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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)									
	None		5.65	5.63	4.47	6.32	5.93	5.84	5.64
	Trefoil		5.78	5.84	4.76	6.15	6.36	5.97	5.81
N: KG/HA 1970 (RES N)									
			50		4.56	6.19	6.32	5.78	5.71
			100		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