

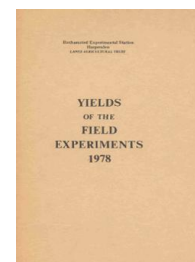
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## Yields of the Field Experiments 1978

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### 78/R/CS/213 Pesticide and Establishment - Ryegrass

#### Rothamsted Research

Rothamsted Research (1979) *78/R/CS/213 Pesticide and Establishment - Ryegrass* ; Yields Of The Field Experiments 1978, pp 294 - 308 - DOI: <https://doi.org/10.23637/ERADOC-1-30>

78/R/CS/213

PESTICIDES AND ESTABLISHMENT

Object: To study the effects of pest and disease control and interactions with seedbed condition and seed rates, on establishment and subsequent yield of Italian ryegrass - Long Hoos IV 1.

Sponsor: I.F. Henderson.

The first year, Italian ryegrass.

Design: 3 randomised blocks of 2 plots split into 8.

Whole plot dimensions: 2.44 x 6.10.

Treatments: All combinations of:-

Whole plots

1. SEEDBED            Seedbed conditions:

FINE  
ROUGH

Sub plots

2. SEEDRATE            Seed rate, kg:

2  
20

3. FUNGCIDE            Fungicides, kg:

NONE                    None  
DRAZ+BEN                Drazoxolon at 0.02 kg + benomyl at 10 kg on 19 Apr, 1978

4. INSCTCDE            Insecticide, kg:

NONE                    None  
PHORATE                 Phorate at 10 kg on 17 April

NOTES: (1) Phorate was applied as 10% granules.

(2) Drazoxolon was applied as a seed dressing, benomyl was watered on to the seedbed in 672 l.

Basal applications: Manures: (0:14:28) at 720 kg. N at 75 kg, as 'Nitro-Chalk 25' to the seed bed and after the first three cuts. Weedkiller: Paraquat at 0.56 kg ion in 340 l.

Seed: RvP.

Cultivations, etc.: - NPK applied: 29 Sept, 1977. Ploughed: 11 Oct. 'SEEDBED ROUGH' plots rigid-tined, 'SEEDBED FINE' plots power harrowed and rolled: 10 Apr, 1978. Weedkiller applied: 12 Apr. N applied and rotary cultivated after phorate and benomyl applied: 17 Apr. Seed sown: 19 Apr. Cut: 12 July, 11 Aug, 12 Sept, 12 Oct. N applied: 14 July, 15 Aug, 13 Sept. Previous crops: Clover 1976, fallow 1977.

78/R/CS/213

NOTE: Emergence counts were made on 12 June. The proportions of grass, clover, monocotyledonous and dicotyledonous weeds were determined. The incidence of frit fly *Oscinella frit* larvae were assessed in August and October.

1ST CUT (12/7/78) DRY MATTER TONNES/HECTARE

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

SEEDRATE	2	20	MEAN	
SEEDBED				
FINE	4.25	4.59	4.42	
ROUGH	3.50	3.99	3.75	
MEAN	3.87	4.29	4.08	
FUNGCIDE	NONE	DRAZ+BEN	MEAN	
SEEDBED				
FINE	4.39	4.45	4.42	
ROUGH	3.82	3.67	3.75	
MEAN	4.10	4.06	4.08	
FUNGCIDE	NONE	DRAZ+BEN	MEAN	
SEEDRATE				
2	3.91	3.84	3.87	
20	4.30	4.28	4.29	
MEAN	4.10	4.06	4.08	
INSCTCDE	NONE	PHORATE	MEAN	
SEEDBED				
FINE	4.40	4.44	4.42	
ROUGH	3.47	4.02	3.75	
MEAN	3.94	4.23	4.08	
INSCTCDE	NONE	PHORATE	MEAN	
SEEDRATE				
2	3.81	3.94	3.87	
20	4.06	4.52	4.29	
MEAN	3.94	4.23	4.08	
INSCTCDE	NONE	PHORATE	MEAN	
FUNGCIDE				
NONE	3.84	4.37	4.10	
DRAZ+BEN	4.03	4.09	4.06	
MEAN	3.94	4.23	4.08	
SEEDRATE	2	20		
FUNGCIDE	NONE	DRAZ+BEN	NONE	DRAZ+BEN
SEEDBED				
FINE	4.21	4.28	4.56	4.62
ROUGH	3.61	3.39	4.04	3.95

