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ROTHAMSTED RESEARCH

Yields of the Field Experiments 1981

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81/S/CS/1 Factors Affecting Yield - W. Wheat

Rothamsted Research

Rothamsted Research (1982) *81/S/CS/1 Factors Affecting Yield - W. Wheat ;* Yields Of The Field Experiments 1981, pp 215 - 220 **- DOI: https://doi.org/10.23637/ERADOC-1-35**

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81/S/CS/1

FACTORS AFFECTING YIELD

Object: To study the effects of a range of factors on the yield of w. wheat - Saxmundham.

Sponsors: F.V. Widdowson, A. Penny.

The 16th year, w. 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 73-80/S/CS/1.

Design: Half replicate of 2x2x2x4x2 arranged as 8 whole plots split into 4 sub plots. One extra sub plot was included in each whole plot. Previous treatments have been ignored.

Whole plot dimensions: 8.53 x 18.3.

Treatments: All combinations of:-

Whole plots

1. VARIETY — Varieties:

   AVALON
   VIRTUE

2. AUT N — Nitrogen fertiliser to seedbed in autumn on 29 Sept, 1980:

   0
   50

3. PATHCONT — Pest & pathogen control:

   NONE — None
   FULL — Carbendazim (as 'Bavistin' at 0.5 kg) with tridemorph at 0.53 kg on 14 April, 1981. Carbendazim with maneb and tridemorph (as 'Cosmic' at 3.9 kg) with captafol at 1.05 kg on 20 May. Carbendazim at 0.25 kg with maneb at 1.61 kg and captafol at 1.05 kg, applied with pirimicarb at 0.14 kg on 2 July

Sub plots

4. N RATE — Total nitrogen fertiliser applied in spring (kg N):

   80
   120
   160
   200

5. N TIME — Times of applying nitrogen fertiliser:

   SINGLE — All on 14 April
   DIVIDED — 40 kg N on 19 Feb, 1981, remainder on 14 April

plus whole plot treatments as above but given no spring nitrogen

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NOTES: (1) Treatment sprays were applied in 280 l.
(2) Plots given autumn N (treatment 2) received it as the compound (15:15:15). Plots not given autumn N received balancing P and K as (0:20:20). Applied 29 Sept, 1980.

Basal applications: Manures: K_2O at 190 kg as muriate of potash.

Weedkillers: Chlortoluron at 5.6 l in 220 l. Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.5 l) with 'Wheatclene' (1.26 kg of solid (metoxuron and simazine) plus 1.26 l of liquid (barban)) in 220 l.

Seed: Varieties sown at 375 seed per m^2.

Cultivations, etc.:- Muriate of potash applied: 27 Aug, 1980. Ploughed: 29 Aug. Seed sown: 29 Sept. Chlortoluron applied: 30 Sept. 'Brittox' and 'Wheatclene' applied: 7 Apr, 1981. Combine harvested: 18 Aug.

NOTE: Plots were sampled in autumn and spring for mineral N content of soil (to 90 cm depth) and for nitrate content of crop. N content of grain and straw was determined at harvest.

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81/S/CS/1

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

SPRING NITROGEN APPLIED

AUT N	0	50	MEAN
VARIETY			
AVALON	9.10	9.58	9.34
VIRTUE	9.48	9.38	9.43
MEAN	9.29	9.48	9.38

PATHCONT	NONE	FULL	MEAN
VARIETY			
AVALON	8.89	9.78	9.34
VIRTUE	8.04	10.82	9.43
MEAN	8.47	10.30	9.38

PATHCONT	NONE	FULL	MEAN
AUT N			
0	8.38	10.19	9.29
50	8.55	10.41	9.48
MEAN	8.47	10.30	9.38

N TIME	SINGLE	DIVIDED	MEAN
VARIETY			
AVALON	9.36	9.31	9.34
VIRTUE	9.38	9.48	9.43
MEAN	9.37	9.40	9.38

N TIME	SINGLE	DIVIDED	MEAN
AUT N			
0	9.29	9.29	9.29
50	9.46	9.50	9.48
MEAN	9.37	9.40	9.38

N TIME	SINGLE	DIVIDED	MEAN
PATHCONT			
NONE	8.42	8.51	8.47
FULL	10.33	10.28	10.30
MEAN	9.37	9.40	9.38

N RATE	80	120	160	200	MEAN
VARIETY					
AVALON	8.59	9.27	9.64	9.84	9.34
VIRTUE	8.99	9.48	9.67	9.57	9.43
MEAN	8.79	9.38	9.66	9.71	9.38

