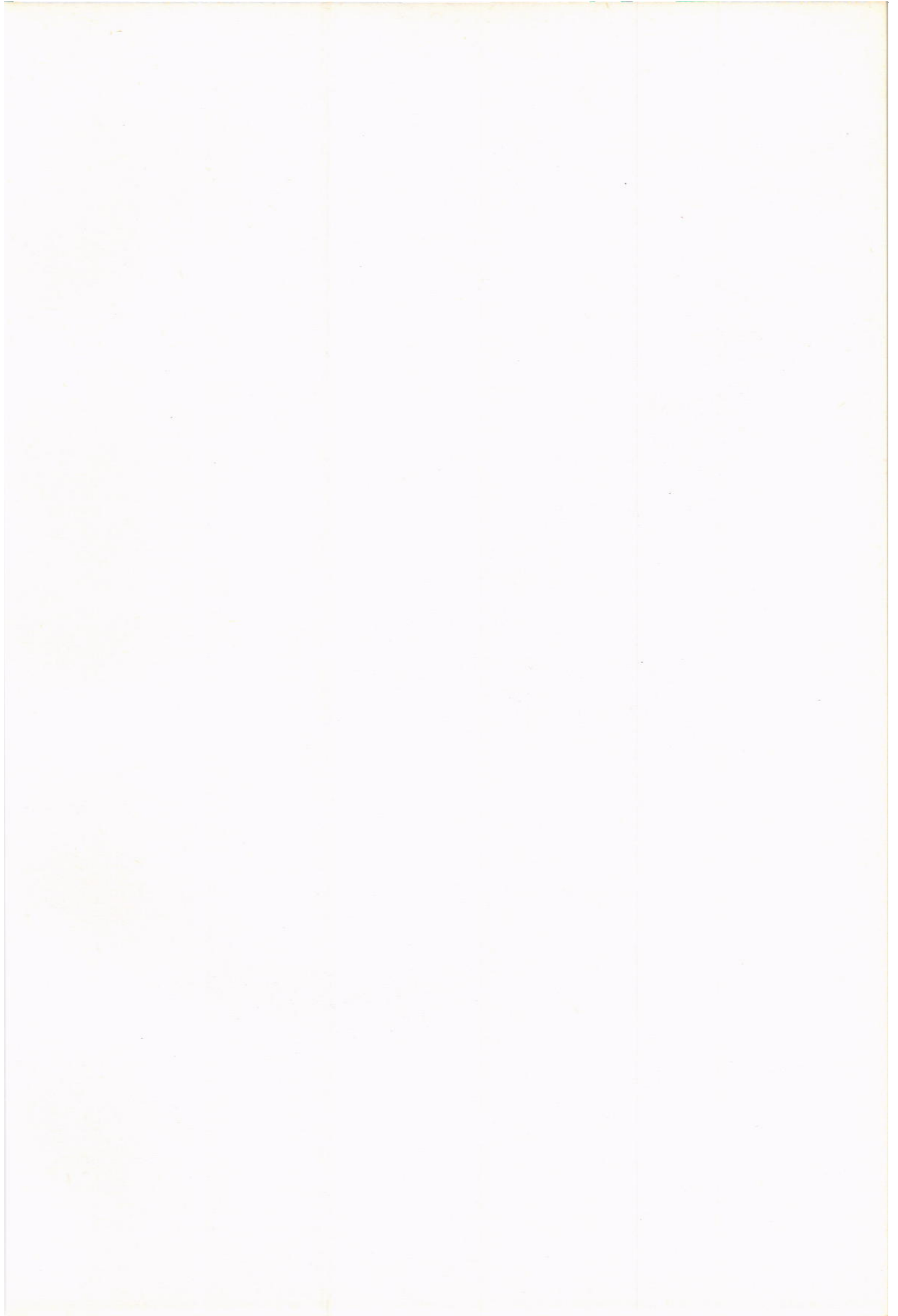
* For use in horizontal and interaction comparisons only

