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## Numerical Results of the Field Experiments 1969

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### Annual Experiments - Winter Wheat -

#### Rothamsted Research

Rothamsted Research (1970) *Annual Experiments - Winter Wheat -* ; Numerical Results Of The Field Experiments 1969, pp 235 - 250 - DOI: <https://doi.org/10.23637/ERADOC-1-96>

WINTER WHEAT

(69/R/W/1 and 69/W/W/1)

Varieties x N, Rothamsted (R) Long Hoos I and II (pathogen free) and Furzeffield (pathogen infected), and Woburn (W) Lansome III (pathogen free), 1969.

Design: Long Hoos I and II (R) and Lansome III (W): 4 randomised blocks of 7 plots, split into 3.  
Furzeffield (R): 3 randomised blocks of 7 plots, split into 3.

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

Treatments: All combinations of:-

- Whole plots: 1. Varieties: Cappelle (CA), Champlain (CH), Joss Cambier (JC), Maris Beacon (MB), Maris Ranger (MR), Maris Widgeon (MW), West Desprez (WD).  
Sub plots: 2. Nitrogen: 0.6 (N2), 0.9 (N3), 1.2 (N4) cwt N as 'Nitro-Chalk' in spring.

Basal applications: 340 lb (6:15:15) combine drilled.

Lansome III (W): Magnesian limestone at 2 tons.

Weedkillers: Long Hoos I and II (R): Mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals.

Furzeffield (R): 2,4-D at 8 oz and dichlorprop at 32 oz in 20 gals.

Lansome III (W): Ioxynil at 9 oz and mecoprop at 27 oz in 25 gals.

Cultivations, etc.:-

Long Hoos I and II (R): Deep-tine cultivated twice: 22 Oct, 1968. Seed drilled at 180 lb: 23 Oct. 'Nitro-Chalk' applied: 21 Apr, 1969. Weedkiller applied: 1 May. Combine harvested: 29 Aug. Previous crops: Fallow 1967, potatoes 1968.

Furzeffield (R): Ploughed: 8 Oct, 1968. Rotary cultivated: 21 Oct. Seed drilled at 180 lb: 23 Oct. 'Nitro-Chalk' applied: 21 Apr, 1969. Weedkiller applied: 5 May. Combine harvested: 29 Aug. Previous crops: Potatoes 1967, winter wheat 1968.

Lansome III (W): Limestone applied: 25 Oct, 1968. Deep-tine cultivated on 2 occasions: 24 and 26 Oct. Seed drilled at 165 lb: 6 Nov. 'Nitro-Chalk' applied: 17 Apr, 1969. Weedkiller applied: 3 May. Combine harvested: 22 Aug. Previous crops: Fallow 1967, potatoes 1968.

Standard errors per plot. Grain, cwt:

Long Hoos I and II (R):	Whole plot:	3.19 or 5.1%	(18 d.f.)
	Sub plot:	4.29 or 6.8%	(42 d.f.)
Furzefield (R):	Whole plot:	4.13 or 9.1%	(12 d.f.)
	Sub plot:	3.91 or 8.6%	(28 d.f.)
Lansome III (W):	Whole plot:	2.93 or 7.3%	(18 d.f.)
	Sub plot:	1.76 or 4.4%	(42 d.f.)

SUMMARY OF RESULTS

GRAIN: CWT

	CA	CH	JC	MB	MR	MW	WD	Mean
LONG HOOS I AND II (R)								
	(1) and (2)							(±0.81)
N2	62.7	64.1	61.1	71.2	64.6	53.0	62.6	62.8
N3	62.9	65.6	60.7	71.1	65.9	54.4	64.1	63.5
N4	61.6	62.9	59.7	72.1	67.5	49.5	61.1	62.1
Mean (±1.60)	62.4	64.2	60.5	71.5	66.0	52.3	62.6	62.8

(1) (±2.15) For use in vertical and interaction comparisons only

(2) (±2.37) For use in horizontal and diagonal comparisons only

Mean D.M. %: 82.1

FURZEFIELD (R)

	(1) and (2)							(±0.85)
N2	44.5	41.5	41.7	44.6	44.3	45.2	43.6	43.6
N3	45.0	43.8	47.8	51.3	43.5	45.9	46.3	46.3
N4	42.9	50.4	40.2	55.0	44.8	46.7	46.6	46.7
Mean (±2.38)	44.2	45.3	43.3	50.3	44.2	45.9	45.5	45.5

