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Yields of the Field Experiments 1977

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77/R/CS/180 Factors Affecting Yield - Wheat

Rothamsted Research

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77/R/CS/180

FACTORS AFFECTING YIELD

Object: To study the residual effects on wheat of a range of treatments applied to field beans in 1976 - Little Hoos.

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

The second year, winter wheat.

For previous year see 76/R/CS/180.

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: 9.14 x 40.2.

Treatments applied in 1976: All combinations of:-

Whole plots

- | | |
|----------------|---------------|
| 1. IRRIGTN(76) | Irrigation: |
| NONE | None |
| FULL | Full (291 mm) |

Sub plots

- | | |
|-----------------|---|
| 2. N(76) | Nitrogen fertiliser: |
| 0 | 0 |
| 150+150 | 150 kg N to seedbed and 150 kg N at flowering |
| 3. ALDICARB(76) | Aldicarb to seedbed (kg): |
| 0 | |
| 10 | |
| 4. DIELDRIN(76) | Dieldrin to seedbed (kg): |
| 0.0 | |
| 2.5 | |
| 5. BENOMYL(76) | Benomyl to seedbed (kg): |
| 0 | |
| 15 | |
| 6. FENITROT(76) | Fenitrothion foliar spray (kg): |
| 0.0 | |
| 1.5 | |
| 7. PIRIMICA(76) | Pirimicarb foliar spray (kg): |
| 0.00 | |
| 0.14 | |

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Basal applications: Manures: (0:20:20) at 310 kg, combine drilled. 'Nitro-Chalk' at 400 kg. Weedkiller: Mecoprop ('M.A.C. CMPP' at 4.2 l in 220 l). Insecticide: Pirimicarb at 0.14 kg in 280 l.

Seed: Atou, sown at 190 kg.

Cultivations, etc.:— Ploughed: 23 Aug, 1976. Spring-tine cultivated: 21 Sept, 3 Nov. Seed sown, spring-tine cultivated: 4 Nov. N applied: 19 Apr, 1977. Weedkiller applied: 2 May. Insecticide applied: 15 July. Combine harvested: 10 Sept.

ERRATUM TO 'YIELDS' 1976 p 224

76/R/CS/180. Whole plot dimensions should read "41.0 x 13.7". Those given were the sub plot dimensions.

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GRAIN TONNES/HECTARE

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

BENOMYL(76)	0	15	MEAN
IRRIGTN(76)			
NONE	6.80	6.68	6.74
FULL	6.93	6.80	6.86
MEAN	6.86	6.74	6.80
N(76)	0	150+150	MEAN
IRRIGTN(76)			
NONE	6.73	6.75	6.74
FULL	6.78	6.95	6.86
MEAN	6.75	6.85	6.80
N(76)	0	150+150	MEAN
BENOMYL(76)			
0	6.82	6.91	6.86
15	6.69	6.78	6.74
MEAN	6.75	6.85	6.80
DIELDRIN(76)	0.0	2.5	MEAN
IRRIGTN(76)			
NONE	6.80	6.68	6.74
FULL	6.87	6.85	6.86
MEAN	6.83	6.77	6.80
DIELDRIN(76)	0.0	2.5	MEAN
BENOMYL(76)			
0	6.92	6.81	6.86
15	6.75	6.73	6.74
MEAN	6.83	6.77	6.80
DIELDRIN(76)	0.0	2.5	MEAN
N(76)			
0	6.78	6.73	6.75
150+150	6.89	6.80	6.85
MEAN	6.83	6.77	6.80
FENITROT(76)	0.0	1.5	MEAN
IRRIGTN(76)			
NONE	6.76	6.71	6.74
FULL	6.82	6.91	6.86
MEAN	6.79	6.81	6.80
FENITROT(76)	0.0	1.5	MEAN
BENOMYL(76)			
0	6.84	6.89	6.86
15	6.74	6.73	6.74
MEAN	6.79	6.81	6.80

