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Yields of the Field Experiments 1976

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76/R/CS/180 Factors Affecting Yield - Beans

Rothamsted Research

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76/R/CS/176

SALEABLE ONIONS TONNES/HECTARE

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

ALDICARB	1+1	2	2+2	4	4+4	8	MEAN
	20.0	18.9	20.1	18.1	24.8	22.6	20.8

ALDICARB	0	(4S)0
	2.0	4.5

NOTE ALDICARB 0 AND (4S)0 HAVE BEEN EXCLUDED FROM THE ANALYSIS

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

TABLE	ALDICARB
-----	-----
SED	2.99

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

STRATUM	DF	SE	CV%
BLOCK.WP	10	3.66	17.6

PLOT AREA HARVESTED 0.00032

76/R/CS/180

FACTORS AFFECTING YIELD

Object: To study the effects of a range of factors on pests, diseases and yield of field beans - Little Hoos.

Sponsors: R. Bardner, K.E. Fletcher, G.G. Briggs, A. J. Cockbain, J.M. Day, B.J. Legg, J. McEwen, G.A. Salt, H.R. Simpson, R.M. Webb, J. Witty.

The first year, field beans.

Design: Single replicate of 2 x 2 x 2 x 2 x 2 x 2 x 2 in eight blocks of 2 plots split into 8.

Whole plot dimensions: 4.27 x 13.7.

Treatments: All combinations of:-

Whole plots

1. IRRIGTN	Irrigation:
NONE	None
FULL	Full (260 mm)

Sub plots

2. N	Nitrogen fertiliser:
0	None
150+150	150 kg N to seedbed (2 Mar) and 150 kg N at flowering (5 June)
3. ALDICARB	Aldicarb to seedbed:
0	None
10	10 kg
4. DIELDRIN	Dieldrin to seedbed:
0	None
2.5	2.5 kg
5. BENOMYL	Benomyl to seedbed:
0	None
15	15 kg
6. FENITROT	Fenitrothion foliar spray:
0.00	None
0.75	0.75 kg on 28 Apr and 28 May
7. PIRIMICA	Pirimicarb foliar spray
0.00	None
0.14	0.14 kg on 26 May

NOTES: (1) a planned test of benomyl foliar spray was not applied because there was no infection with *Botrytis* spp.
(2) Sprays were applied in 340 l.

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(3) Irrigation treatments (mm water):

18 May	20
21 May	14
7 June	25
10 June	25
17 June	25
28 June	25
7 July	51
10 July	25
13 July	25
31 July	25

Total	260

Basal applications: Manures: Chalk at 7.5 t. FYM at 25 t. Weedkillers: Simazine at 1.1 kg in 220 l.

Seed: Minden, sown at 220 kg.

Cultivations, etc.: Chalk applied: 19 Sept, 1975. Heavy spring-tine cultivated: 14 Oct. FYM applied: 23 Oct. Ploughed: 28 Oct. Spring-tine cultivated: 27 Feb, 1976. Rotary cultivated: 4 Mar. Seed sown: 5 Mar. Weedkiller applied: 9 Mar. Combine harvested IRRIGTN NONE plots: 21 July. Combine harvested IRRIGTN FULL plots: 11 Aug. Previous crops: Winter wheat 1974, barley 1975.

NOTES: (1) Unirrigated and irrigated plots were analysed separately.

(2) Plant counts were made after establishment and before harvest. Total above-ground dry matter and nitrogen percentages were measured on four occasions. Components of yield were measured before harvest. Amounts of nodular material and nitrogenase activity were measured on four occasions. Ectoparasitic nematodes, root and foliar fungi, aphids, weevils and viruses were counted at intervals during the season. Amounts of aldicarb and benomyl in soil and plants were determined at intervals. Nitrogen percentages of grain were measured.