(1) (±2.26) For use in vertical and interaction comparisons only

(2) (±3.01) For use in horizontal and diagonal comparisons only

Mean D.M. %: 82.0

LANSOME III (W)

	(1) and (2)							(±0.33)
N2	36.5	40.8	37.0	42.6	36.7	37.9	37.8	38.5
N3	39.5	47.5	37.6	42.9	39.4	39.9	43.4	41.5
N4	38.3	44.8	38.5	45.6	37.6	37.9	39.3	40.3
Mean (±1.46)	38.1	44.4	37.7	43.7	37.9	38.6	40.1	40.1

(1) (±0.88) For use in vertical and interaction comparisons only

(2) (±1.63) For use in horizontal and diagonal comparisons only

Mean D.M. %: 80.1

### WINTER WHEAT

(69/R/W/2 and 69/W/W/2)

Deep-drilled fertiliser - Rothamsted (R) Great Knott I and Woburn (W) Lansome III and Roadpiece 1969.

Design: 4 randomised blocks of 10 plots.

Area of each plot: 0.0064. Area harvested: 0.0046.

Treatments: All combinations of:-

1. Methods of application of PK fertiliser: Injected 3-4 in. deep by 'Tume' drill in rows 5.5 in. apart with 'crumblers' on (I), broadcast on seedbed by hand (B).
2. Rates of PK fertiliser (0:20:20): 230 lb\* (1), 450 lb (2).
3. Row spacing: 4 (C), 8 (W) inches.

In addition two extra plots with fertiliser combine drilled at rate 1 (D1W) or rate 2 (D2W), row spacing 7 inches.

\* 220 lb on Lansome III (W) and Roadpiece (W).

Basal applications: 450 lb 'Nitro-Chalk' broadcast in spring.

Magnesian limestone at 40 cwt Lansome III (W), 50 cwt - Roadpiece (W). Weedkiller: Great Knott I (R): Mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals. Lansome III (W) and Roadpiece (W): Weedkiller: Ioxynil at 9 oz and mecoprop at 27 oz in 25 gals.

Cultivations, etc.:

Great Knott I (R): Rotary cultivated: 15 Aug, 1968. PK applied, seed drilled at 170 lb: 18-21 Oct. 'Nitro-Chalk' applied: 18 Apr, 1969. Weedkiller applied: 12 May. Combine harvested: 30 Aug. Variety: Joss Cambier. Previous crops: Spring wheat 1967, fallow 1968.

Lansome III (W): Limestone applied: 25 Oct, 1968. Deep-tine cultivated: 26 Oct. PK applied, seed drilled at 165 lb: 5 Nov. 'Nitro-Chalk' applied: 15 Apr, 1969. Weedkiller applied: 1 May. Combine harvested: 11 Aug. Variety: Joss Cambier. Previous crops: Fallow 1967, carrots 1968.

Roadpiece (W): Limestone applied: 25 Oct, 1968. Deep-tine cultivated: 7 Nov. PK applied, seed drilled at 165 lb: 15 Nov. 'Nitro-Chalk' applied: 15 Apr, 1969. Weedkiller applied: 1 May. Combine harvested: 11 Aug. Variety: Joss Cambier. Previous crops: Winter wheat 1967, spring beans 1968.

Standard errors per plot. Grain, cwt:

Great Knott I (R): 1.92 or 3.4% (21 d.f.)  
Lansome III (W): 1.87 or 4.4% (20 d.f.)  
Roadpiece (W): 1.85 or 6.4% (19 d.f.)

SUMMARY OF RESULTS

GREAT KNOTT I (R)

GRAIN:CWT

	1	2	C	W	Mean
	(±0.68)		(±0.68)		(±0.48)
I	57.5	56.9	57.6	56.8	57.2
B	57.9	56.5	58.0	56.4	57.2
			(±0.68)		(±0.48)
		1	58.7	56.7	57.7
		2	56.9	56.5	56.7
Mean (±0.48)			57.8	56.6	57.2

D1 W: 56.9 (±0.96)

D2 W: 55.8

General mean: 57.0

Mean D.M.%: 81.7

LANSOME III (W)

GRAIN:CWT

	1	2	C	W	Mean
	(±0.66)		(±0.66)		(±0.47)
I	42.4	40.9	42.1	41.2	41.7
B	42.0	42.9	42.8	42.1	42.4
			(±0.66)		(±0.47)
		1	42.8	41.5	42.2
		2	42.1	41.7	41.9
Mean (±0.47)			42.5	41.6	42.0