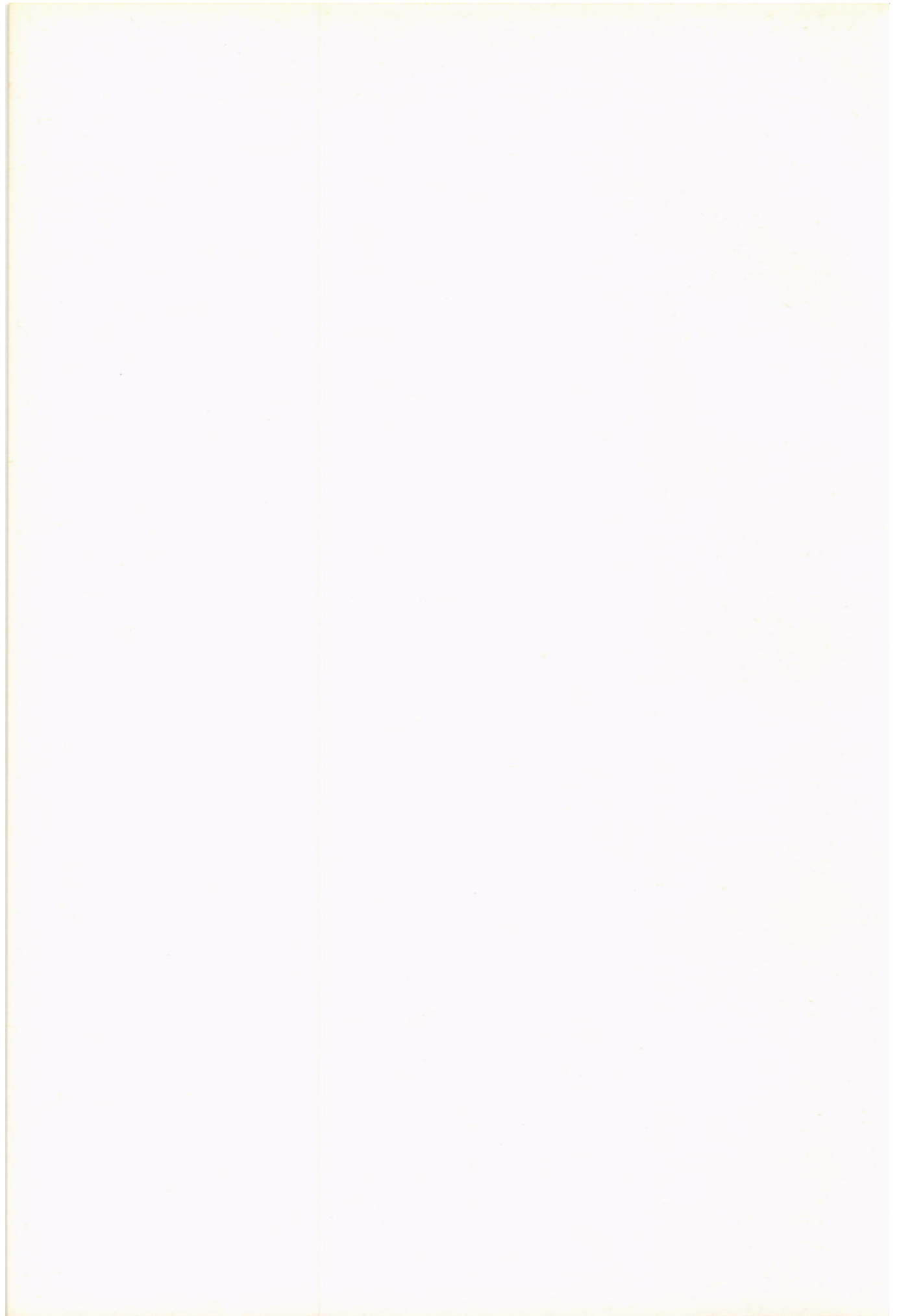
DRILLED SEED

C1	C3	Mean
36.8	39.9	38.4
(±1.85)		

Pooled mean: 37.9

Pooled mean D.M. %: 86.3





66/Dc/1.1

SPRING BEANS

(FBe 101)

Row spacing, seed rates, methods of fertiliser application and irrigation - Long Hoos IV 1966.

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. Area harvested: 0.0110.

Treatments: All combinations of:-

- Groups of blocks: 1. Irrigation: None (O), 1 in. of water (I).
Plots: 2. Row spacing: 10.5 ins (C), 21 ins (W).
3. Seed rates: 200 lb (L), 300 lb (H).
4. Fertiliser forms and rates: 400 (F1), 560 (F2), compound (0:20:20), 500 (N1), 700 (N2) (6:15:15).
5. Methods of fertiliser application: Broadcast (B), placed (P).

Basal applications: Ground chalk at 27 cwt. Weedkiller: Simazine at 1 lb in 40 gals. Insecticide: Demeton-s-methyl (Metasystox at 12 fluid oz in 37 gals).

Cultivations, etc.: Ploughed: Oct 15, 1965. Ground chalk applied: Nov 4. Seed drilled, fertilisers applied: Feb 18, 1966. Simazine applied: Mar 4. Irrigated: June 7. Combine harvested: Sept 14. Variety: Spring Tick. Previous crops: Potatoes 1964, winter and spring wheat 1965.

Standard error per plot.

Grain: 2.94 or 7.2% (13 d.f.)

66/Dc/1.2

SUMMARY OF RESULTS

GRAIN

	F1	F2	N1	N2	Mean
Mean	40.4	40.5 (± 0.73)	41.1	40.4	40.6
O	40.3	41.6 (± 1.04)*	41.0	39.8	40.7
I	40.5	39.4	41.2	41.1	40.5
C	40.6	40.6 (± 1.04)	40.7	40.3	40.6 (± 0.52)
W	40.2	40.4	41.5	40.6	40.7
L	39.5	39.9 (± 1.04)	40.8	40.0	40.1 (± 0.52)
H	41.3	41.0	41.4	40.9	41.1
B	40.0	40.5 (± 1.04)	41.7	40.4	40.6 (± 0.52)
P	40.9	40.5	40.6	40.5	40.6

	C	W	L	H	B	P
O	(± 0.73)*		(± 0.73)*		(± 0.73)*	
I	40.3	41.1	39.9	41.4	40.9	40.4
	40.8	40.2	40.2	40.9	40.3	40.7
C			(± 0.73)		(± 0.73)	
W			40.7	40.4	40.5	40.6
			39.4	41.9	40.7	40.6
L					(± 0.73)	
H					39.7	40.5
					41.6	40.7

Mean D.M. %: 75.4

* For use in horizontal and interaction comparisons only.

66/Dd/1.1

EARLY POTATOES

(RP/1)

Effects of DSA (dimethylamino-succinamic acid - a dwarfing compound) on early potatoes - Little Hoos 1966.

Design: 6 randomised blocks of 4 plots.