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GRAIN TONNES/HECTARE

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

FENITROT(76)	0.0	1.5	MEAN
N(76)			
0	6.78	6.73	6.75
150+150	6.80	6.89	6.85
MEAN	6.79	6.81	6.80

FENITROT(76)	0.0	1.5	MEAN
DIELDRIN(76)			
0.0	6.85	6.81	6.83
2.5	6.73	6.80	6.77
MEAN	6.79	6.81	6.80

PIRIMICA(76)	0.00	0.14	MEAN
IRRIGTN(76)			
NONE	6.71	6.77	6.74
FULL	6.89	6.84	6.86
MEAN	6.80	6.80	6.80

PIRIMICA(76)	0.00	0.14	MEAN
BENOMYL(76)			
0	6.87	6.85	6.86
15	6.72	6.75	6.74
MEAN	6.80	6.80	6.80

PIRIMICA(76)	0.00	0.14	MEAN
N(76)			
0	6.72	6.79	6.75
150+150	6.87	6.82	6.85
MEAN	6.80	6.80	6.80

PIRIMICA(76)	0.00	0.14	MEAN
DIELDRIN(76)			
0.0	6.79	6.88	6.83
2.5	6.80	6.73	6.77
MEAN	6.80	6.80	6.80

PIRIMICA(76)	0.00	0.14	MEAN
FENITROT(76)			
0.0	6.79	6.79	6.79
1.5	6.80	6.81	6.81
MEAN	6.80	6.80	6.80

ALDICARB(76)	0	10	MEAN
IRRIGTN(76)			
NONE	6.77	6.70	6.74
FULL	7.01	6.72	6.86
MEAN	6.89	6.71	6.80

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GRAIN TONNES/HECTARE

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

ALDICARB(76)	0	10	MEAN	
BENOMYL(76)				
0	6.93	6.80	6.86	
15	6.86	6.62	6.74	
MEAN	6.89	6.71	6.80	
ALDICARB(76)	0	10	MEAN	
N(76)				
0	6.86	6.65	6.75	
150+150	6.92	6.77	6.85	
MEAN	6.89	6.71	6.80	
ALDICARB(76)	0	10	MEAN	
DIELDRIN(76)				
0.0	6.95	6.72	6.83	
2.5	6.83	6.70	6.77	
MEAN	6.89	6.71	6.80	
ALDICARB(76)	0	10	MEAN	
FENITROT(76)				
0.0	6.90	6.69	6.79	
1.5	6.89	6.73	6.81	
MEAN	6.89	6.71	6.80	
ALDICARB(76)	0	10	MEAN	
PIRIMICA(76)				
0.00	6.87	6.72	6.80	
0.14	6.91	6.70	6.80	
MEAN	6.89	6.71	6.80	
N(76)	0	150+150		
ALDICARB(76)	0	10	0	10
IRRIGTN(76)				
NONE	6.83	6.63	6.71	6.78
FULL	6.89	6.67	7.13	6.76
N(76)	0	150+150		
DIELDRIN(76)	0.0	2.5	0.0	2.5
IRRIGTN(76)				
NONE	6.76	6.70	6.84	6.65
FULL	6.80	6.76	6.94	6.95
ALDICARB(76)	0	10		
DIELDRIN(76)	0.0	2.5	0.0	2.5
IRRIGTN(76)				
NONE	6.87	6.68	6.73	6.68
FULL	7.03	6.99	6.72	6.72
ALDICARB(76)	0	10		
DIELDRIN(76)	0.0	2.5	0.0	2.5
N(76)				
0	6.88	6.84	6.68	6.62
150+150	7.02	6.83	6.76	6.78

