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Yields of the Field Experiments 1974

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74/S/CS/1 Varieties, N and Ccc - Wheat

74/S/CS/1 Varieties, N and Ccc - Wheat, Rothamsted Research (1975) Yields Of The Field Experiments 1974, pp 278 - 283 - DOI: <https://doi.org/10.23637/ERADOC-1-119>

74/S/CS/1

VARIETIES, N AND CCC

Object: To study the effects of nitrogen fertiliser, at a range of rates and times, and chlormequat (CCC) on the yield of two varieties of winter wheat - Saxmundham, Oldershaw's and Garner's plots.

Sponsors: F.V. Widdowson, A.E. Johnston.

The ninth year, winter wheat.

For previous years see 66/C/30(t), 67/C/23(t), 68/C/39, 69-70/S/CS/1, 71/S/CS/1(t), 72/S/CS/1(t) and 73/S/CS/1.

Design: A single replicate of 4 x 2 x 2 x 2 in 4 blocks of 4 plots, each split lengthways into 2, plus one additional plot per block. Additionally all the plots are split breadthways into 3.

Whole plot dimensions: 5.49 x 40.2. Sub-plot area harvested: 0.00355.

Treatments: All combinations of:-

Whole plots (All sown at a seed rate of 170 kg with 13 cm (5 inches) between the rows): 1. Number of previous continuous

wheat crops:

PREVCROP

5
6
7
8

5 Wheat
6 Wheat
7 Wheat
8 Wheat

2. Chlormequat (kg):

CCC

None

0.0

1.7 in 340 l

1.7

Half plots:

3. Times of applying nitrogen fertiliser:

N TIME

All in April (22 April)

April

Half in early April (8 April),

half in early May (7 May)

Apr/May

4. Varieties:

VARIETY

Cappelle

Cappelle

Maris Huntsman

Huntsman

74/S/CS/1

Pairs of sixth plots: 5. Rates of nitrogen fertiliser in addition to 62 kg N in autumn (4 Oct) (kg N): N RATE

50	50
100	100
150	150

Together with one extra plot per block which had 4 previous wheat crops and was sown with Cappelle at a seed rate of 180 kg with 20 cm (8 inches) between the rows and tested all combinations of:- EXTRA

Whole plots: 1. Chlormequat (kg): CCC

None	0.0
1.7 in 340 l	1.7

Half plots: 2. Nitrogen fertiliser in autumn (4 Oct) (kg N): AUTUMN N

None	0
62	62

Pairs of sixth plots: 3. Nitrogen fertiliser in spring (22 April) (kg N): SPRING N

50	50
100	100
150	150

Basal applications: Manures: 1260 kg (0:20:20) applied to stubble before ploughing. 31 kg P2O5 and K2O broadcast at drilling as (20:10:10) except extra plots receiving no autumn N which received (0:20:20). Weedkillers: Terbutryne and related triazines ('Prebane' at 4.5 kg in 340 l, Ioxynil at 0.63 kg with mecoprop at 1.9 kg in 450 l.

Cultivations, etc.: First basal PK applied: 19 Sept, 1973. Ploughed: 25 Sept. Spring-tine cultivated: 3 Oct. Seed sown and second basal PK applied: 4 Oct. 'Prebane' applied: 5 Oct. Ioxynil and mecoprop applied: 2 Apr, 1974. Growth regulator applied: 7 May. Combine harvested: 28 Aug.

NOTE: Green crop samples were taken for estimates of total dry matter and leaf areas.

74/S/CS/1

NOTES: (1) 4 plots:-	PREVCROP	6 wheat	6 wheat	7 wheat	7 wheat
	CCC	0.0	0.0	0.0	0.0
	N TIME	April	Apr/May	April	Apr/May
	VARIETY	Cappelle	Huntsman	Huntsman	Cappelle
	N RATE	150	150	150	150

were badly damaged by birds and no yields were taken. Estimated values were used in the analysis.

(2) On the EXTRA plots one of the whole plots receiving CCC was waterlogged and infested with blackgrass causing a decrease in plant population.

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TABLES OF MEANS

GRAIN: TONNES/HECTARE

PREVCROP

	5 Wheat	6 Wheat	7 Wheat	8 Wheat	Mean
CCC					
0.0	6.17	6.11	6.25	6.13	6.17
1.7	6.37	6.39	6.25	6.34	6.34
N TIME					
April	6.37	6.22	6.33	6.15	6.27
Apr/May	6.18	6.29	6.18	6.32	6.24
VARIETY					
Cappelle	5.96	6.00	6.04	6.05	6.01
Huntsman	6.59	6.50	6.47	6.42	6.49
N RATE					
50	5.41	5.46	5.27	5.40	5.39
100	6.42	6.62	6.72	6.74	6.63
150	6.98	6.67	6.76	6.57	6.75
Mean	6.27	6.25	6.25	6.24	6.25

74/S/CS/1

EXTRA

GRAIN: TONNES/HECTARE

	AUTUMN N		SPRING N			Mean
	0	62	50	100	150	
CCC						
0.0	5.02	5.65	4.21	5.59	6.20	5.33
1.7	4.22	5.04	3.82	4.78	5.31	4.63
	AUTUMN N					
		0	3.56	4.81	5.49	4.62
		62	4.47	5.55	6.02	5.35
Mean			4.01	5.18	5.76	4.98
AUTUMN		0			63	
SPRING N	50	100	150	50	100	150
CCC						
0.0	3.79	5.18	6.08	4.63	6.00	6.33
1.7	3.33	4.45	4.89	4.30	5.11	5.72

Mean D.M. % 84.8

74/S/CS/1

EXTRA

STRAW: TONNES/HECTARE

	AUTUMN N		SPRING N			Mean
	0	62	50	100	150	
CCC						
0.0	3.35	3.86	2.90	3.75	4.16	3.60
1.7	2.97	3.34	2.80	3.27	3.40	3.16
	AUTUMN N					
		0	2.71	3.13	3.65	3.16
		62	3.00	3.89	3.91	3.60
Mean			2.85	3.51	3.78	3.38
AUTUMN N		0			63	
SPRING N	50	100	150	50	100	150
CCC						
0.0	2.52	3.35	4.17	3.29	4.15	4.15
1.7	2.90	2.90	3.12	2.71	3.64	3.67

Mean D.M. % 83.2