

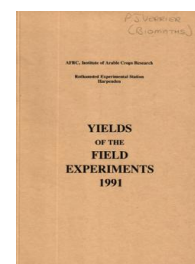
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91/R/RAW/4 N, S and Glucosinolates - W. Oilseed Rape

Rothamsted Research

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91/R/RAW/4

WINTER OILSEED RAPE

N, S AND GLUCOSINOLATES

Object: To study the separate and combined effects of rates of nitrogen and sulphur on the quality and yield of three varieties of w. oilseed rape - Pastures.

Sponsors: J.E. Fieldsend, J. Spink, J.E. Leach, H. Stevenson.

Design: 4 replicates of 3 x 3 x 3 in blocks of 9 plots.

Whole plot dimensions: 3.0 x 21.0.

Treatments: All combinations of:

1. **VARIETY** Varieties:

ARIANA	Ariana
FALCON	Falcon
LIBRAVO	Libravo

2. **N** Nitrogen fertilizer (kg N) as 'Nitram' on 12 Mar, 1991:

0
150
250

3. **S** Sulphur (kg S) as calcium sulphate on 13 Mar:

0
50
100

NOTE: Sulphur was applied as gypsum (17.5% S).

Basal applications: Manure: Magnesian limestone at 5.0 t. Weedkiller: Metazachlor at 0.75 kg in 200 l. Fungicide: Prochloraz at 0.40 kg in 300 l. Insecticide: Deltamethrin at 6.2 g in 200 l. Irrigation: 25 mm applied on two occasions.

Seed: Varieties, dressed fenpropimorph, gamma-HCH and thiram, sown at 120 seeds per square metre.

Cultivations, etc.:- Magnesian limestone applied: 31 July, 1990.

Ploughed: 3 Aug. Rotary harrowed: 28 Aug. Rotary harrowed, seed sown: 29 Aug. Weedkiller applied: 30 Aug. Irrigation applied: 13 and 27 Sept. Deltamethrin applied: 15 Oct. Fungicide applied: 23 Apr, 1991. Combine harvested: 8 Aug. Previous crops: W. wheat 1989, w. barley 1990.

NOTE: Crop samples were taken on five occasions throughout the season and a further five during seed development, to measure nitrogen, sulphur and glucosinolate content.

91/R/RAW/4

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

***** Tables of means *****

	N	0	150	250	Mean
VARIETY					
ARIANA		2.94	3.80	3.67	3.47
FALCON		2.87	3.53	3.85	3.42
LIBRAVO		2.88	3.52	3.06	3.15
Mean		2.90	3.61	3.53	3.35
	S	0	50	100	Mean
VARIETY					
ARIANA		3.53	3.39	3.49	3.47
FALCON		3.34	3.48	3.43	3.42
LIBRAVO		3.04	3.27	3.15	3.15
Mean		3.30	3.38	3.35	3.35
	S	0	50	100	Mean
N					
0		2.99	2.82	2.88	2.90
150		3.47	3.69	3.68	3.61
250		3.44	3.64	3.50	3.53
Mean		3.30	3.38	3.35	3.35
	S	0	50	100	
VARIETY	N				
ARIANA	0	3.11	2.81	2.90	
	150	3.73	3.71	3.94	
	250	3.73	3.66	3.61	
FALCON	0	3.00	2.74	2.88	
	150	3.06	3.76	3.76	
	250	3.97	3.94	3.63	
LIBRAVO	0	2.86	2.91	2.85	
	150	3.63	3.58	3.35	
	250	2.63	3.31	3.25	

*** Standard errors of differences of means ***

	VARIETY	N	S	VARIETY
				N
	0.067	0.067	0.067	0.116
	VARIETY	N	VARIETY	
	S	S	N	S
	0.116	0.116	0.211	
Except when comparing means with the same level(s) of				
VARIETY			0.207	
N			0.207	
S			0.207	
VARIETY.N			0.214	
VARIETY.S			0.214	
N.S			0.214	

91/R/RAW/4

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
REP.BLOCK.WP	70	0.283	8.5
GRAIN MEAN DM%	82.8		
SUB PLOT AREA HARVESTED	0.00345		