

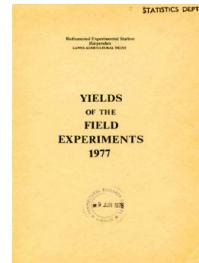
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77/R/WW/6 Rates and Times of N and K - W. Wheat

Rothamsted Research

Rothamsted Research (1978) 77/R/WW/6 Rates and Times of N and K - W. Wheat ; Yields Of The Field Experiments 1977, pp 326 - 328 - DOI: <https://doi.org/10.23637/ERADOC-1-29>

77/R/WW/6

WINTER WHEAT

RATES AND TIMES OF N AND K

Object: To study the effects of a range of rates and times of applying nitrogen and of forms of potassium on the nutrient uptake, protein quality and yield of two varieties of winter wheat - Fosters West.

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Design: 3 randomised blocks of 2 plots split into 18.

Whole plot dimensions: 5.64 x 46.0

Whole plots

1 VARIETY Varieties:

CAPPELLE
ET TNOB

Sub plots

2. N S L Rates, forms and times of applying nitrogen fertiliser (kg N):

120	30	120	+	30
120	60	120	+	60
120	90	120	+	90

3. K FORM Form of potassium fertiliser added to urea spray (at a 10:1 N:K atom ratio - urea dressings modified where KNO_3 used to maintain correct total N):

NONE	None
KNO ₃	Potassium nitrate
K ₂ SO ₄	Potassium sulphate

plus all combinations of:-

Whole plots

1. VARIETY Varieties:

CAPPelle
FLINOR

77/R/WW/6

Sub plots

2. N S Rates of 'Nitro-Chalk' in spring (20 Apr) (kg N):

0
30
60
90
120 (duplicated)
150
180
210

Basal applications: Manures: (0:20:20) at 310 kg, combine drilled. Weedkillers: Paraquat at 0.56 kg ion in 220 l, applied in autumn. Ioxynil at 0.53 kg with mecoprop at 1.6 kg in 220 l, applied in spring. Insecticide: Pirimicarb at 0.14 kg in 280 l.

Seed: Varieties sown at 200 kg.

Cultivations, etc.: - Deep-tine cultivated: 25 Aug, 1976, 3 Sept. Autumn weedkiller applied: 27 Oct. Heavy spring-tine cultivated: 20 Nov. Sown: 24 Nov. Spring weedkillers applied: 23 May, 1977. Insecticide applied: 15 July. Combine harvested: 6 Sept. Previous crops: Winter barley 1975, winter oats 1976.

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N S L	K FORM	N S	VARIETY N S L	MIN REP	MAX-MIN
SED	0.161	0.161	0.278 0.241	0.227*		

TABLE	VARIETY K FORM	N S L	K FORM	VARIETY N S	VARIETY N S L	K FORM
SED	0.277*	0.278		0.394* 0.341*	0.394*	MIN REP MAX-MIN

* WITHIN THE SAME LEVEL OF VARIETY ONLY

N S
MAX-MIN 120 V ANY OF REMAINDER
MIN REP ANY OF REMAINDER

***** STRATUM STANDARD ERRORS OF COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	70	0.482	9.2
GRAIN MEAN DM% 79.3			
SUB PLOT AREA HARVESTED 0.00073			

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GRAIN TONNES/HECTARE

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

UREA SPRAYS APPLIED

N S L VARIETY	120 30	120 60	120 90	MEAN
CAPPELLE	5.57	5.50	5.56	5.54
FLINOR	5.30	5.19	5.37	5.29
MEAN	5.43	5.35	5.47	5.41
K FORM VARIETY	NONE	KNO3	K2SO4	MEAN
CAPPELLE	5.62	5.73	5.28	5.54
FLINOR	5.50	5.03	5.34	5.29
MEAN	5.56	5.38	5.31	5.41
K FORM N S L	NONE	KNO3	K2SO4	MEAN
120 30	5.49	5.54	5.27	5.43
120 60	5.50	5.40	5.14	5.35
120 90	5.69	5.20	5.51	5.47
MEAN	5.56	5.38	5.31	5.41
VARIETY	K FORM N S L	NONE	KNO3	K2SO4
CAPPELLE	120 30	5.45	6.04	5.21
	120 60	5.59	5.71	5.19
	120 90	5.83	5.42	5.43
FLINOR	120 30	5.54	5.03	5.33
	120 60	5.41	5.08	5.09
	120 90	5.54	4.97	5.59

UREA SPRAYS NOT APPLIED

VARIETY	CAPPELLE	FLINOR	MEAN
N S			
0	3.00	2.97	2.98
30	3.34	3.79	3.56
60	4.36	4.49	4.43
90	5.68	4.77	5.23
120	5.97	5.41	5.69
150	5.68	5.74	5.71
180	6.72	5.76	6.24
210	5.57	5.74	5.66
MEAN	5.14	4.90	5.02

GRAND MEAN 5.22