76/R/CS/180 NON IRRIGATED PLOTS ONLY

GRAIN TONNES/HECTARE

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

ALDICARB	0	10	MEAN
N			
0	1.40	1.89	1.64
150+150	1.37	1.94	1.65
MEAN	1.38	1.91	1.65
DIELDRIN	0.0	2.5	MEAN
N			
0	1.57	1.72	1.64
150+150	1.62	1.69	1.65
MEAN	1.59	1.70	1.65
DIELDRIN	0.0	2.5	MEAN
ALDICARB			
0	1.30	1.46	1.38
10	1.88	1.95	1.91
MEAN	1.59	1.70	1.65
BENOMYL	0	15	MEAN
N			
0	1.62	1.67	1.64
150+150	1.66	1.64	1.65
MEAN	1.64	1.66	1.65
BENOMYL	0	15	MEAN
ALDICARB			
0	1.35	1.42	1.38
10	1.93	1.90	1.91
MEAN	1.64	1.66	1.65
BENOMYL	0	15	MEAN
DIELDRIN			
0.0	1.57	1.61	1.59
2.5	1.70	1.71	1.70
MEAN	1.64	1.66	1.65
FENITROT	0.00	0.78	MEAN
N			
0	1.65	1.63	1.64
150+150	1.59	1.71	1.65
MEAN	1.62	1.67	1.65
FENITROT	0.00	0.78	MEAN
ALDICARB			
0	1.34	1.42	1.38
10	1.90	1.93	1.91
MEAN	1.62	1.67	1.65

76/R/CS/180 NON IRRIGATED PLOTS ONLY

GRAIN TONNES/HECTARE

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

FENITROT	0.00	0.78	MEAN	
DIELDRIN				
0.0	1.56	1.62	1.59	
2.5	1.68	1.73	1.70	
MEAN	1.62	1.67	1.65	
FENITROT	0.00	0.78	MEAN	
BENOMYL				
0	1.61	1.66	1.64	
15	1.63	1.69	1.66	
MEAN	1.62	1.67	1.65	
PIRIMICA	0.00	0.14	MEAN	
N				
0	1.69	1.59	1.64	
150+150	1.63	1.67	1.65	
MEAN	1.66	1.63	1.65	
PIRIMICA	0.00	0.14	MEAN	
ALDICARB				
0	1.38	1.38	1.38	
10	1.94	1.89	1.91	
MEAN	1.66	1.63	1.65	
PIRIMICA	0.00	0.14	MEAN	
DIELDRIN				
0.0	1.59	1.59	1.59	
2.5	1.73	1.68	1.70	
MEAN	1.66	1.63	1.65	
PIRIMICA	0.00	0.14	MEAN	
BENOMYL				
0	1.64	1.63	1.64	
15	1.68	1.63	1.66	
MEAN	1.66	1.63	1.65	
PIRIMICA	0.00	0.14	MEAN	
FENITROT				
0.00	1.62	1.62	1.62	
0.78	1.70	1.64	1.67	
MEAN	1.66	1.63	1.65	
ALDICARB	0		10	
DIELDRIN	0.0	2.5	0.0	2.5
N				
0	1.35	1.45	1.78	1.99
150+150	1.26	1.47	1.98	1.90

76/R/CS/180 NON IRRIGATED PLOTS ONLY

GRAIN TONNES/HECTARE

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

ALDICARB	0		10	
BENOMYL	0	15	0	15
N				
0	1.33	1.47	1.90	1.87
150+150	1.37	1.36	1.96	1.93
DIELDRIN	0.0		2.5	
BENOMYL	0	15	0	15
ALDICARB				
0	1.25	1.35	1.44	1.48
10	1.89	1.87	1.96	1.93
DIELDRIN	0.0		2.5	
FENITROT	0.00	0.78	0.00	0.78
N				
0	1.56	1.57	1.74	1.70
150+150	1.56	1.68	1.62	1.75
DIELDRIN	0.0		2.5	
FENITROT	0.00	0.78	0.00	0.78
ALDICARB				
0	1.26	1.34	1.42	1.50
10	1.86	1.90	1.95	1.95
BENOMYL	0		15	
FENITROT	0.00	0.78	0.00	0.78
N				
0	1.61	1.62	1.69	1.65
150+150	1.62	1.70	1.56	1.72
BENOMYL	0		15	
FENITROT	0.00	0.78	0.00	0.78
ALDICARB				
0	1.32	1.38	1.36	1.47
10	1.91	1.94	1.89	1.91
BENOMYL	0		15	
FENITROT	0.00	0.78	0.00	0.78
DIELDRIN				
0.0	1.57	1.58	1.55	1.67
2.5	1.66	1.74	1.71	1.71
ALDICARB	0		10	
PIRIMICA	0.00	0.14	0.00	0.14
N				
0	1.43	1.36	1.95	1.82
150+150	1.33	1.40	1.92	1.95
DIELDRIN	0.0		2.5	
PIRIMICA	0.00	0.14	0.00	0.14
N				
0	1.61	1.52	1.78	1.67
150+150	1.58	1.66	1.68	1.69