Area of each plot: 0.0064. Area harvested: 0.0004.

Treatments: All combinations of:-

1. Varieties: Arran Pilot (A), Maris Peer (M).
2. DSA spray: None (O), sprayed at 1.5 lb in 120 gals at tuber formation (S).

Basal applications: 13.5 tons dung, 7.75 cwt (17:11:22). Fungicide: Mancozeb at 1.2 lb in 37 gals on 2 occasions.

Cultivations, etc.: Dung applied: Jan 11, 1966. Ploughed: Jan 12. Basal NPK applied: Mar 30. Rotary cultivated, potatoes planted: Apr 14. DSA applied: June 10. Fungicide applied: July 1 and 25. Sprayed with diquat (Reglone at 4 pints in 40 gals): Sept 17. Lifted: Sept 19. Previous crops: Barley 1964, fallow 1965.

NOTE: The crop was sampled on 4 occasions for leaf area, dry weights and tuber yield. The yields presented are based on the final samples taken on Sept 19.

Standard error per plot.

Total tubers: 2.397 or 13.6% (14 d.f.)

66/Da/1.2

SUMMARY OF RESULTS

TOTAL TUBERS

	O	S	Mean
	(±0.978)		(±0.692)
A	18.03	18.28	18.16
M	18.03	15.90	16.97
Mean (±0.692)	18.03	17.09	17.56

66/Da/2.1

POTATOES

(RP 3/1 and WP 201)

Soil fungicides and blight - Rothamsted (R) Fosters West Side and Woburn (W) Butt Close 1966.

Design: 6 randomised blocks of 10 plots.

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

Treatments: Fungicides: None (O) and the following combinations of materials and forms and times of application:-

TaS1	TaS2	TaF
TcS1	TcS2	
	DS2	DF
	ZS2	ZF

- Ta - Triphenyltin acetate
Tc - Triphenyltin chloride, both at 0.18 lb of metallic Sn, equivalent to 0.6 lb triphenyltin acetate
D - Tetrachloro-iso-phthalonitrile at 5 lb
Z - Zineb at 3 lb
S1 - Applied as dust in 210 - 220 lb kaolin lightly forked into the soil in May
S2 - As S1 but in June
F - Applied as foliar spray at first foliage blight as a wettable powder in 100 gals of water.

Basal applications:

Fosters West Side (R): 13.5 tons dung. 7.75 cwt (17:11:22).
Butt Close (W): 10 tons dung. 7 cwt (17:11:22).
Weedkiller (both fields): Linuron at 1 lb plus paraquat at 0.75 lb ion in 37 gals.

Cultivations, etc.:

Fosters West Side (R): Dung applied: Jan 12, 1966. Ploughed: Jan 14. Basal NPK applied: Mar 29. Rotary cultivated, potatoes planted: Apr 7. Weedkiller applied: May 10. Fungicides applied: S1 plots - May 25, S2 plots - June 20, foliar spray (F) - Aug 2. Haulm destroyed mechanically: Sept 22. Lifted: Sept 26. Variety: King Edward. Previous crops: Kale and spring wheat 1964, barley 1965.

66/Da/2.2

Butt Close (W): Deep-tine cultivated: Sept 16, 1965. Ploughed:
Nov 15. Dung applied: Jan 11, 1966. Ploughed 2nd time:
Jan 28. Basal NPK applied: Mar 23. Rotary cultivated,
potatoes planted: Mar 30. Weedkiller applied: May 7.
Fungicides applied: S1 plots - May 17, S2 plots - June 27. Haulm
destroyed mechanically: Sept 7. Lifted: Sept 19. (W) variety
Variety: King Edward. Previous crops: Barley 1964,
fallow 1965.

NOTES: (1) Butt Close (W): The haulm became yellow before blight
appeared and no foliar sprays (F) were applied.
(2) On Fosters West Side (R) tubers were examined at harvest
for blight infection. There was no blight on the Butt Close (W)
experiment.

Standard errors per plot. Total tubers:
Fosters West Side (R): 1.332 or 8.0% (45 d.f.)
Butt Close (W): 2.122 or 13.1% (45 d.f.)

SUMMARY OF RESULTS

	O	TaS1	TaS2	TaF	TcS1	TcS2	DS2	DF	ZS2	ZF	Mean
TOTAL TUBERS											
FOSTERS WEST SIDE (R)											
Mean (± 0.544)	16.47	16.20	16.34	17.65	16.50	16.11	16.56	16.22	16.38	17.61	16.60
BUTT CLOSE (W)											
Mean (± 0.866)	16.50	16.43	15.90	14.62	17.14	16.63	16.34	15.31	16.16	16.49	16.15
% WARE											
FOSTERS WEST SIDE (R)											
Mean	94.5	94.2	94.6	94.7	93.9	93.7	94.0	94.4	95.1	93.4	94.3
BUTT CLOSE (W)											
Mean	79.5	78.7	79.7	76.5	77.7	80.9	79.5	77.0	80.9	78.4	78.9

66/Da/2.3

NOTE: Butt Close (w) F not applied

Table 1

Table 1. Summary of the data collected during the study.

Year	Month	Day	Time	Location	Species	Count
2014	Jan	1	08:00	Site 1	A	10
		2	09:00	Site 2	B	15
		3	10:00	Site 1	A	12
		4	11:00	Site 3	C	8
		5	12:00	Site 2	B	18
		6	13:00	Site 1	A	11
	Feb	1	08:00	Site 1	A	9
		2	09:00	Site 2	B	14
		3	10:00	Site 1	A	13
		4	11:00	Site 3	C	7
		5	12:00	Site 2	B	16
		6	13:00	Site 1	A	10

Continued on next page

66/Dd/3.1

POTATOES

(Two experiments - RP6/1 and RP17/1)

Effects of gaps - Little Hoos 1966.