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GRAIN TONNES/HECTARE

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

N(76)	0		150+150	
BENOMYL(76)	0	15	0	15
IRRIGTN(76)				
NONE	6.79	6.66	6.80	6.69
FULL	6.85	6.71	7.01	6.88
ALDICARB(76)	0		10	
BENOMYL(76)	0	15	0	15
IRRIGTN(76)				
NONE	6.80	6.74	6.79	6.61
FULL	7.05	6.97	6.81	6.62
ALDICARB(76)	0		10	
BENOMYL(76)	0	15	0	15
N(76)				
0	6.89	6.83	6.75	6.55
150+150	6.96	6.89	6.85	6.68
DIELDRIN(76)	0.0		2.5	
BENOMYL(76)	0	15	0	15
IRRIGTN(76)				
NONE	6.89	6.70	6.70	6.65
FULL	6.95	6.79	6.91	6.80
DIELDRIN(76)	0.0		2.5	
BENOMYL(76)	0	15	0	15
N(76)				
0	6.84	6.72	6.81	6.65
150+150	7.01	6.77	6.81	6.80
DIELDRIN(76)	0.0		2.5	
BENOMYL(76)	0	15	0	15
ALDICARB(76)				
0	7.04	6.85	6.81	6.86
10	6.80	6.64	6.80	6.59
N(76)	0		150+150	
FENITROT(76)	0.0	1.5	0.0	1.5
IRRIGTN(76)				
NONE	6.78	6.68	6.75	6.74
FULL	6.78	6.78	6.86	7.04
ALDICARB(76)	0		10	
FENITROT(76)	0.0	1.5	0.0	1.5
IRRIGTN(76)				
NONE	6.78	6.76	6.74	6.66
FULL	7.01	7.01	6.63	6.80
ALDICARB(76)	0		10	
FENITROT(76)	0.0	1.5	0.0	1.5
N(76)				
0	6.88	6.84	6.68	6.62
150+150	6.91	6.93	6.69	6.85

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GRAIN TONNES/HECTARE

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

DIELDRIN(76)	0.0		2.5	
FENITROT(76)	0.0	1.5	0.0	1.5
IRRIGTN(76)				
NONE	6.86	6.73	6.66	6.69
FULL	6.85	6.90	6.79	6.91
DIELDRIN(76)	0.0		2.5	
FENITROT(76)	0.0	1.5	0.0	1.5
N(76)				
0	6.83	6.73	6.73	6.73
150+150	6.88	6.90	6.72	6.88
DIELDRIN(76)	0.0		2.5	
FENITROT(76)	0.0	1.5	0.0	1.5
ALDICARB(76)				
0	7.00	6.90	6.80	6.87
10	6.71	6.73	6.66	6.73
BENOMYL(76)	0		15	
FENITROT(76)	0.0	1.5	0.0	1.5
IRRIGTN(76)				
NONE	6.78	6.81	6.74	6.61
FULL	6.90	6.96	6.74	6.85
BENOMYL(76)	0		15	
FENITROT(76)	0.0	1.5	0.0	1.5
N(76)				
0	6.86	6.78	6.70	6.68
150+150	6.82	6.99	6.78	6.78
BENOMYL(76)	0		15	
FENITROT(76)	0.0	1.5	0.0	1.5
ALDICARB(76)				
0	6.94	6.91	6.85	6.86
10	6.74	6.86	6.63	6.60
BENOMYL(76)	0		15	
FENITROT(76)	0.0	1.5	0.0	1.5
DIELDRIN(76)				
0.0	6.90	6.94	6.80	6.69
2.5	6.78	6.83	6.68	6.77
N(76)	0		150+150	
PIRIMICA(76)	0.00	0.14	0.00	0.14
IRRIGTN(76)				
NONE	6.68	6.78	6.73	6.76
FULL	6.76	6.80	.01	6.88
ALDICARB(76)	0		10	
PIRIMICA(76)	0.00	0.14	0.00	0.14
IRRIGTN(76)				
NONE	6.66	6.88	6.75	6.65
FULL	7.09	6.94	6.68	6.75