78/R/CS/213

1ST CUT (12/7/78) DRY MATTER TONNES/HECTARE

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

SEEDRATE	2		20		
INSCTCDE	NONE	PHORATE	NONE	PHORATE	
SEEDBED					
FINE	4.44	4.06	4.37	4.81	
ROUGH	3.19	3.81	3.76	4.23	
FUNGCIDE	NONE		DRAZ+BEN		
INSCTCDE	NONE	PHORATE	NONE	PHORATE	
SEEDBED					
FINE	4.25	4.52	4.55	4.35	
ROUGH	3.43	4.22	3.52	3.82	
FUNGCIDE	NONE		DRAZ+BEN		
INSCTCDE	NONE	PHORATE	NONE	PHORATE	
SEEDRATE					
2	3.73	4.09	3.89	3.78	
20	3.95	4.64	4.17	4.39	
	FUNGCIDE	NONE		DRAZ+BEN	
	INSCTCDE	NONE	PHORATE	NONE	PHORATE
SEEDBED	SEEDRATE				
FINE	2	4.31	4.11	4.56	4.01
	20	4.19	4.92	4.54	4.70
ROUGH	2	3.15	4.07	3.22	3.55
	20	3.71	4.37	3.81	4.08

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

TABLE		SEEDRATE	FUNGCIDE	INSCTCDE
-----				
SED		0.130	0.130	0.130
TABLE	SEEDBED*	SEEDBED*	SEEDRATE	SEEDBED*
	SEEDRATE	FUNGCIDE	FUNGCIDE	INSCTCDE
-----				
SED	0.184	0.184	0.184	0.184
TABLE	SEEDRATE	FUNGCIDE	SEEDBED*	SEEDBED*
	INSCTCDE	INSCTCDE	SEEDRATE	SEEDRATE
			FUNGCIDE	INSCTCDE
-----				
SED	0.184	0.184	0.261	0.261

78/R/CS/213

1ST CUT (12/7/78) DRY MATTER TONNES/HECTARE

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

TABLE	SEEDBED*	SEEDRATE	SEEDBED*
	FUNGCIDE	FUNGCIDE	SEEDRATE
	INSCTCDE	INSCTCDE	FUNGCIDE
			INSCTCDE
SED	0.261	0.261	0.369
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
SEEDBED	0.261		0.369

\* WITHIN SAME LEVEL OF SEEDBED ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	28	0.451	11.1

1ST CUT MEAN DM% 20.1

2ND CUT (11/8/78) DRY MATTER TONNES/HECTARE

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

SEEDRATE	2	20	MEAN
SEEDBED			
FINE	1.26	2.28	1.77
ROUGH	1.12	1.88	1.50
MEAN	1.19	2.08	1.63
FUNGCIDE	NONE	DRAZ+BEN	MEAN
SEEDBED			
FINE	1.79	1.75	1.77
ROUGH	1.52	1.47	1.50
MEAN	1.66	1.61	1.63
FUNGCIDE	NONE	DRAZ+BEN	MEAN
SEEDRATE			
2	1.24	1.14	1.19
20	2.08	2.08	2.08
MEAN	1.66	1.61	1.63
INSCTCDE	NONE	PHORATE	MEAN
SEEDBED			
FINE	1.53	2.02	1.77
ROUGH	1.32	1.67	1.50
MEAN	1.42	1.85	1.63



78/R/CS/213

2ND CUT (11/8/78) DRY MATTER TONNES/HECTARE

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

INSCDCDE	NONE	PHORATE	MEAN
SEEDRATE			
2	0.92	1.46	1.19
20	1.93	2.23	2.08
MEAN	1.42	1.85	1.63

INSCDCDE	NONE	PHORATE	MEAN
FUNGCIDE			
NONE	1.41	1.90	1.66
DRAZ+BEN	1.43	1.79	1.61
MEAN	1.42	1.85	1.63

SEEDRATE	2	20		
FUNGCIDE	NONE	DRAZ+BEN	NONE	DRAZ+BEN
SEEDBED				
FINE	1.31	1.21	2.27	2.30
ROUGH	1.16	1.07	1.88	1.87

SEEDRATE	2	20		
INSCDCDE	NONE	PHORATE	NONE	PHORATE
SEEDBED				
FINE	0.94	1.58	2.12	2.45
ROUGH	0.90	1.33	1.74	2.02

FUNGCIDE	NONE	PHORATE	DRAZ+BEN	PHORATE
INSCDCDE	NONE	PHORATE	NONE	PHORATE
SEEDBED				
FINE	1.55	2.04	1.51	1.99
ROUGH	1.28	1.76	1.35	1.58