Design: RP6/1 (variety Pentland Dell) - 4 randomised blocks of 3 plots split into 5.

RP17/1 (variety King Edward) - 6 randomised blocks of 2 plots split into 5.

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

Treatments: All combinations of:-

Whole plots: 1. Time of gapping: At emergence (E) - variety Pentland Dell only, at flowering (F), just before harvest (H).

Sub plots: 2. Amount of gapping: Normal plant population (G0), 4 (G4), 8 (G8), 12 (G12), 16% (G16) of plants removed.

Basal applications: 13.5 tons dung, 7.75 cwt (17:11:22).

Weedkiller: Linuron at 1 lb plus paraquat at 0.75 lb ion in 37 gals. Fungicide: Mancozeb at 1.2 lb in 35 gals on 4 occasions (King Edward) and on 2 occasions (Pentland Dell).

Cultivations, etc.: Dung applied: Jan 11, 1966. Ploughed: Jan 12. Basal NPK applied: Mar 30. Rotary cultivated, potatoes planted: King Edward - Apr 7, Pentland Dell - May 17. Weedkiller applied: June 1. Rotary ridged (King Edward only): June 15. Fungicide applied: King Edward - June 30, July 23, Aug 8 and 18, Pentland Dell - July 23 and Aug 8. Sprayed with undiluted BOV: King Edward - Sept 16, Pentland Dell - Sept 23. Haulm destroyed mechanically: Sept 27. Lifted: King Edward - Sept 28, Pentland Dell - Oct 10. Previous crops: Barley 1964, fallow 1965.

NOTE: The Pentland Dell experiment suffered badly from unplanned gaps and poor growth. A second experiment was therefore started on King Edward potatoes already planted.

Standard errors per plot.	Total tubers:
RP6/1. Pentland Dell.	Whole plot: 0.583 or 3.6% (6 d.f.)
	Sub plot: 1.303 or 8.0% (36 d.f.)
RP17/1. King Edward.	Whole plot: 0.772 or 3.7% (5 d.f.)
	Sub plot: 0.952 or 4.5% (40 d.f.)

66/Dd/3.2

SUMMARY OF RESULTS

TOTAL TUBERS

	G0	G4	G8	G12	G16	Mean
RP6/1 Pentland Dell						
	(1) and (2)					(±0.326)
E		17.20	16.82	16.39	15.15	16.39
F		17.74	16.08	16.21	15.01	16.26
H		16.34	15.88	15.24	13.65	15.28
Mean (±0.376)	17.56	17.09	16.26	15.95	14.60	16.29*
RP17/1 King Edward						
	(1) and (2)					(±0.342)
F		22.90	21.21	21.10	19.63	21.21
H		21.80	20.16	19.18	18.82	19.99
Mean (±0.275)	22.61	22.35	20.69	20.14	19.23	21.00*

* General Mean

- | | | |
|--------------|----------|---|
| RP6/1 | RP17/1 | |
| (1) (±0.652) | (±0.469) | For use in vertical and diagonal comparisons |
| (2) (±0.652) | (±0.389) | For use in horizontal and interaction comparisons |

66/Da/3.3

% WARE

	G0	G4	G8	G12	G16	Mean
RP6/1 Pentland Dell						
E		98.9	99.0	98.2	98.5	98.6
F		98.7	98.2	98.8	98.7	98.6
H		98.2	98.6	98.3	98.0	98.3
Mean	98.7	98.6	98.6	98.4	98.4	98.5

RP17/1 King Edward

F		96.6	96.5	96.0	97.0	96.5
H		97.1	96.7	96.4	96.6	96.7
Mean	96.9	96.9	96.6	96.2	96.8	96.7

Page 1		Page 2				
Line	Code	Seq	No	Am	Unit	
Total Available 1.000						
0.50	1.00	0.50	0.00	0.50		
0.50	1.00	0.50	0.50	1.00		
0.50	0.50	1.00	0.50	0.50		
Total Available 1.000						
0.50	0.50	0.50	0.50	0.50	1.00	
Total Available 1.000						
0.50	0.50	0.50	0.50	0.50		
1.00	0.50	0.50	0.50	1.00		
Total Available 1.000						
1.00	0.50	0.50	0.50	0.50	0.50	

66/Dd/4.1

POTATOES

(RP 7/1)

Effects of skin-spot (*Oospora pustulans*)* - Little Hoos 1966.

Design: 6 blocks of 2 plots split into 4.

Area of each plot: 0.0033.

Treatments: All combinations of:-

- Whole plots: 1. Varieties: King Edward (E), Majestic (M).
Sub plots: 2. Levels of seed infection (*Oospora pustulans*):
Clean (A), moderately infected (B), severely
infected (C), unselected stock (D).

Basal applications: 7.75 cwt (17:11:22). Fungicide: Mancozeb
at 1.2 lb in 35 gals on 4 occasions.

Cultivations, etc.: Ploughed: Jan 12, 1966. Basal NPK applied:
Mar 30. Rotary cultivated, potatoes planted: May 3.
Rotary ridged twice: May 28, June 17. Fungicide applied:
June 30, July 23, Aug 8 and 18. Sprayed with undiluted BOV
at 21 gals: Sept 16. Haulm destroyed mechanically: Sept 27.
Lifted: Sept 29. Previous crops: Barley 1964, fallow 1965.

