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72/R/CS/59 Break Crops and Wheat - Barley

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72/R/CS/59

BREAK CROPS AND WHEAT

Object: To study the effects of different break crops on yields and soil-borne pathogens of a following sequence of cereals - Geescroft.

Sponsors: G.V. Dyke, R.D. Prew.

The third year, barley.

For previous years see 70/R/CS/59 (t) and 71/R/CS/59(t).

Design: 3 randomised blocks of 14 plots, split into 4.

Whole plot dimensions: 4.27 x 33.2. Sub plot area harvested: 0.00215.

Treatments:

Whole plots: Crops and nitrogen 1970:-

Maize receiving N at 100 (Maize 2), 200 (Maize 4) kg as 'Nitro-Chalk' in seedbed, spring beans (2 plots per block), clover (2 plots per block) (Extra) and all combinations of:-

1. Crops: Barley, oats
2. Undersowing (U): None, trefoil
3. Nitrogen (Res N): 50 (1), 100 (2) kg N as 'Nitro-Chalk' in seedbed.

Sub plots:

4. Nitrogen 1971 and 1972 (N): 0, 50, 100, 150 kg N as 'Nitro-Chalk'.

Basal applications: 310 kg (0:20:20) combine drilled. Weedkiller: Ioxynil, bromoxynil, 2,4-DP and MCPA ('Tetroxone' at 5.6 l in 220 l).

Seed: Julia, dressed ethirimol, sown at 160 kg.

Cultivations, etc.: Ploughed: 11 Nov, 1971. Seed combine drilled: 21 Mar, 1972. N applied: 17 Apr. Weedkiller applied: 8 May. Combine harvested: 23 Aug.

NOTE: Estimates were made of take-all (*Gaeumannomyces graminis* formerly known as *Ophiobolus graminis*) and eyespot (*Cercospora herpotrichoides*).

Standard errors per plot. Grain, tonnes/hectare:

Whole plot: 0.318 or 5.6% (28 d.f.)

Sub plot: 0.814 or 14.2% (90 d.f.)

72/R/CS/59

TABLES OF MEANS

GRAIN: TONNES/HECTARE

CROP	UNDERSOWING (U)		N: KG/HA 1970 (RES N)		N: KG/HA 1971 and 1972 (N)				Mean
	None	Trefoil	50	100	0	50	100	150	
Barley	5.50	5.87	5.76	5.60	4.75	6.23	5.99	5.76	5.68
Oats	5.79	5.75	5.67	5.87	4.48	6.24	6.30	6.05	5.77
	UNDERSOWING (U)		N: KG/HA 1970 (RES N)		N: KG/HA 1971 and 1972 (N)				Mean
	None	Trefoil	50	100	0	50	100	150	
			5.65	5.63	4.47	6.32	5.93	5.84	5.64
			5.78	5.84	4.76	6.15	6.36	5.97	5.81
			N: KG/HA 1970 (RES N)		N: KG/HA 1971 and 1972 (N)				Mean
			50	100	0	50	100	150	
					4.56	6.19	6.32	5.78	5.71
					4.66	6.28	5.98	6.03	5.74
Mean					4.61	6.24	6.15	5.91	5.73

N: KG/HA 1971 and 1972 (N)

EXTRA	0	50	100	150	Mean
Maize 2	3.48	6.21	6.69	5.29	5.42
Maize 4	3.98	6.83	7.08	5.64	5.88
Beans	4.39	6.13	6.61	6.00	5.78
Clover	4.09	5.84	6.40	6.36	5.67
Mean	4.07	6.17	6.63	5.94	5.70

Grand mean: 5.72
Mean D.M. %: 85.6

72/R/CS/59

STANDARD ERRORS OF DIFFERENCES

CROP	U	RES N	N
0.130	0.130	0.130	0.235

CROP	CROP	CROP	U	U	RES N
U	RES N	N	RES N	N	N
0.184	0.184	0.313	0.184	0.313	0.313
Unless same level of					
CROP		0.324			
U			0.324		
RES N				0.324	

EXTRA x N table

	EXTRA	N	EXTRA N
Maize 2 v Maize 4	0.260	0.271	0.632
Beans v clover	0.184		0.447
Maize 2 or 4 v			
Beans or clover	0.225		0.547
Unless same level of EXTRA			
Maize 2 or 4			0.665
Beans or clover			0.460