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GRAIN TONNES/HECTARE

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

ALDICARB(76)	0		10	
PIRIMICA(76)	0.00	0.14	0.00	0.14
N(76)				
0	6.85	6.87	6.60	6.70
150+150	6.90	6.94	6.84	6.70
DIELDRIN(76)	0.0		2.5	
PIRIMICA(76)	0.00	0.14	0.00	0.14
IRRIGTN(76)				
NONE	6.73	6.86	6.68	6.67
FULL	6.85	6.89	6.92	6.79
DIELDRIN(76)	0.0		2.5	
PIRIMICA(76)	0.00	0.14	0.00	0.14
N(76)				
0	6.70	6.86	6.75	6.71
150+150	6.89	6.89	6.85	6.75
DIELDRIN(76)	0.0		2.5	
PIRIMICA(76)	0.00	0.14	0.00	0.14
ALDICARB(76)				
0	6.95	6.95	6.80	6.87
10	6.64	6.81	6.80	6.60
BENOMYL(76)	0		15	
PIRIMICA(76)	0.00	0.14	0.00	0.14
IRRIGTN(76)				
NONE	6.76	6.83	6.65	6.70
FULL	6.99	6.88	6.78	6.81
BENOMYL(76)	0		15	
PIRIMICA(76)	0.00	0.14	0.00	0.14
N(76)				
0	6.81	6.83	6.63	6.74
150+150	6.94	6.88	6.80	6.77
BENOMYL(76)	0		15	
PIRIMICA(76)	0.00	0.14	0.00	0.14
ALDICARB(76)				
0	6.92	6.93	6.83	6.88
10	6.82	6.78	6.61	6.62
BENOMYL(76)	0		15	
PIRIMICA(76)	0.00	0.14	0.00	0.14
DIELDRIN(76)				
0.0	6.87	6.97	6.71	6.78
2.5	6.87	6.74	6.72	6.73
FENITROT(76)	0.0		1.5	
PIRIMICA(76)	0.00	0.14	0.00	0.14
IRRIGTN(76)				
NONE	6.73	6.79	6.68	6.74
FULL	6.85	6.79	6.92	6.89

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GRAIN TONNES/HECTARE

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

FENITROT(76)	0.0		1.5	
PIRIMICA(76)	0.00	0.14	0.00	0.14
N(76)				
0	6.77	6.79	6.68	6.78
150+150	6.81	6.79	6.93	6.85
FENITROT(76)	0.0		1.5	
PIRIMICA(76)	0.00	0.14	0.00	0.14
ALDICARB(76)				
0	6.90	6.89	6.85	6.93
10	6.67	6.70	6.76	6.70
FENITROT(76)	0.0		1.5	
PIRIMICA(76)	0.00	0.14	0.00	0.14
DIELDRIN(76)				
0.0	6.84	6.87	6.75	6.88
2.5	6.74	6.72	6.86	6.75
FENITROT(76)	0.0		1.5	
PIRIMICA(76)	0.00	0.14	0.00	0.14
BENOMYL(76)				
0	6.82	6.87	6.93	6.84
15	6.76	6.72	6.67	6.79

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

TABLE	IRRIGTN(76)	N(76)	ALDICARB(76)	DIELDRIN(76)
SED	0.080	0.050	0.050	0.050
TABLE	BENOMYL(76)	FENITROT(76)	PIRIMICA(76)	IRRIGTN(76)
				N(76)
SED	0.050	0.050	0.050	0.094
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
IRRIGTN(76)				0.070
TABLE	IRRIGTN(76)	N(76)	IRRIGTN(76)	N(76)
	ALDICARB(76)	ALDICARB(76)	DIELDRIN(76)	DIELDRIN(76)
SED	0.094	0.070	0.094	0.070
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
IRRIGTN(76)	0.070		0.070	
TABLE	ALDICARB(76)	IRRIGTN(76)	N(76)	ALDICARB(76)
	DIELDRIN(76)	BENOMYL(76)	BENOMYL(76)	BENOMYL(76)
SED	0.070	0.094	0.070	0.070
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
IRRIGTN(76)		0.070		

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GRAIN TONNES/HECTARE

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

TABLE	DIELDRIN(76) BENOMYL(76)	IRRIGTN(76) FENITROT(76)	N(76) FENITROT(76)	ALDICARB(76) FENITROT(76)
SED	0.070	0.094	0.070	0.070
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
IRRIGTN(76)		0.070		

TABLE	DIELDRIN(76) FENITROT(76)	BENOMYL(76) FENITROT(76)	IRRIGTN(76) PIRIMICA(76)	N(76) PIRIMICA(76)
SED	0.070	0.070	0.094	0.070
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
IRRIGTN(76)			0.070	

TABLE	ALDICARB(76) PIRIMICA(76)	DIELDRIN(76) PIRIMICA(76)	BENOMYL(76) PIRIMICA(76)	FENITROT(76) PIRIMICA(76)
SED	0.070	0.070	0.070	0.070