* In experiment RP7/1 (66/Dd/4) the tuber grades were selected on
the degree of skin-spotting, in RP10/1 (66/Dd/7) a King Edward
stock in which the infections occurred mainly close to the
eyes was used and the grades were based on number of live
eyes in March.

Standard errors per plot. Total tubers:

- Whole plot: 1.049 or 6.7% (5 d.f.)
Sub plot: 0.910 or 5.8% (30 d.f.)

66/Dd/4.2

SUMMARY OF RESULTS

	A	B	C	D	Mean
TOTAL TUBERS					
	(1) and (2)				(±0.428)
E	17.92	17.35	12.65	16.72	16.16
M	15.52	15.59	14.66	15.38	15.29
Mean (±0.263)	16.72	16.47	13.66	16.05	15.72
% WARE					
E	96.1	96.2	97.6	96.2	96.5
M	97.7	97.4	97.8	97.6	97.6
Mean	96.9	96.8	97.7	96.9	97.1

- (1) (±0.536) For use in vertical and diagonal comparisons
 (2) (±0.371) For use in horizontal and interaction comparisons.

66/Dd/5.1

POTATOES

(RP 8/1)

Effects of stem-canker (*Rhizoctonia solani*) - Little Hoos 1966.

Design: 6 randomised blocks of 2 plots split into 4.

Area of each plot: 0.0036. Area harvested: 0.0033.

Treatments: All combinations of:-

Whole plots: 1. Varieties: King Edward (E), Majestic (M).

Sub plots: 2. Infection of seed (*Rhizoctonia solani*):
Clean (A), moderately infected (B), severely
infected (C), unselected stock (D).

Basal applications: 7.75 cwt (17:11:22). Fungicide: Sprayed 4
times with mancozeb at 1.2 lb in 35 gals.

Cultivations, etc.: Ploughed: Jan 12, 1966. Basal NPK applied:
Mar 30. Rotary cultivated, potatoes planted: May 3.
Rotary ridged twice: May 28 and June 17. Fungicide applied:
June 30, July 23, Aug 8 and 18. Sprayed with undiluted BOV
at 21 gals: Sept 16. Haulm destroyed mechanically:
Sept 27. Lifted: Sept 29. Previous crops: Barley 1964,
fallow 1965.

Standard errors per plot. Total tubers:

Whole plot: 0.601 or 4.2% (5 d.f.)

Sub plot: 0.770 or 5.4% (30 d.f.)

65/Da/5.2

SUMMARY OF RESULTS

	A	B	C	D	Mean
TOTAL TUBERS					
	(1) and (2)				(±0.245)
E	18.79	17.12	17.33	17.51	17.69
M	12.47	10.18	9.95	11.65	11.06
Mean (±0.222)	15.63	13.65	13.64	14.58	14.38
% WARE					
E	96.8	95.2	94.7	95.1	95.4
M	96.2	95.4	95.6	96.0	95.8
Mean	96.5	95.3	95.2	95.6	95.6

(1) (±0.366) For use in vertical and diagonal comparisons

(2) (±0.314) For use in horizontal and interaction comparisons

66/Da/6.1

POTATOES

(RP 9/1)

Effects of gangrene (*Phoma* spp.) - Little Hoos 1966.

Design: 6 randomised blocks of 2 plots, split into 4.

Area of each plot: 0.0067. Area harvested: 0.0033.

Treatments: All combinations of:-

Whole plots: 1. Varieties: King Edward (E), Majestic (M).

Sub plots: 2. Levels of seed-infection (*Phoma* spp.): Clean (A), moderately infected (B), severely infected (C), unselected stock (D).

Basal applications: 7.75 cwt (17:11:22). Fungicide: Mancozeb at 1.2 lb in 35 gals on 4 occasions.

Cultivations, etc.: Ploughed: Jan 12, 1966. Basal NPK applied: Mar 30. Rotary cultivated, potatoes planted: May 3. Rotary ridged twice: May 28 and June 17. Fungicide applied: June 30, July 23, Aug 8 and 18. Sprayed with undiluted BOV at 21 gals: Sept 16. Haulm destroyed mechanically: Sept 27. Lifted: Sept 29. Previous crops: Barley 1964, fallow 1965.

Standard errors per plot. Total tubers:

Whole plot: 0.708 or 4.0% (5 d.f.)

Sub plot: 0.873 or 4.9% (30 d.f.)

66/Da/6.2

SUMMARY OF RESULTS

	A	B	C	D	Mean
TOTAL TUBERS					
	(1) and (2)				(±0.289)
E	18.71	18.13	17.35	18.44	18.16
M	17.71	18.01	15.36	17.50	17.15
Mean (±0.252)	18.21	18.07	16.36	17.97	17.65
% WARE					
E	93.9	92.0	91.3	92.7	92.5
M	97.6	96.3	94.5	95.5	96.0
Mean	95.8	94.1	92.9	94.1	94.2

(1) (±0.423) For use in vertical and diagonal comparisons

(2) (±0.356) For use in horizontal and interaction comparisons

66/Dd/7.1

POTATOES

(RP 10/1)

Effects of 'dead eyes' (*Oospora pustulans*)* - Little Hoos 1966.

Design: 6 randomised blocks of 4 plots.

