

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED
RESEARCH

Yields of the Field Experiments 1972

[Full Table of Content](#)



72/R/RN/11 Irrigation - W. Wheat, Kale

Rothamsted Research

Rothamsted Research (1973) *72/R/RN/11 Irrigation - W. Wheat, Kale ; Yields Of The Field Experiments 1972*, pp 101 - 106 - DOI: <https://doi.org/10.23637/ERADOC-1-62>

72/R/RN/11

IRRIGATION

Object: To study the effects of different timing and intensity of irrigation on a rotation of crops. Other agronomic factors are included from time to time - Great Field I and II.

Sponsors: B.J. Legg, J.V. Lake, B.K. French.

The ninth year, winter wheat, kale.

For previous years see 64/C/15(t), 65/C/14(t), 66/C/9(t), 67/C/7(t), 68/C/6(t), 69/R/RN/11(t), 70/R/RN/11(t) and 71/R/RN/11(t).

Design (each crop): 4 randomised blocks of 4 plots, split into half and quarter plots.

Whole plot dimensions:

Winter wheat: 30.4 x 13.1. Sub plot area harvested: 0.00347.

Kale: 15.2 x 32.0. Sub plot area harvested: 0.00098.

Treatments:

Winter wheat: All combinations of:-

- Whole plots: 1. Irrigation (I): None (O), full irrigation (I).
2. Row spacing and seed rate (RS): Rows 17.8 cm (7 inches) apart, 224 kg seed (C), rows 35.6 cm (14 inches) apart, 56 kg seed (W).

Half plots: 3. Sowing date (SD): 6 Oct, 1971 (E), 17 Mar, 1972 (L).

Quarter plots: 4. Nitrogen: 45, 90 kg N as 'Nitro-Chalk'.

Kale: All combinations of:-

Whole plots: 1. Irrigation (I): None (O), full irrigation (I).

2. Row spacing and seed rate (RS): Rows 53.3 cm (21 inches) apart, 1.68 kg seed (C), rows 106.7 cm (42 inches) apart, 0.42 kg seed (W).

Half plots: 3. Sowing date (SD): 18 Apr, 1972 (E), 30 May, 1972 (L).

Quarter plots: 4. Fertiliser (F) (alternating with 1971 rates to potatoes): 753, 1130 kg (20:15:15).

Standard applications:

Winter wheat: 282 kg (0:20:20) combine drilled. Weedkiller:

Autumn sown wheat (E): MCPA, mecoprop and dicamba ('Tetrallex Plus' at 7 l in 220 l). Spring sown wheat (L): Ioxynil, bromoxynil, dichlorprop and MCPA ('Tetroxone' at 5.6 l in 220 l).

Kale: Manures: None.

72/R/RN/11

Seed: Winter wheat: Maris Ranger.

Kale: Maris Kestrel, graded and dressed with gamma BHC and captan.

Cultivations, etc.:

Winter wheat: Ploughed: 23 Sept, 1971. Seed combine drilled (E):

6 Oct. N applied to L plots, seed combine drilled (L):

17 Mar, 1972. Weedkiller applied (E): 17 Apr. N applied to

E plots: 20 Apr. Weedkiller applied (L): 8 May. Combine

harvested (E): 5 Sept. Combine harvested (L): 7 Sept.

Kale: Deep-tine cultivated twice: 12 Nov and 10 Dec, 1971. NPK

fertiliser applied (E): 6 Apr, 1972. Seed drilled (E):

18 Apr. NPK applied (L): 19 May. Seed drilled (L):

30 May. Cut: 21 Nov.

Standard errors per plot.

Wheat, grain, tonnes/hectare:

Whole plot: 0.389 or 7.0% (9 d.f.)

1/2 plot: 0.369 or 6.6% (12 d.f.)

1/4 plot: 0.628 or 11.3% (24 d.f.)

Kale, fresh weight: tonnes/hectare:

Whole plot: 5.62 or 7.0% (9 d.f.)

1/2 plot: 4.66 or 5.8% (12 d.f.)

1/4 plot: 5.95 or 7.5% (24 d.f.)

72/R/RN/11

RAINFALL AND IRRIGATION: MM

Week- ending	Rainfall	IRRIGATION	
		WHEAT (Winter and Spring)	KALE (Early and Late)
May 6	11.0		
May 13	11.1		
May 20	6.3		
May 27	14.1		
June 3	4.5	25.0	
June 10	11.5		
June 17	5.2	15.0	
June 24	13.8		
July 1	3.2	25.0	
July 8	12.7		
July 15	0.0		
July 22	4.7	25.0	25.0
July 29	0.6	25.0	25.0
Aug 5	29.0		
Aug 12	18.1		
Aug 19	TR		
Aug 26	0.0		25.0
Sept 2	0.0		
Sept 9	16.2		
Sept 16	6.9		
Sept 23	8.1		
Sept 30	TR		
Total	177.0	115.0	75.0

72/R/RN/11

TABLES OF MEANS

WHEAT

GRAIN: TONNES/HECTARE

	RS		SD		N: KG/HA		Mean
	C	W	E	L	45	90	
I							
O	6.39	5.38	6.34	5.43	5.87	5.89	5.88
I	5.83	4.69	5.56	4.97	5.20	5.32	5.26
		RS					
		C	6.45	5.78	5.93	6.30	6.11
		W	5.44	4.62	5.15	4.91	5.03
			SD				
			E		5.92	5.97	5.95
			L		5.16	5.24	5.20
Mean					5.54	5.61	5.57

STANDARD ERRORS OF DIFFERENCES

I	RS	SD	N	I	I	RS	I	RS	SD
				RS	SD	SD	N	N	N
0.194	0.194	0.130	0.157	0.275	0.234	0.234	0.250	0.250	0.204
Unless same levels of									
I					0.184		0.222		
RS						0.184		0.222	
SD									0.222

Mean D.M. %: 82.9

72/R/RN/11

WHEAT

STRAW: TONNES/HECTARE

	RS		SD		N: KG/HA		Mean
	C	W	E	L	45	90	
I							
O	5.83	4.99	6.04	4.78	5.24	5.58	5.41
I	5.92	5.71	6.36	5.27	5.58	6.05	5.81
		RS					
		C	6.67	5.73	5.73	6.03	5.88
		W	5.08	4.97	5.09	5.61	5.35
				SD			
				E	5.90	6.50	5.41
				L	4.92	5.13	5.82
Mean					6.20	5.02	5.61

Mean D.M. %: 74.0

72/R/RN/11

KALE

FRESH WEIGHT: TONNES/HECTARE

	RS		SD		F: KG/HA		Mean
	C	W	E	L	753	1130	
I							
O	82.1	79.0	81.0	80.1	80.5	80.6	80.5
I	81.3	77.0	79.4	78.9	79.6	78.7	79.2
		RS					
		C	82.0	81.4	81.0	82.4	81.7
		W	78.4	77.5	79.1	76.9	78.0
				SD			
				E	80.7	79.7	80.2
				L	79.4	79.6	79.5
Mean					80.1	79.7	79.9

STANDARD ERRORS OF DIFFERENCES

I	RS	SD	F	I	I	RS	I	RS	SD
				RS	SD	SD	F	F	F
2.81	2.81	1.65	1.49	3.97	3.26	3.26	3.18	3.18	2.22
Unless same levels of									
I					2.33		2.10		
RS						2.33		2.10	
SD									2.10