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GRAIN TONNES/HECTARE

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

BENOMYL	0		15	
PIRIMICA	0.00	0.14	0.00	0.14
N				
0	1.63	1.60	1.76	1.58
150+150	1.65	1.66	1.60	1.69
BENOMYL	0		15	
PIRIMICA	0.00	0.14	0.00	0.14
ALDICARB				
0	1.31	1.38	1.46	1.38
10	1.97	1.88	1.90	1.89
BENOMYL	0		15	
PIRIMICA	0.00	0.14	0.00	0.14
DIELDRIN				
0.0	1.58	1.57	1.60	1.61
2.5	1.70	1.70	1.76	1.66
FENITROT	0.00		0.78	
PIRIMICA	0.00	0.14	0.00	0.14
N				
0	1.66	1.64	1.72	1.55
150+150	1.57	1.61	1.68	1.74
FENITROT	0.00		0.78	
PIRIMICA	0.00	0.14	0.00	0.14
ALDICARB				
0	1.28	1.40	1.49	1.36
10	1.96	1.85	1.92	1.93
FENITROT	0.00		0.78	
PIRIMICA	0.00	0.14	0.00	0.14
DIELDRIN				
0.0	1.55	1.57	1.63	1.61
2.5	1.69	1.68	1.77	1.68

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

TABLE		N	ALDICARB	DIELDRIN
SED		0.028	0.028	0.028
TABLE	BENOMYL	FENITROT	PIRIMICA	N ALDICARB
SED	0.028	0.028	0.028	0.040
TABLE	N DIELDRIN	ALDICARB DIELDRIN	N BENOMYL	ALDICARB BENOMYL
SED	0.040	0.040	0.040	0.040
TABLE	DIELDRIN BENOMYL	N FENITROT	ALDICARB FENITROT	DIELDRIN FENITROT
SED	0.040	0.040	0.040	0.040

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GRAIN TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCE OF MEANS *****

TABLE	BENOMYL FENITROT	N PIRIMICA	ALDICARB PIRIMICA	DIELDRIN PIRIMICA
SED	0.040	0.040	0.040	0.040

TABLE	BENOMYL PIRIMICA	FENITROT PIRIMICA	N ALDICARB DIELDRIN	N ALDICARB BENOMYL
SED	0.040	0.040	0.056	0.056

TABLE	ALDICARB DIELDRIN BENOMYL	N DIELDRIN FENITROT	ALDICARB DIELDRIN FENITROT	N BENOMYL FENITROT
SED	0.056	0.056	0.056	0.056

TABLE	ALDICARB BENOMYL FENITROT	DIELDRIN BENOMYL FENITROT	N ALDICARB PIRIMICA	N DIELDRIN PIRIMICA
SED	0.056	0.056	0.056	0.056

TABLE	N BENOMYL PIRIMICA	ALDICARB BENOMYL PIRIMICA	DIELDRIN BENOMYL PIRIMICA	N FENITROT PIRIMICA
SED	0.056	0.056	0.056	0.056

TABLE	ALDICARB FENITROT PIRIMICA	DIELDRIN FENITROT PIRIMICA
SED	0.056	0.056

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	19	0.112	6.8
GRAIN MEAN DM%	85.4		