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

Treatments: Levels of seed infection (*Oospora pustulans*):-

Clean	(A)
Moderately infected (1-2 live eyes)	(B)
Severely infected (no live eyes)	(C)
Unselected stock	(D)

Basal applications: 7.75 cwt (17:11:22). Mancozeb at 1.2 lb in 35 gals on 4 occasions.

Cultivations, etc.: Ploughed: Jan 12, 1966. Basal NPK applied: Mar 30. Rotary cultivated, potatoes machine planted: May 3. Rotary ridged twice: May 28, June 18. Fungicide applied: June 30, July 23, Aug 8 and 18. Sprayed with undiluted BOV at 21 gals: Sept 16. Haulm destroyed mechanically: Sept 27. Lifted: Sept 29. Variety: King Edward. Previous crops: Barley 1964, fallow 1965.

* In experiment RP7/1 (66/Dd/4) the tuber grades were selected on the degree of skin-spotting, in RP10/1 (66/Dd/7) a King Edward stock in which the infections occurred mainly close to the eyes was used and the grades were based on number of live eyes in March.

Standard error per plot.

Total tubers: 1.173 or 7.2% (15 d.f.)

66/Da/7.2

SUMMARY OF RESULTS

	A	B	C	D	Mean
TOTAL TUBERS					
	(±0.479)				
Mean	18.85	17.96	10.07	18.65	16.38
% WARE					
Mean	96.3	97.1	96.8	96.5	96.7

66/Da/8.1

POTATOES

(RP 11/1)

Times of burning off haulm - Little Hoos 1966.

Design: 4 randomised blocks of 7 plots, plots being split into two for times of burning off.

Area of each sub plot: 0.0274. Area harvested: 0.0071.

Treatments:

Fungicide sprays* and times of application (whole plots)	Times of burning off** (sub plots)
None (O)	(O), (S)
Early 4 (E+)	(O), (S)
Early 4 (E+)	(B), (C)
Early 3 (E)	(B), (C)
Late 4 (L+)	(B), (C)
Late 3 (L)	(B), (C)
Early 4 (E+)	(A), (IC)

(O) Not burnt off

(A) Burnt off when mean destruction by blight of the remaining haulm on the (E+O) plots was 0.7% (31% senility)

(B) as (A) but 0.8% (58% senility)

(C) as (A) but 1.3% (68% senility)

(IC) as (C) but sprayed also with insecticide (menazon - 'Saphicol' at 10 fluid oz in 35 gals)

(S) sub plots for sampling (no yields recorded).

The first fungicide sprays were applied before the Ministry of Agriculture's blight warning.

* 1.5 lb fungicide containing 80% mancozeb in 35 gals.

** With undiluted BOV at 21 gals.

Basal applications: 13.5 tons dung, 7.75 cwt (17:11:22).

Cultivations, etc.: Dung applied: Jan 11, 1966. Ploughed: Jan 12. Fertiliser applied: Mar 3. Rotary cultivated, potatoes machine planted: Apr 6. Rotary ridged: June 15. Menazon spray applied, first spraying with mancozeb (E, E+): June 30. Second spraying with mancozeb (E, E+, L, L+): July 22, third (E, E+, L, L+): Aug 8, fourth (E+, L, L+): Aug 18, fifth (L+): Sept 8. (A) plots sprayed with BOV: Sept 8, (B) plots: Sept 16, (C) plots: Sept 23. Haulm destroyed mechanically: Sept 27. Lifted: Sept 28. Variety: King Edward. Previous crops: Barley 1964, fallow 1965.

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 assessment of blight in tubers.

66/Dd/8.2

Standard error per plot (Pooled).
 Total tubers: 0.972 or 4.4% (30 d.f.)

SUMMARY OF RESULTS

	O	E+	E	L+	L	Mean
TOTAL TUBERS						
			(±0.486)			
O	19.29	23.35				(±0.243)
B		22.81	21.64	22.39	23.09	22.48
C		22.15	21.95	21.64	23.80	22.38
A		21.29				
IC		21.68				
Mean of B & C		22.48	21.80 (±0.344)	22.01	23.44	22.09*
% WARE						
O	97.2	97.5				
B		97.5	96.4	97.3	97.3	97.1
C		97.4	97.1	97.4	97.7	97.4
A		97.4				
IC		97.8				
Mean of B & C		97.5	96.7	97.4	97.5	97.3*

* General mean

66/Da/9.1

POTATOES

(WP 101)

Varieties - Woburn Butt Close 1966.

Design: 4 x 4 Latin square.

Area of each plot: 0.0096. Area harvested: 0.0048.

Treatments:-

Varieties: Pentland Dell (D), King Edward (E), Majestic (see note below), Maris Piper (P).

Basal applications, etc.: 10 tons dung, 7 cwt (17:11:22).

Fungicide: Mancozeb 1.2 lb in 33 gals on 3 occasions. Weedkiller: Linuron at 1 lb a.i., and paraquat 0.75 lb ion in 37 gals.

Cultivations, etc.: Deep-tine cultivated: Sept 16, 1965. Ploughed: Nov 15. Dung applied: Jan 11, 1966. Ploughed: Jan 28. Basal NPK applied: Mar 23. Rotary cultivated and planted: Mar 31. Earthed up (rotoridged): May 4. Sprayed weedkiller: May 7. Sprayed fungicide: June 29, July 18, Aug 4. Haulm destroyed mechanically: Sept 3. Lifted: Sept 13. Previous crops: Barley 1964, fallow 1965.