D1 W: 41.9 (±0.94)  
 D2 W: 42.6

General Mean: 42.1

Mean D.M.%: 85.2



ROADPIECE (W)

GRAIN:CWT

	1	2	C	W	Mean
	(±0.66)		(±0.66)		(±0.46)
I	29.1	28.5	29.8	27.9	28.8
B	28.7	29.8	30.7	27.8	29.2
			(±0.66)		(±0.46)
		1	29.8	28.0	28.9
		2	30.6	27.7	29.1
Mean (±0.46)			30.2	27.8	29.0

D1 W: 29.9 (±0.92)  
 D2 W: 30.9

General mean: 29.4

Mean D.M.%: 86.4

WINTER WHEAT

(69/R/W/4)

Cultivations and bulb fly (*Leptohylemyia coarctata*) -  
Stackyard 1969.

Design: 4 randomised blocks of 3 plots.

Area of each plot: 0.0362. Area harvested: 0.0129.

Treatments: Tine cultivation, no ploughing (C), normal  
ploughing (P), scraped and ploughed (SP).

NOTE: The SP treatment was done by a special plough, the  
top 1-2 inches of soil being scraped into the open furrow  
just ahead of the plough.

Basal applications: 280 lb (6:15:15) combine drilled, 0.84  
cwt N as 'Nitro-Chalk'. Weedkillers: Paraquat at 0.5 lb  
ion in 25 gals. Ioxynil at 9 oz and mecoprop at 27 oz in  
20 gals, and again at 4.5 oz and 13.5 oz respectively, as  
the first application was spoiled by rain.

Cultivations, etc.: Paraquat applied: 11 Oct, 1968. P treatment  
ploughed: 18 Oct. P and C treatment spring tine cultivated:  
21 Oct. P treatment rotary cultivated: 22 Oct. P treatment  
rotary cultivated second time, seed drilled at 180 lb (P and  
C plots only): 23 Oct. SP treatment scraped and ploughed:  
16 Nov. SP treatment power-harrowed and seed drilled at 180 lb:  
16 Feb 1969. All plots rolled: 18 Apr. 'Nitro-Chalk' applied:  
19 Apr. Ioxynil/mecoprop applied: 12 and 13 May. Combine  
harvested: 30 Aug. Variety: Cappelle. Previous crops: Winter  
wheat 1967, fallow 1968.

NOTES: 1. Samples were taken for eggs in February 1969.  
2. The special plough needed for the SP treatment  
was not available when the P plots were ploughed.  
The SP plots were ploughed in November and the  
subsequent weather prevented sowing until February.  
This sowing was too late to be affected by Wheat Bulb fly.

Standard error per plot.

Grain, cwt: 1.35 or 2.8% (6 d.f.)

SUMMARY OF RESULTS

GRAIN:CWT

C	P	SP	Mean
	(±0.68)		
49.0	49.1	44.4	47.5

Mean D.M.%: 81.2

WINTER WHEAT

(69/R/W/5)

Effects of seed rates and N on the semi-dwarf variety Gaines,  
Long Hoos I and II 1969.

Design: 4 randomised blocks of 16 plots.

Area of each plot: 0.0036. Area harvested: 0.0017.

Treatments: All combinations of:-

1. Varieties and seed rates: Cappelle at 168 lb (CM),  
Gaines\* at 112 lb (GL), 168 lb (GM), 224 lb (GH).
2. Nitrogen: 0.6 (N1), 1.2 (N2), 1.8 (N3), 2.4 cwt (N4)  
as 'Nitro-Chalk' in spring.

\* NOTE: Gaines (but not Cappelle) received 'Plantvax' (F461)  
fungicide at 1.5 lb a.i. in 30 gals on 2 occasions.

Basal applications: 300 lb (0:20:20) broadcast by drill at  
sowing. Weedkiller: Mecoprop at 42 oz and 2,4-D at 10.5 oz in  
30 gals. Fungicides: Ethirimol at 1.5 lb in 30 gals.

Cultivations, etc.: Deep-tine cultivated: 23 Oct, 1968. Seed  
drilled, basal PK compound applied: 24 Oct. 'Nitro-Chalk'  
applied: 28 Apr, 1969. Weedkiller applied: 8 May. Ethirimol  
applied: 4 June. 'Plantvax' applied: 18 June and 1 July.  
Combine harvested: 25 Aug. Previous crops: Fallow 1967,  
potatoes 1968.