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GRAIN TONNES/HECTARE

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

ALDICARB	0	10	MEAN
N			
0	2.98	3.33	3.15
150+150	2.67	3.23	2.95
MEAN	2.83	3.28	3.05
DIELDRIN	0.0	2.5	MEAN
N			
0	3.12	3.18	3.15
150+150	2.92	2.99	2.95
MEAN	3.02	3.08	3.05
DIELDRIN	0.0	2.5	MEAN
ALDICARB			
0	2.83	2.82	2.83
10	3.21	3.35	3.28
MEAN	3.02	3.08	3.05
BENOMYL	0	15	MEAN
N			
0	3.11	3.19	3.15
150+150	2.98	2.93	2.95
MEAN	3.04	3.06	3.05
BENOMYL	0	15	MEAN
ALDICARB			
0	2.82	2.83	2.83
10	3.26	3.29	3.28
MEAN	3.04	3.06	3.05
BENOMYL	0	15	MEAN
DIELDRIN			
0.0	2.96	3.08	3.02
2.5	3.13	3.04	3.08
MEAN	3.04	3.06	3.05
FENITROT	0.00	0.78	MEAN
N			
0	3.20	3.10	3.15
150+150	2.95	2.95	2.95
MEAN	3.08	3.03	3.05
FENITROT	0.00	0.78	MEAN
ALDICARB			
0	2.87	2.78	2.83
10	3.28	3.27	3.28
MEAN	3.08	3.03	3.05

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GRAIN TONNES/HECTARE

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

FENITROT	0.00	0.78	MEAN	
DIELDRIN				
0.0	3.13	2.91	3.02	
2.5	3.03	3.14	3.08	
MEAN	3.08	3.03	3.05	
FENITROT	0.00	0.78	MEAN	
BENOMYL				
0	3.03	3.05	3.04	
15	3.12	3.00	3.06	
MEAN	3.08	3.03	3.05	
PIRIMICA	0.00	0.14	MEAN	
N				
0	3.15	3.15	3.15	
150+150	2.93	2.97	2.95	
MEAN	3.04	3.06	3.05	
PIRIMICA	0.00	0.14	MEAN	
ALDICARB				
0	2.73	2.92	2.83	
10	3.34	3.21	3.28	
MEAN	3.04	3.06	3.05	
PIRIMICA	0.00	0.14	MEAN	
DIELDRIN				
0.0	2.95	3.09	3.02	
2.5	3.13	3.04	3.08	
MEAN	3.04	3.06	3.05	
PIRIMICA	0.00	0.14	MEAN	
BENOMYL				
0	3.02	3.06	3.04	
15	3.06	3.06	3.06	
MEAN	3.04	3.06	3.05	
PIRIMICA	0.00	0.14	MEAN	
FENITROT				
0.00	3.02	3.13	3.08	
0.78	3.06	3.00	3.03	
MEAN	3.04	3.06	3.05	
ALDICARB	0	10		
DIELDRIN	0.0	2.5	0.0	2.5
N				
0	2.99	2.97	3.25	3.40
150+150	2.67	2.68	3.16	3.30

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GRAIN TONNES/HECTARE

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

ALDICARB	0		10	
BENOMYL	0	15	0	15
N				
0	2.93	3.03	3.30	3.36
150+150	2.72	2.63	3.23	3.22
DIELDRIN	0.0		2.5	
BENOMYL	0	15	0	15
ALDICARB				
0	2.78	2.88	2.86	2.78
10	3.13	3.28	3.40	3.30
DIELDRIN	0.0		2.5	
FENITROT	0.00	0.78	0.00	0.78
N				
0	3.24	3.00	3.17	3.20
150+150	3.01	2.82	2.88	3.09
DIELDRIN	0.0		2.5	
FENITROT	0.00	0.78	0.00	0.78
ALDICARB				
0	3.04	2.62	2.71	2.94
10	3.22	3.20	3.35	3.35
BENOMYL	0		15	
FENITROT	0.00	0.78	0.00	0.78
N				
0	3.07	3.15	3.33	3.05
150+150	2.99	2.96	2.90	2.96
BENOMYL	0		15	
FENITROT	0.00	0.78	0.00	0.78
ALDICARB				
0	2.89	2.75	2.85	2.81
10	3.17	3.36	3.39	3.19
BENOMYL	0		15	
FENITROT	0.00	0.78	0.00	0.78
DIELDRIN				
0.0	2.92	2.99	3.33	2.83
2.5	3.14	3.11	2.91	3.17
ALDICARB	0		10	
PIRIMICA	0.00	0.14	0.00	0.14
N				
0	2.92	3.04	3.38	3.27
150+150	2.55	2.80	3.31	3.15
DIELDRIN	0.0		2.5	
PIRIMICA	0.00	0.14	0.00	0.14
N				
0	3.03	3.22	3.28	3.09
150+150	2.87	2.96	2.98	2.99