FUNGCIDE	NONE	PHORATE	DRAZ+BEN	PHORATE
INSCDCDE	NONE	PHORATE	NONE	PHORATE
SEEDRATE				
2	0.96	1.52	0.88	1.40
20	1.87	2.29	1.99	2.18

FUNGCIDE	NONE	PHORATE	DRAZ+BEN	PHORATE	
INSCDCDE	NONE	PHORATE	NONE	PHORATE	
SEEDBED					
SEEDRATE					
FINE	2	0.99	1.64	0.88	1.53
	20	2.10	2.44	2.13	2.46
ROUGH	2	0.93	1.39	0.87	1.27
	20	1.63	2.14	1.84	1.90

78/R/CS/213

2ND CUT (11/8/78) DRY MATTER TONNES/HECTARE

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

TABLE	SEEDRATE	FUNGCIDE	INSCTCDE
SED	0.062	0.062	0.062

TABLE	SEEDBED* SEEDRATE	SEEDBED* FUNGCIDE	SEEDRATE FUNGCIDE	SEEDBED* INSCTCDE
SED	0.088	0.088	0.088	0.088

TABLE	SEEDRATE INSCTCDE	FUNGCIDE INSCTCDE	SEEDBED* SEEDRATE FUNGCIDE	SEEDBED* SEEDRATE INSCTCDE
SED	0.088	0.088	0.124	0.124

TABLE	SEEDBED* FUNGCIDE INSCTCDE	SEEDRATE FUNGCIDE INSCTCDE	SEEDBED* SEEDRATE FUNGCIDE INSCTCDE
SED	0.124	0.124	0.176

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	28	0.215	13.2

2ND CUT MEAN DM% 14.2

78/R/CS/213

3RD CUT (12/9/78) DRY MATTER TONNES/HECTARE

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

SEEDRATE	2	20	MEAN
SEEDBED			
FINE	2.01	2.35	2.18
ROUGH	1.90	2.13	2.02
MEAN	1.96	2.24	2.10

FUNGCIDE	NONE	DRAZ+BEN	MEAN
SEEDBED			
FINE	2.14	2.22	2.18
ROUGH	2.08	1.96	2.02
MEAN	2.11	2.09	2.10

FUNGCIDE	NONE	DRAZ+BEN	MEAN
SEEDRATE			
2	2.01	1.91	1.96
20	2.22	2.26	2.24
MEAN	2.11	2.09	2.10

INSCTCDE	NONE	PHORATE	MEAN
SEEDBED			
FINE	2.03	2.34	2.18
ROUGH	1.84	2.19	2.02
MEAN	1.94	2.26	2.10

INSCTCDE	NONE	PHORATE	MEAN
SEEDRATE			
2	1.76	2.16	1.96
20	2.11	2.37	2.24
MEAN	1.94	2.26	2.10



78/R/CS/213

3RD CUT (12/9/78) DRY MATTER TONNES/HECTARE

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

INSCTCDE	NONE	PHORATE	MEAN		
FUNGCIDE					
NONE	1.90	2.32	2.11		
DRAZ+BEN	1.97	2.21	2.09		
MEAN	1.94	2.26	2.10		
SEEDRATE	2		20		
FUNGCIDE	NONE	DRAZ+BEN	NONE	DRAZ+BEN	
SEEDBED					
FINE	2.05	1.98	2.24	2.46	
ROUGH	1.96	1.84	2.19	2.07	
SEEDRATE	2		20		
INSCTCDE	NONE	PHORATE	NONE	PHORATE	
SEEDBED					
FINE	1.87	2.16	2.19	2.52	
ROUGH	1.66	2.15	2.03	2.23	
FUNGCIDE	NONE		DRAZ+BEN		
INSCTCDE	NONE	PHORATE	NONE	PHORATE	
SEEDBED					
FINE	1.97	2.32	2.09	2.36	
ROUGH	1.84	2.32	1.85	2.06	
FUNGCIDE	NONE		DRAZ+BEN		
INSCTCDE	NONE	PHORATE	NONE	PHORATE	
SEEDRATE					
2	1.76	2.25	1.77	2.06	
20	2.05	2.39	2.17	2.36	
FUNGCIDE	NONE		DRAZ+BEN		
INSCTCDE	NONE	PHORATE	NONE	PHORATE	
SEEDBED					
FINE	2	1.83	2.26	1.91	2.06
	20	2.10	2.38	2.27	2.66
ROUGH	2	1.69	2.24	1.63	2.06
	20	1.99	2.39	2.07	2.06

