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86/R/RA/4 Growth Regulators and Fungicides - W. Oilseed Rape

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86/R/RA/4

WINTER OILSEED RAPE

GROWTH REGULATORS AND FUNGICIDES

Object: To study the effects of a range of materials on the control of fungi and on the growth and the yield of w. oilseed rape - Bylands.

Sponsor: C.J. Rawlinson.

Design: Single replicate of 3 x 4 x 2 x 2 split into 2.

Whole plot dimensions: 4.0 x 21.0.

Treatments: All combinations of:-

Whole plots

- | | |
|-------------|--|
| 1. FUNGCIDE | Fungicides: |
| NONE | None |
| PROCHLOR | Prochloraz at 0.50 kg |
| PROPICON | Propiconazole at 0.12 kg |
| 2. GRTH REG | Growth regulators: |
| NONE | None |
| MEPIQUAT | Mepiquat chloride at 0.915 kg + 2-chlorethyl-phosphonic acid at 0.465 kg |
| TRIAPENT | Triapenthenol (as 'U.K.244a' at 0.70 kg) |
| BAS11100 | 'BAS 11100W' at 3.0 l |
| 3. VARIETY | Varieties: |
| BIENVENU | Bienvenu |
| NRPB8424 | NRPB 84-24 |
| 4. APP TIME | Times of application: |
| AUTUMN | Autumn, on 27 Nov, 1985 |
| SPRING | Spring, on 25 Apr, 1986 |

Sub plots

- | | |
|------|---|
| 5. N | Nitrogen rates (kg N) as 'Nitram' in spring, on 12 Mar, 1986: |
| 150 | |
| 300 | |

NOTE: Treatment sprays were applied in 220 l.

Basal applications: Manures: (0:24:24) at 200 kg. 'Nitro-Chalk' at 180 kg. Weedkillers: Clopyralid and propyzamide (as 'Matrikerb' at 1.6 kg) in 500 l applied with the insecticide. Insecticide: Deltamethrin at 0.0062 kg. Desiccant: Diquat at 0.60 kg ion in 500 l with a wetting agent ('Agral' at 0.50 l).

Seed: Varieties sown at 8.0 kg.

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Cultivations, etc.:- Rotary grubbed: 16 Aug, 1985. PK applied, basal N applied, spring-tine cultivated: 19 Aug. Spring-tine cultivated: 30 Aug. Seed sown: 10 Sept. Weedkillers and insecticide applied: 30 Oct. Desiccant with wetting agent applied: 24 July, 1986. Combine harvested: 2 Aug. Previous crops: W. wheat 1984, w. barley 1985.

NOTES: (1) Plant height and disease assessments were made throughout the season. Flowering dates were noted, petal lengths and diameters measured and plant population counts made at harvest. Growth analysis and plant structure measurements were made just before harvest.

(2) Because an error occurred during the application of treatments to five whole plots the yields from ten sub plots were lost, those from the whole plot combinations:

FUNGICIDE	PROPICON	PROPICON	PROPICON	PROPICON	NONE
GRTH REG	TRIAPENT	TRIAPENT	MEPIQUAT	BAS11100	BAS11100
VARIETY	NRPB8424	BIENVENU	BIENVENU	NRPB8424	NRPB8424
APP TIME	SPRING	SPRING	SPRING	AUTUMN	AUTUMN

Estimated values were used in the analysis.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

GRTH REG	NONE	MEPIQUAT	TRIAPENT	BAS11100	MEAN
FUNGICIDE					
NONE	3.40	3.21	3.16	3.52	3.32
PROCHLOR	3.36	3.11	3.15	3.59	3.30
PROPICON	3.29	3.68	3.16	3.63	3.44
MEAN	3.35	3.33	3.16	3.58	3.35
VARIETY	BIENVENU	NRPB8424	MEAN		
FUNGICIDE					
NONE	3.35	3.29	3.32		
PROCHLOR	3.35	3.25	3.30		
PROPICON	3.51	3.37	3.44		
MEAN	3.40	3.31	3.35		
VARIETY	BIENVENU	NRPB8424	MEAN		
GRTH REG					
NONE	3.34	3.36	3.35		
MEPIQUAT	3.52	3.14	3.33		
TRIAPENT	3.15	3.16	3.16		
BAS11100	3.60	3.56	3.58		
MEAN	3.40	3.31	3.35		
APP TIME	AUTUMN	SPRING	MEAN		
FUNGICIDE					
NONE	3.23	3.42	3.32		
PROCHLOR	3.30	3.30	3.30		
PROPICON	3.34	3.54	3.44		
MEAN	3.29	3.42	3.35		

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GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

APP TIME	AUTUMN	SPRING	MEAN
GRTH REG			
NONE	3.31	3.39	3.35
MEPIQUAT	3.08	3.59	3.33
TRIAPENT	3.08	3.23	3.16
BAS11100	3.68	3.48	3.58
MEAN	3.29	3.42	3.35
APP TIME	AUTUMN	SPRING	MEAN
VARIETY			
BIENVENU	3.29	3.52	3.40
NRPB8424	3.29	3.33	3.31
MEAN	3.29	3.42	3.35
N	150	300	MEAN
FUNGCIDE			
NONE	3.32	3.32	3.32
PROCHLOR	3.27	3.33	3.30
PROPICON	3.40	3.48	3.44
MEAN	3.33	3.38	3.35
N	150	300	MEAN
GRTH REG			
NONE	3.30	3.39	3.35
MEPIQUAT	3.36	3.30	3.33
TRIAPENT	3.18	3.14	3.16
BAS11100	3.49	3.67	3.58
MEAN	3.33	3.38	3.35
N	150	300	MEAN
VARIETY			
BIENVENU	3.43	3.38	3.40
NRPB8424	3.24	3.37	3.31
MEAN	3.33	3.38	3.35
N	150	300	MEAN
APP TIME			
AUTUMN	3.28	3.30	3.29
SPRING	3.39	3.45	3.42
MEAN	3.33	3.38	3.35