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GRAIN TONNES/HECTARE

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

BENOMYL	0		15	
PIRIMICA	0.00	0.14	0.00	0.14
N				
0	3.11	3.11	3.20	3.19
150+150	2.93	3.02	2.92	2.93
BENOMYL	0		15	
PIRIMICA	0.00	0.14	0.00	0.14
ALDICARB				
0	2.76	2.88	2.71	2.95
10	3.28	3.25	3.41	3.17
BENOMYL	0		15	
PIRIMICA	0.00	0.14	0.00	0.14
DIELDRIN				
0.0	2.85	3.06	3.05	3.11
2.5	3.19	3.06	3.06	3.01
FENITROT	0.00		0.78	
PIRIMICA	0.00	0.14	0.00	0.14
N				
0	3.22	3.19	3.08	3.12
150+150	2.82	3.08	3.04	2.87
FENITROT	0.00		0.78	
PIRIMICA	0.00	0.14	0.00	0.14
ALDICARB				
0	2.81	2.93	2.66	2.90
10	3.23	3.33	3.46	3.09
FENITROT	0.00		0.78	
PIRIMICA	0.00	0.14	0.00	0.14
DIELDRIN				
0.0	3.00	3.25	2.90	2.93
2.5	3.04	3.02	3.22	3.06

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

TABLE	N	ALDICARB	DIELDRIN
SED	0.117	0.117	0.117
TABLE	BENOMYL	FENITROT	PIRIMICA
			N
			ALDICARB
SED	0.117	0.117	0.117
			0.166
TABLE	N	ALDICARB	N
	DIELDRIN	DIELDRIN	BENOMYL
			ALDICARB
			BENOMYL
SED	0.166	0.166	0.166
			0.166
TABLE	DIELDRIN	N	ALDICARB
	BENOMYL	FENITROT	FENITROT
			DIELDRIN
			FENITROT
SED	0.166	0.166	0.166
			0.166

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GRAIN TONNES/HECTARE

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

TABLE	BENOMYL FENITROT	N PIRIMICA	ALDICARB PIRIMICA	DIELDRIN PIRIMICA
SED	0.166	0.166	0.166	0.166

TABLE	BENOMYL PIRIMICA	FENITROT PIRIMICA	N ALDICARB DIELDRIN	N ALDICARB BENOMYL
SED	0.166	0.166	0.235	0.235

TABLE	ALDICARB DIELDRIN BENOMYL	N DIELDRIN FENITROT	ALDICARB DIELDRIN FENITROT	N BENOMYL FENITROT
SED	0.235	0.235	0.235	0.235

TABLE	ALDICARB BENOMYL FENITROT	DIELDRIN BENOMYL FENITROT	N ALDICARB PIRIMICA	N DIELDRIN PIRIMICA
SED	0.235	0.235	0.235	0.235

TABLE	N BENOMYL PIRIMICA	ALDICARB BENOMYL PIRIMICA	DIELDRIN BENOMYL PIRIMICA	N FENITROT PIRIMICA
SED	0.235	0.235	0.235	0.235

TABLE	ALDICARB FENITROT PIRIMICA	DIELDRIN FENITROT PIRIMICA
SED	0.235	0.235

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	19	0.469	15.4

GRAIN MEAN DM% 83.1

SUB PLOT AREA HARVESTED 0.00293