78/R/CS/213

3RD CUT (12/9/78) DRY MATTER TONNES/HECTARE

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

TABLE	SEEDRATE	FUNGCIDE	INSCTCDE	
SED	0.059	0.059	0.059	
TABLE	SEEDBED* SEEDRATE	SEEDBED* FUNGCIDE	SEEDRATE FUNGCIDE	SEEDBED* INSCTCDE
SED	0.083	0.083	0.083	0.083
TABLE	SEEDRATE INSCTCDE	FUNGCIDE INSCTCDE	SEEDBED* SEEDRATE FUNGCIDE	SEEDBED* SEEDRATE INSCTCDE
SED	0.083	0.083	0.118	0.118
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
TABLE	SEEDBED* FUNGCIDE INSCTCDE	SEEDRATE FUNGCIDE INSCTCDE	SEEDBED* SEEDRATE FUNGCIDE INSCTCDE	
SED	0.118	0.118	0.167	

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	28	0.204	9.7

3RD CUT MEAN DM% 20.3

78/R/CS/213

4TH CUT (12/10/78) DRY MATTER TONNES/HECTARE

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

SEEDRATE	2	20	MEAN
SEEDBED			
FINE	0.87	1.08	0.98
ROUGH	0.82	1.05	0.93
MEAN	0.85	1.07	0.96

FUNGCIDE	NONE	DRAZ+BEN	MEAN
SEEDBED			
FINE	0.97	0.99	0.98
ROUGH	0.94	0.93	0.93
MEAN	0.96	0.96	0.96

FUNGCIDE	NONE	DRAZ+BEN	MEAN
SEEDRATE			
2	0.85	0.85	0.85
20	1.06	1.07	1.07
MEAN	0.96	0.96	0.96

INSECTCDE	NONE	PHORATE	MEAN
SEEDBED			
FINE	0.93	1.03	0.98
ROUGH	0.89	0.98	0.93
MEAN	0.91	1.01	0.96

INSECTCDE	NONE	PHORATE	MEAN
SEEDRATE			
2	0.78	0.92	0.85
20	1.03	1.10	1.07
MEAN	0.91	1.01	0.96

78/R/CS/213

4TH CUT (12/10/78) DRY MATTER TONNES/HECTARE

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

INSCTCDE	NONE	PHORATE	MEAN		
FUNGCIDE					
NONE	0.88	1.03	0.96		
DRAZ+BEN	0.93	0.98	0.96		
MEAN	0.91	1.01	0.96		
SEEDRATE	2		20		
FUNGCIDE	NONE	DRAZ+BEN	NONE	DRAZ+BEN	
SEEDBED					
FINE	0.86	0.88	1.07	1.10	
ROUGH	0.83	0.81	1.05	1.04	
SEEDRATE	2		20		
INSCTCDE	NONE	PHORATE	NONE	PHORATE	
SEEDBED					
FINE	0.81	0.93	1.04	1.13	
ROUGH	0.74	0.90	1.03	1.06	
FUNGCIDE	NONE		DRAZ+BEN		
INSCTCDE	NONE	PHORATE	NONE	PHORATE	
SEEDBED					
FINE	0.91	1.03	0.94	1.03	
ROUGH	0.86	1.03	0.91	0.94	
FUNGCIDE	NONE		DRAZ+BEN		
INSCTCDE	NONE	PHORATE	NONE	PHORATE	
SEEDRATE					
2	0.75	0.95	0.81	0.88	
20	1.01	1.11	1.05	1.08	
FUNGCIDE	NONE		DRAZ+BEN		
INSCTCDE	NONE	PHORATE	NONE	PHORATE	
SEEDBED					
FINE	2	0.77	0.96	0.85	0.90
	20	1.04	1.11	1.04	1.15
ROUGH	2	0.72	0.94	0.76	0.86
	20	0.99	1.12	1.07	1.01