NOTE: Samples were taken for dry weight determinations at ear  
emergence and at harvest. Samples were also taken in  
July for estimation of eyespot (*Cercospora herpotrichoides*)  
and sharp eyespot (*Rhizoctonia solani*).

Standard error per plot.

Grain, cwt: 3.39 or 5.9% (45 d.f.)

SUMMARY OF RESULTS

GRAIN:CWT

	N1	N2	N3	N4	Mean
	(±1.70)				(±0.85)
CM	58.4	62.7	58.6	58.7	59.6
GL	61.8	63.2	59.1	56.7	60.2
GM	56.4	62.0	56.1	50.1	56.2
GH	57.4	56.6	54.3	48.3	54.1
Mean (±0.85)	58.5	61.2	57.0	53.5	57.5

Mean D.M.%: 81.1

WINTER WHEAT

(69/R/W/6)

Chlormequat treated seed and N, Long Hoos VII 1969.

Design: 4 randomised blocks of 6 plots.

Area of each plot: 0.0036. Area harvested: 0.0021.

Treatments: All combinations of:-

1. Chlormequat\*: None (0), seed treated with chlormequat (C).
2. Nitrogen: 0.5 (N1), 1.0 (N2), 1.5 (N3) cwt as 'Nitro-Chalk' top dressed in spring.

\* The amount of chlormequat in the seed was 4.8%.  
It was applied by spraying the seed.

Basal applications: 280 lb (0:20:20) broadcast by drill at sowing. Weedkillers: Paraquat at 0.5 lb ion in 25 gals. Mecoprop at 42 oz and 2,4-D at 0.5 oz in 20 gals.

Cultivations, etc.: Ploughed: 6 Aug, 1968. Paraquat applied: 18 Oct. Seed drilled at 190 lb: 22 Oct. 'Nitro-Chalk' applied: 29 Apr, 1969. Mecoprop/2,4-D applied: 3 May. Combine harvested: 1 Sept. Variety: Cappelle. Previous crops: Lucerne 1964 - 1967.

NOTE: A plant count was made on 6 Feb, 1969, a tiller count on 5 June and stem height estimations on 5 and 13 June. Samples for yield were taken on 25 Aug.

Standard error per plot.

Grain, cwt: 4.77 or 9.0% (13 d.f.)

SUMMARY OF RESULTS

GRAIN:CWT

	N1	N2	N3	Mean
		(±2.39)		(±1.38)
O	52.2	60.8	59.1	57.4
C	47.2	49.2	48.3	48.2
Mean (±1.69)	49.7	55.0	53.7	52.8

Mean D.M.%: 81.9

WINTER WHEAT

(69/R/W/10)

Chemical control of take-all (*Ophiobolus graminis*), Highfield Drive 1969.

Design: 4 randomised blocks of 7 plots.

Area of each plot: 0.0050. Area harvested: 0.0026.

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

1. Fungicide: Benomyl (B), M2452(M), each as 50 % wettable powder, 'Plantvax' (P) as 75% wettable powder.
2. Rates of application: 1 lb(1), 5 lb(2) a.i.

Basal applications: 280 lb (6:15:15) combine drilled. 0.8 cwt N as 'Nitro-Chalk' in spring. Weedkiller: mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals.

Cultivations, etc.: Ploughed: 20 Sept, 1968. Seed drilled at 180 lb: 16 Oct. 'Nitro-Chalk' applied: 27 Mar, 1969. Fungicides applied: 10 Apr. Weedkiller applied: 1 May. Combine harvested: 30 Aug. Variety: Cappelle. Previous crops: Barley 1967 and 1968.

NOTE: Samples were taken for estimation of take-all (*Ophiobolus graminis*), eyespot (*Cercospora herpotrichoides*) and sharp eyespot (*Rhizoctonia solani*) in spring and summer.

Standard error per plot.

Grain, cwt: 6.07 or 12.6% (15 d.f.)



SUMMARY OF RESULTS

GRAIN: CWT

	B	M	P	Mean
		(±3.04)		(±1.75)
1	50.2	45.6	46.9	47.6
2	51.2	49.8	45.3	48.8
Mean (±2.15)	50.7	47.7	46.1	48.2

0 46.6 (±3.04)

General Mean: 48.0  
 Mean D.M.%: 81.9