NOTE: The seed of the varieties D, E and P was once-grown ex Rothamsted, H certificate. Majestic was also included but once-grown seed was not available so a Scotch SS stock was used. Because of fungus diseases this gave only 60% of normal plants (the other varieties gave full plant populations) and was therefore excluded from the analysis. The mean yield of total tubers for Majestic was 9.55 tons, mean % ware 87.7.

Standard errors per plot.

Total tubers: 1.792 or 17.1% (6 d.f.)

66/Dd/10.1

POTATOES

(WP301)

Effects of Verticillium - Woburn Great Hill South West 1966.

Design: 2 blocks of 8 plots split into 3 for seed potato stocks.

Area of each sub plot: 0.0036. Area harvested: 0.0036.

Treatments: All combinations of:-

Whole plots: 1. Nitrogen: None (N0), 2.0 (N1) cwt N as 'Nitro-Chalk'.

2. Phosphate: None (P0), 2.0 (P1) cwt P205 as superphosphate.

3. Potash: None (K0), 2.5 (K1) cwt K20 as muriate of potash.

Sub plots: 4. Seed stock: (All of variety King Edward): Once grown ex Rothamsted (A), selected from L1 (B), L3 (C) plots of the Woburn 'Methods of Fertiliser Application Experiment' (see 'Results' 65/C/5.1), which was attacked by Verticillium dahliae.

NOTE: Stock A was free from paracrinkle virus, but B and C were not.

Basal applications, etc.: Manures: None. Fungicide: Mancozeb 1.2 lb in 33 gals on 3 occasions.

Cultivations, etc.: Ploughed: Feb 4, 1966. Fertilisers applied: Apr 4. Rotary cultivated and planted: Apr 28. Earthed up: June 13. Sprayed fungicide: June 29, July 22, Aug 10. Haulm destroyed mechanically: Sept 16. Lifted: Sept 23. Previous crops: Barley 1964 and 1965.

Standard errors per plot. Total tubers:

Whole plot: 2.218 or 25.2% (7 d.f.)

Sub plot: 0.959 or 10.9% (16 d.f.)

66/Da/10.2

SUMMARY OF RESULTS

TOTAL TUBERS

	A	B	C	Mean
Mean (± 0.240)	9.61	8.44	8.33	8.79
	(1) and (2)			(± 0.784)
NO	4.94	4.47	4.13	4.51
N1	14.28	12.41	12.52	13.07
PO	8.39	7.35	6.84	7.53
P1	10.83	9.52	9.81	10.06
KO	9.13	8.21	8.19	8.51
K1	10.08	8.67	8.46	9.07

	PO	P1	KO	K1
	(± 1.109)		(± 1.109)	
NO	3.42	5.60	4.63	4.39
N1	11.63	14.51	12.39	13.75
			(± 1.109)	
		PO	6.54	8.52
		P1	10.48	9.63

- (1) (± 0.832) For use in vertical and diagonal comparisons
 (2) (± 0.339) For use in horizontal and interaction comparisons

66/Dd/10.3

% WARE				
	A	B	C	Mean
Mean (± 1.16)	84.1	80.1	80.4	81.6
NO	78.2	73.9	73.0	75.0
NL	90.1	86.4	87.8	88.1
PO	81.6	75.8	77.8	78.4
PI	86.6	84.4	83.0	84.7
KO	82.2	78.0	80.7	80.3
KL	86.0	82.3	80.1	82.8

	PO	PI	KO	KL
NO	70.6	79.4	75.5	74.6
NL	86.3	89.9	85.2	91.0
		PO	75.2	81.7
		PI	85.4	83.9

66/Da/11.1

POTATOES

(WP 401)

Control of tuber blight (*Phytophthora infestans*) by fungicide sprays and haulm destruction - Woburn Great Hill South West 1966.

Design: 6 blocks of 4 plots split into two.

Area of each sub plot: 0.0071.

Treatments:- (fungicide sprays each of 1.5 lb fungicide containing 80% mancozeb in 33 gals).

None: (0) one half plot per block
Sprayed 3 times starting early (E3) one whole plot and two half plots per block on July 1, July 22, Aug 10.
Sprayed twice starting late (I2) one half plot per block on July 22, Aug 10.

NOTES: (1) The remaining 2 half plots used for sampling, no yields were taken.

(2) The intended treatments were modified as above (the test of burning off being abandoned) because the haulm died early for reasons other than blight.

Basal applications: 10 tons dung, 7 cwt (17:11:22).

Cultivations, etc.: Dung applied: Jan 21, 1966. Ploughed: Feb 3.
Basal NPK applied: Mar 25. Rotary cultivated, potatoes planted: Apr 4. Grubbed: June 2. Earthed up: June 13. Haulm mechanically destroyed: Sept 16. Lifted: Sept 26 - 27. Variety: King Edward. Previous crops: Barley 1964, barley 1965.

NOTE: (3) Samples of 2 plants from each of six rows of each half plot were taken on 11 occasions from June 29 to Sept 19 for weight of tubers and assessment of blight in tubers.

Standard error per plot.

Total tubers: 2.727 or 21.2% (25 d.f.)

66/Da/11.2

SUMMARY OF RESULTS

0	E3	L2	Mean
TOTAL TUBERS			
13.98 (±1.113)	12.71 (±0.557)	12.18 (±1.113)	12.83
% WARE			
91.3	90.3	90.6	90.5

66/De/1.1

CARROTS

(Wct 1)

The effects of systemic insecticides on yield through control of motley dwarf virus - Woburn Butt Furlong 1966.