78/R/CS/213

4TH CUT (12/10/78) DRY MATTER TONNES/HECTARE

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

TABLE	SEEDRATE	FUNGCIDE	INSCTCDE
SED	0.031	0.031	0.031

TABLE	SEEDBED* SEEDRATE	SEEDBED* FUNGCIDE	SEEDRATE FUNGCIDE	SEEDBED* INSCTCDE
SED	0.043	0.043	0.043	0.043

TABLE	SEEDRATE INSCTCDE	FUNGCIDE INSCTCDE	SEEDBED* SEEDRATE FUNGCIDE	SEEDBED* SEEDRATE INSCTCDE
SED	0.043	0.043	0.061	0.061

TABLE	SEEDBED* FUNGCIDE INSCTCDE	SEEDRATE FUNGCIDE INSCTCDE	SEEDBED* SEEDRATE FUNGCIDE INSCTCDE
SED	0.061	0.061	0.087

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	28	0.106	11.1
4TH CUT MEAN DM% 18.2			



78/R/CS/213

TOTAL OF 4 CUTS DRY MATTER TONNES/HECTARE

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

SEEDRATE	2	20	MEAN
SEEDBED			
FINE	8.40	10.31	9.35
ROUGH	7.34	9.04	8.19
MEAN	7.87	9.68	8.77
FUNGCIDE	NONE	DRAZ+BEN	MEAN
SEEDBED			
FINE	9.29	9.41	9.35
ROUGH	8.37	8.02	8.19
MEAN	8.83	8.71	8.77
FUNGCIDE	NONE	DRAZ+BEN	MEAN
SEEDRATE			
2	8.00	7.73	7.87
20	9.66	9.70	9.68
MEAN	8.83	8.71	8.77
INSCTCDE	NONE	PHORATE	MEAN
SEEDBED			
FINE	8.88	9.82	9.35
ROUGH	7.52	8.86	8.19
MEAN	8.20	9.34	8.77
INSCTCDE	NONE	PHORATE	MEAN
SEEDRATE			
2	7.27	8.46	7.87
20	9.13	10.22	9.68
MEAN	8.20	9.34	8.77

78/R/CS/213

TOTAL OF 4 CUTS DRY MATTER TONNES/HECTARE

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

INSCODE	NONE	PHORATE	MEAN		
FUNGCIDE					
NONE	8.04	9.62	8.83		
DRAZ+BEN	8.36	9.07	8.71		
MEAN	8.20	9.34	8.77		
SEEDRATE	2		20		
FUNGCIDE	NONE	DRAZ+BEN	NONE	DRAZ+BEN	
SEEDBED					
FINE	8.44	8.35	10.14	10.47	
ROUGH	7.57	7.11	9.17	8.92	
SEEDRATE	2		20		
INSCODE	NONE	PHORATE	NONE	PHORATE	
SEEDBED					
FINE	8.06	8.73	9.71	10.91	
ROUGH	6.49	8.19	8.56	9.53	
FUNGCIDE	NONE		DRAZ+BEN		
INSCODE	NONE	PHORATE	NONE	PHORATE	
SEEDBED					
FINE	8.67	9.91	9.09	9.74	
ROUGH	7.41	9.33	7.63	8.40	
FUNGCIDE	NONE		DRAZ+BEN		
INSCODE	NONE	PHORATE	NONE	PHORATE	
SEEDRATE					
2	7.20	8.80	7.34	8.13	
20	8.88	10.43	9.38	10.01	
SEEDBED					
FINE	2	7.91	8.97	8.20	8.50
	20	9.44	10.84	9.97	10.97
ROUGH	2	6.49	8.64	6.48	7.75
	20	8.33	10.01	8.78	9.05

78/R/CS/213

TOTAL OF 4 CUTS DRY MATTER TONNES/HECTARE

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

TABLE	SEEDRATE	FUNGCIDE	INSCTCDE	
SED	0.146	0.146	0.146	
TABLE	SEEDBED* SEEDRATE	SEEDBED* FUNGCIDE	SEEDBED* INSCTCDE	
SED	0.206	0.206	0.206	
TABLE	SEEDRATE INSCTCDE	FUNGCIDE INSCTCDE	SEEDBED* SEEDRATE FUNGCIDE	SEEDBED* SEEDRATE INSCTCDE
SED	0.206	0.206	0.292	0.292
TABLE	SEEDBED* FUNGCIDE INSCTCDE	SEEDRATE FUNGCIDE INSCTCDE	SEEDBED* SEEDRATE FUNGCIDE INSCTCDE	
SED	0.292	0.292	0.412	

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	28	0.505	5.8

TOTAL OF 4 CUTS MEAN DM% 18.2