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81/S/CS/1

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

N RATE	80	120	160	200	MEAN
AUT N					
0	8.49	9.26	9.58	9.82	9.29
50	9.09	9.50	9.73	9.60	9.48
MEAN	8.79	9.38	9.66	9.71	9.38

N RATE	80	120	160	200	MEAN
PATHCONT					
NONE	8.15	8.51	8.69	8.51	8.47
FULL	9.43	10.24	10.63	10.91	10.30
MEAN	8.79	9.38	9.66	9.71	9.38

N RATE	80	120	160	200	MEAN
N TIME					
SINGLE	8.78	9.36	9.65	9.69	9.37
DIVIDED	8.80	9.39	9.66	9.72	9.40
MEAN	8.79	9.38	9.66	9.71	9.38

NO SPRING NITROGEN

AUT N	0	50	MEAN
VARIETY			
AVALON	5.47	6.44	5.96
VIRTUE	7.11	7.56	7.33
MEAN	6.29	7.00	6.65

PATHCONT	NONE	FULL	MEAN
VARIETY			
AVALON	6.44	5.48	5.96
VIRTUE	6.95	7.71	7.33
MEAN	6.70	6.59	6.65

PATHCONT	NONE	FULL	MEAN
AUT N			
0	6.30	6.28	6.29
50	7.09	6.91	7.00
MEAN	6.70	6.59	6.65

GRAND MEAN 8.84

GRAIN MEAN DM% 86.9

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81/S/CS/1

STRAW TONNES/HECTARE

***** TABLES OF MEANS *****

SPRING NITROGEN APPLIED

AUT N	0	50	MEAN
VARIETY			
AVALON	4.19	4.76	4.48
VIRTUE	4.72	5.25	4.98
MEAN	4.45	5.01	4.73

PATHCONT	NONE	FULL	MEAN
VARIETY			
AVALON	4.12	4.83	4.48
VIRTUE	4.73	5.23	4.98
MEAN	4.42	5.03	4.73

PATHCONT	NONE	FULL	MEAN
AUT N			
0	4.07	4.84	4.45
50	4.78	5.23	5.01
MEAN	4.42	5.03	4.73

N TIME	SINGLE	DIVIDED	MEAN
VARIETY			
AVALON	4.35	4.60	4.48
VIRTUE	4.94	5.03	4.98
MEAN	4.65	4.81	4.73

N TIME	SINGLE	DIVIDED	MEAN
AUT N			
0	4.30	4.61	4.45
50	4.99	5.02	5.01
MEAN	4.65	4.81	4.73

N TIME	SINGLE	DIVIDED	MEAN
PATHCONT			
NONE	4.26	4.59	4.42
FULL	5.03	5.04	5.03
MEAN	4.65	4.81	4.73

N RATE	80	120	160	200	MEAN
VARIETY					
AVALON	4.29	4.34	4.56	4.70	4.48
VIRTUE	4.57	4.79	5.13	5.45	4.98
MEAN	4.43	4.56	4.85	5.07	4.73

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81/S/CS/1

STRAW TONNES/HECTARE

***** TABLES OF MEANS *****

SPRING NITROGEN APPLIED

N RATE	80	120	160	200	MEAN
AUT N					
0	4.08	4.37	4.49	4.88	4.45
50	4.79	4.76	5.20	5.27	5.01
MEAN	4.43	4.56	4.85	5.07	4.73

N RATE	80	120	160	200	MEAN
PATHCONT					
NONE	4.17	4.35	4.45	4.73	4.42
FULL	4.69	4.78	5.24	5.42	5.03
MEAN	4.43	4.56	4.85	5.07	4.73

N RATE	80	120	160	200	MEAN
N TIME					
SINGLE	4.32	4.40	4.84	5.02	4.65
DIVIDED	4.54	4.73	4.85	5.13	4.81
MEAN	4.43	4.56	4.85	5.07	4.73

NO SPRING NITROGEN

AUT N	0	50	MEAN
VARIETY			
AVALON	2.89	3.31	3.10
VIRTUE	3.20	3.80	3.50
MEAN	3.05	3.56	3.30

PATHCONT	NONE	FULL	MEAN
VARIETY			
AVALON	3.15	3.06	3.10
VIRTUE	3.40	3.60	3.50
MEAN	3.27	3.33	3.30

PATHCONT	NONE	FULL	MEAN
AUT N			
0	3.17	2.92	3.05
50	3.38	3.74	3.56
MEAN	3.27	3.33	3.30

GRAND MEAN 4.44

STRAW MEAN DM% 76.2

SUBPLOT AREA HARVESTED 0.00126

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