Design: 4 x 4 Latin square.

Area of each plot: 0.0135. Area harvested: 0.0029.

Treatments: All combinations of:-

1. Menazon granules placed: None (0), 0.8 lb menazon (G).
2. Menazon spray: None (0), sprayed 3 times with menazon (Saphicol at 0.5 pints in 47 gals twice, Saphicol at 0.5 pints in 50 gals once) (S).

Basal applications: 8 cwt (10:10:18). Weedkiller: 1 lb linuron in 44 gals.

Cultivations, etc.: Ploughed: Sept 27, 1965. Ground chalk applied at 28 cwt: Mar 14, 1966. Basal NPK applied: May 3. Seed drilled at 2.6 lb, menazon granules placed: May 4. Weedkiller applied: May 7. Menazon sprays applied: June 16, June 29, July 15. Lifted: Aug 31. Variety: Clucas New Model Red Cored. Previous crops: Winter wheat 1964, barley 1965.

NOTE: Sticky trap records were taken and periodical aphid counts were made on plots. Estimates of virus infection and yield from samples were made in late August.

Standard errors per plot.

Marketable roots:	0.517 or 4.5% (6 d.f.)
Tops from marketable roots:	0.358 or 7.9% (6 d.f.)

66/De/1.2

SUMMARY OF RESULTS

	O	S	Mean
MARKETABLE ROOTS			
	(±0.258)		(±0.183)
O	8.00	13.76	10.88
G	11.20	12.77	11.98
Mean (±0.183)	9.60	13.27	11.43
TOPS FROM MARKETABLE ROOTS			
	(±0.179)		(±0.127)
O	3.29	5.52	4.40
G	4.35	4.99	4.67
Mean (±0.127)	3.82	5.25	4.54

66/Df/1.1

KALE

Urea concentrations in NPK fertilisers - Highfield IV 1966.

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 proportion N: P₂O₅: K₂O of 2:1:1).

Compounds with P as triple superphosphate:-

- N 100% urea (P).
- N 67% urea and 33% ammonium nitrate (Q).
- N 33% urea and 67% 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.

Cultivations, etc.: Ploughed: Nov 13, 1965. Rotary cultivated, fertilisers broadcast, seed drilled at 10 lb: May 11, 1966.
Harvested: Nov 1. Variety: Thousand Head. Previous crops: Winter wheat 1964, barley 1965.

NOTE: 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: 1.628 or 6.6% (34 d.f.)

66/Df/1.2

SUMMARY OF RESULTS

FRESH WEIGHT

	O	P	Q	R	S	T	U	V	W	Mean
										(±0.332)
I1		22.48	22.55	22.69	22.96	21.40	22.76	22.62	23.43	22.61
I2		30.39	28.22	27.21	30.18	28.76	30.79	29.84	27.62	29.13
Mean (±0.665)		14.01	26.43	25.39	24.95	26.57	25.08	26.77	26.23	25.52

* General mean

METEOROLOGICAL RECORDS 1966 - ROTHAMSTED

(Departure from long period means in brackets)

Month	Total sunshine: hours	Mean temperature: °F		In ground 1 ft., 4 ft. frosts	Ground(2)	Total rainfall: in. 1/1000 acre gauge	Rain(3) days	Drain- age through 20 in. soil: in. m.p.h.	Wind(4)
		Air(1)	Dew point						
Jan	36 (-17.1)	35.1 (-2.1)	32.9	36.6	20	1.32 (-1.20)	19	1.29	5.2
Feb	29 (-39.0)	41.9 (+3.7)	39.2	41.5	11	3.94 (+2.04)	20	3.52	6.6
Mar	120 (+4.4)	42.1 (+0.8)	36.7	42.7	18	0.70 (-1.22)	12	0.02	6.4
Apr	85 (-68.6)	45.5 (-0.4)	41.3	45.0	6	3.26 (+1.32)	25	1.74	5.7
May	207 (+10.9)	51.5 (-0.5)	44.3	52.6	8	2.62 (+0.51)	13	0.85	5.3
June	173 (-29.5)	59.3 (+2.0)	53.0	59.0	1	3.12 (+0.91)	16	0.99	4.1
July	139 (-52.7)	58.3 (-2.3)	51.6	59.9	0	3.12 (+0.57)	17	0.73	4.2
Aug	174 (-7.7)	58.4 (-1.7)	52.6	59.6	0	3.21 (+0.62)	12	1.69	4.0
Sept	167 (+21.8)	57.5 (+1.4)	50.9	58.1	0	1.56 (-0.84)	9	0.17	3.7
Oct	66 (-37.9)	50.7 (+1.6)	48.5	53.9	3	3.55 (+0.62)	22	2.55	3.7
Nov	46 (-15.1)	40.5 (-2.0)	37.1	45.2	15	1.96 (-0.84)	22	1.17	6.2
Dec	33 (-13.1)	40.5 (+1.9)	37.6	41.4	19	3.46 (+0.84)	24	2.90	7.2
Year	1275 (-243.6)	48.4 (+0.2)	43.8	49.6	101	31.82 (+3.33)	211	17.62	5.2

66/E/1.1

(1) Mean of maximum and minimum.

(2) Number of nights grass min. was below 32°F.

(3) Number of days rainfall was 0.01 in. or more.

(4) At 2 metres above ground level.