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Yields of the Field Experiments 1976

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76/R/CS/140 Chemical Reference Plots - Barley

Rothamsted Research

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76/R/CS/140

CHEMICAL REFERENCE PLOTS

Object: To study the persistence in soil of four agricultural chemicals applied annually, singly and in combination and their effects on soil microflora and on yield of continuous barley - Long Hoos V 3.

Sponsors: G.G. Briggs, N. Walker, R. MacDonald.

The third year, barley.

For previous years see 74-75/R/CS/140.

Design: Two replicates of 2 x 2 x 2 x 2 fully randomised.

Whole plot dimensions: 4.06 x 4.57.

Treatments, applied cumulatively 1974-76 except WEEDKLLR - 1974 and 76 only:
All combinations of:-

1. FUNGCIDE Fungicide:

NONE None
BENOMYL Benomyl at 4 kg applied 9 Mar, 1976

2. INSCTCDE Insecticide:

NONE None
CHLORFEN Chlorfenvinphos at 2 kg applied 9 Mar

3. NEMACIDE Nematicide:

NONE None
ALDICARB Aldicarb at 6 kg applied 9 Mar

4. WEEDKLLR Weedkiller:

NONE None
CHLORTOL Chlortoluron at 2 kg applied 1974 and 1976 only

NOTE: Chlortoluron was applied on 24 Mar in 340 l, other chemicals applied to the seedbed.

Basal applications: Manures: (0:20:20) at 820 kg, 'Nitro-Chalk' at 450 kg. Chalk at 2.9 t.

Seed: Julia (undressed), sown at 160 kg.

Cultivations, etc.: - Spring-tine cultivated: 16 Sept, 1975. PK applied: 8 Dec. Chalk applied: 11 Dec. Ploughed: 19 Dec. Spring-tine cultivated: 8 Mar, 1976. Power harrowed: 9 Mar. Seed sown, N applied: 10 Mar. Combine harvested: 20 July.

- NOTES: (1) Mildew and aphids were assessed during the season.
(2) Residues of aldicarb were measured in soil and plants. Residues of benomyl and chlorfenvinphos were measured in soil.
(3) Yields from two plots were lost at harvest, those with treatment combinations:-

FUNGCIDE	INSCTCDE	NEMACIDE	WEEDKLLR
BENOMYL	NONE	NONE	NONE
NONE	CHLORFEN	NONE	CHLORTOL

Estimated values were used in the analysis.

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GRAIN TONNES/HECTARE

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

INSCTCDE	NONE	CHLORFEN	MEAN	
FUNGCIDE				
NONE	3.85	3.94	3.90	
BENOMYL	4.14	3.92	4.03	
MEAN	4.00	3.93	3.96	
NEMACIDE	NONE	ALDICARB	MEAN	
FUNGCIDE				
NONE	3.75	4.04	3.90	
BENOMYL	3.87	4.20	4.03	
MEAN	3.81	4.12	3.96	
NEMACIDE	NONE	ALDICARB	MEAN	
INSCTCDE				
NONE	3.89	4.10	4.00	
CHLORFEN	3.73	4.13	3.93	
MEAN	3.81	4.12	3.96	
WEEDKLLR	NONE	CHLORTOL	MEAN	
FUNGCIDE				
NONE	3.90	3.89	3.90	
BENOMYL	4.03	4.04	4.03	
MEAN	3.96	3.96	3.96	
WEEDKLLR	NONE	CHLORTOL	MEAN	
INSCTCDE				
NONE	3.98	4.01	4.00	
CHLORFEN	3.94	3.92	3.93	
MEAN	3.96	3.96	3.96	
WEEDKLLR	NONE	CHLORTOL	MEAN	
NEMACIDE				
NONE	3.78	3.84	3.81	
ALDICARB	4.15	4.09	4.12	
MEAN	3.96	3.96	3.96	
INSCTCDE	NONE	CHLORFEN		
NEMACIDE	NONE	ALDICARB	NONE	ALDICARB
FUNGCIDE				
NONE	3.73	3.96	3.78	4.11
BENOMYL	4.05	4.24	3.68	4.16
INSCTCDE	NONE	CHLORFEN		
WEEDKLLR	NONE	CHLORTOL	NONE	CHLORTOL
FUNGCIDE				
NONE	3.91	3.79	3.90	3.99
BENOMYL	4.06	4.23	3.99	3.84

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GRAIN TONNES/HECTARE

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

NEMACIDE WEEDKLLR FUNGIDE	NONE		ALDICARB	
	NONE	CHLORTOL	NONE	CHLORTOL
NONE	3.76	3.75	4.04	4.03
BENOMYL	3.80	3.93	4.25	4.14

NEMACIDE WEEDKLLR INSCTCDE	NONE		ALDICARB	
	NONE	CHLORTOL	NONE	CHLORTOL
NONE	3.82	3.96	4.15	4.05
CHLORFEN	3.74	3.72	4.15	4.12

FUNGIDE INSCTCDE	NEMACIDE WEEDKLLR	NONE		ALDICARB	
		NONE	CHLORTOL	NONE	CHLORTOL
NONE	NONE	3.78	3.68	4.04	3.89
	CHLORFEN	3.74	3.82	4.05	4.17
BENOMYL	NONE	3.87	4.24	4.26	4.21
	CHLORFEN	3.74	3.61	4.24	4.07

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

TABLE	FUNGIDE	INSCTCDE	NEMACIDE	WEEDKLLR
SED	0.089	0.089	0.089	0.089

TABLE	FUNGIDE INSCTCDE	FUNGIDE NEMACIDE	INSCTCDE NEMACIDE	FUNGIDE WEEDKLLR
SED	0.125	0.125	0.125	0.125

TABLE	INSCTCDE WEEDKLLR	NEMACIDE WEEDKLLR	FUNGIDE INSCTCDE NEMACIDE	FUNGIDE INSCTCDE WEEDKLLR
SED	0.125	0.125	0.177	0.177

TABLE	FUNGIDE NEMACIDE WEEDKLLR	INSCTCDE NEMACIDE WEEDKLLR	FUNGIDE INSCTCDE NEMACIDE WEEDKLLR
SED	0.177	0.177	0.251

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

STRATUM	DF	SE	CV%
WP	14	0.251	6.3

GRAIN MEAN DM% 84.9

PLOT AREA HARVESTED 0.00075