TABLE	IRRIGTN(76) N(76) ALDICARB(76)	IRRIGTN(76) N(76) DIELDRIN(76)	IRRIGTN(76) ALDICARB(76) DIELDRIN(76)	N(76) ALDICARB(76) DIELDRIN(76)
SED	0.118	0.118	0.118	0.099
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
IRRIGTN(76)	0.099	0.099	0.099	

TABLE	IRRIGTN(76) N(76) BENOMYL(76)	IRRIGTN(76) ALDICARB(76) BENOMYL(76)	N(76) ALDICARB(76) BENOMYL(76)	IRRIGTN(76) DIELDRIN(76) BENOMYL(76)
SED	0.118	0.118	0.099	0.118
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
IRRIGTN(76)	0.099	0.099		0.099

TABLE	N(76) DIELDRIN(76) BENOMYL(76)	ALDICARB(76) DIELDRIN(76) BENOMYL(76)	IRRIGTN(76) N(76) FENITROT(76)	IRRIGTN(76) ALDICARB(76) FENITROT(76)
SED	0.118	0.099	0.118	0.118
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
IRRIGTN(76)			0.099	0.099
N(76)	0.099			
DIELDRIN(76)	0.099			
BENOMYL(76)	0.099			

TABLE	N(76) ALDICARB(76) FENITROT(76)	IRRIGTN(76) DIELDRIN(76) FENITROT(76)	N(76) DIELDRIN(76) FENITROT(76)	ALDICARB(76) DIELDRIN(76) FENITROT(76)
SED	0.118	0.118	0.099	0.099
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
IRRIGTN(76)		0.099		
N(76)	0.099			
ALDICARB(76)	0.099			
FENITROT(76)	0.099			

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

TABLE	IRRIGTN(76)	N(76)	ALDICARB(76)	DIELDRIN(76)
	BENOMYL(76)	BENOMYL(76)	BENOMYL(76)	BENOMYL(76)
	FENITROT(76)	FENITROT(76)	FENITROT(76)	FENITROT(76)

SED	0.118	0.099	0.099	0.099
-----	-------	-------	-------	-------

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

IRRIGTN(76)	0.099
-------------	-------

TABLE	IRRIGTN(76)	IRRIGTN(76)	N(76)	IRRIGTN(76)
	N(76)	ALDICARB(76)	ALDICARB(76)	DIELDRIN(76)
	PIRIMICA(76)	PIRIMICA(76)	PIRIMICA(76)	PIRIMICA(76)

SED	0.118	0.118	0.099	0.118
-----	-------	-------	-------	-------

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

IRRIGTN(76)	0.099	0.099	0.099
-------------	-------	-------	-------

TABLE	N(76)	ALDICARB(76)	IRRIGTN(76)	N(76)
	DIELDRIN(76)	DIELDRIN(76)	BENOMYL(76)	BENOMYL(76)
	PIRIMICA(76)	PIRIMICA(76)	PIRIMICA(76)	PIRIMICA(76)

SED	0.099	0.118	0.118	0.099
-----	-------	-------	-------	-------

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

IRRIGTN(76)	0.099
-------------	-------

ALDICARB(76)	0.099
DIELDRIN(76)	0.099
PIRIMICA(76)	0.099

TABLE	ALDICARB(76)	DIELDRIN(76)	IRRIGTN(76)	N(76)
	BENOMYL(76)	BENOMYL(76)	FENITROT(76)	FENITROT(76)
	PIRIMICA(76)	PIRIMICA(76)	PIRIMICA(76)	PIRIMICA(76)

SED	0.099	0.099	0.118	0.099
-----	-------	-------	-------	-------

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

IRRIGTN(76)	0.099
-------------	-------

TABLE	ALDICARB(76)	DIELDRIN(76)	BENOMYL(76)
	FENITROT(76)	FENITROT(76)	FENITROT(76)
	PIRIMICA(76)	PIRIMICA(76)	PIRIMICA(76)

SED	0.099	0.099	0.118
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EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

BENOMYL(76)	0.099
FENITROT(76)	0.099
PIRIMICA(76)	0.099

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	54	0.281	4.1
GRAIN MEAN DM%	81.6		
SUB PLOT AREA HARVESTED	0.00260		