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GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

VARIETY BIENVENU		NRPB8424	
FUNGCIDE	GRTH REG		
NONE	NONE	3.32	3.48
	MEPIQUAT	3.45	2.96
	TRIAPENT	3.08	3.24
	BAS11100	3.55	3.49
PROCHLOR	NONE	3.41	3.30
	MEPIQUAT	3.02	3.19
	TRIAPENT	3.16	3.15
	BAS11100	3.82	3.36
PROPICON	NONE	3.28	3.30
	MEPIQUAT	4.10	3.26
	TRIAPENT	3.23	3.09
	BAS11100	3.42	3.84

APP TIME		AUTUMN	SPRING
FUNGCIDE	GRTH REG		
NONE	NONE	3.28	3.53
	MEPIQUAT	3.13	3.29
	TRIAPENT	3.14	3.18
	BAS11100	3.36	3.67
PROCHLOR	NONE	3.45	3.26
	MEPIQUAT	2.94	3.28
	TRIAPENT	3.05	3.25
	BAS11100	3.76	3.42
PROPICON	NONE	3.20	3.37
	MEPIQUAT	3.17	4.20
	TRIAPENT	3.05	3.27
	BAS11100	3.93	3.33

VARIETY	BIENVENU	NRPB8424		
APP TIME	AUTUMN	SPRING	AUTUMN	SPRING
FUNGCIDE				
NONE	3.34	3.36	3.11	3.48
PROCHLOR	3.33	3.37	3.27	3.23
PROPICON	3.17	3.85	3.50	3.24

VARIETY	BIENVENU	NRPB8424		
APP TIME	AUTUMN	SPRING	AUTUMN	SPRING
GRTH REG				
NONE	3.20	3.47	3.42	3.31
MEPIQUAT	3.25	3.79	2.90	3.38
TRIAPENT	3.03	3.28	3.13	3.19
BAS11100	3.66	3.53	3.70	3.43

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GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

	N	150	300	
FUNGCIDE	GRTH REG			
	NONE	3.29	3.52	
	MEPIQUAT	3.35	3.07	
	TRIAPENT	3.22	3.10	
	BAS11100	3.45	3.59	
PROCHLOR	NONE	3.29	3.43	
	MEPIQUAT	3.10	3.11	
	TRIAPENT	3.22	3.09	
	BAS11100	3.48	3.70	
PROPICON	NONE	3.34	3.24	
	MEPIQUAT	3.63	3.73	
	TRIAPENT	3.10	3.22	
	BAS11100	3.54	3.72	
VARIETY	BIENVENU		NRPB8424	
	N	150	300	150
				300
FUNGCIDE				
	NONE	3.42	3.27	3.23
				3.36
PROCHLOR		3.36	3.35	3.19
				3.31
PROPICON		3.50	3.52	3.31
				3.44
VARIETY	BIENVENU		NRPB8424	
	N	150	300	150
				300
GRTH REG				
	NONE	3.32	3.35	3.28
				3.44
MEPIQUAT		3.62	3.42	3.10
				3.18
TRIAPENT		3.19	3.12	3.17
				3.15
BAS11100		3.57	3.62	3.41
				3.72
APP TIME	AUTUMN		SPRING	
	N	150	300	150
				300
FUNGCIDE				
	NONE	3.25	3.20	3.40
				3.44
PROCHLOR		3.28	3.32	3.27
				3.34
PROPICON		3.30	3.37	3.50
				3.59
APP TIME	AUTUMN		SPRING	
	N	150	300	150
				300
GRTH REG				
	NONE	3.26	3.36	3.35
				3.43
MEPIQUAT		3.09	3.06	3.63
				3.54
TRIAPENT		3.23	2.94	3.13
				3.34
BAS11100		3.54	3.83	3.44
				3.51
APP TIME	AUTUMN		SPRING	
	N	150	300	150
				300
VARIETY				
BIENVENU		3.30	3.28	3.55
				3.48
NRPB8424		3.25	3.32	3.22
				3.43

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GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

TABLE	N	FUNGCIDE* N	GRTH REG* N	VARIETY* N
SED	0.052	0.090	0.104	0.074

TABLE	APP TIME* N	FUNGCIDE* GRTH REG N	FUNGCIDE* VARIETY N	GRTH REG* VARIETY N
SED	0.074	0.181	0.128	0.147

TABLE	FUNGCIDE* APP TIME N	GRTH REG* APP TIME N	VARIETY* APP TIME N
SED	0.128	0.147	0.104

* ONLY WITHIN THE SAME LEVEL OF FUNGCIDE OR GRTH REG OR VARIETY OR APP TIME

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	18	0.255	7.6
GRAIN MEAN DM%	84.4		
PLOT AREA HARVESTED	0.00210		