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80/R/RN/8 Cultivation/WEEDKILLER

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80/R/RN/8

CULTIVATION/WEEDKILLER

Object: To study the long-term effects of weedkillers and different methods of primary cultivation on a sequence of crops - Great Harpenden I.

Sponsors: R. Moffit, G.V. Dyke, J.A. Currie.

The 20th year, s. barley.

For previous years see 'Details' 1967 and 1973 and 74-79/R/RN/8.

Design: 2 randomised blocks of 12 plots split into 2.

Whole plot dimensions: 12.8 x 15.2.

Treatments: All combinations of:-

Whole plots

1. CULTIVTN Primary cultivations annually:

 PLOUGH Ploughed: 24 Oct, 1979
 ROTAVATE Rotary cultivated by rotary digger: 25 Oct
 DEEPTINE Deep-tine cultivated twice: 24 Oct

2. WEEDCNTL(76) Weed control to beans and potatoes in the rotation
beans, wheat, potatoes, barley practised until 1976.
Last applied to beans 1976:

 MECHANCL Mechanical
 RESIDUAL Residual weedkiller (duplicated)

Sub plots

3. WEEDKLLR(75) Hormone weedkiller to cereals in the previous rotation,
last applied to barley 1975 (basal hormone weedkiller
to s. wheat 1977 and s. barley 1978 to 1980):

 NONE
 HORMONE

4. WEEDKLLR(80) Paraquat weedkiller to cereal stubbles: 23 Oct, 1979.

 NONE
 PARAQUAT

NOTE: The combinations of 3 and 4 are tested on half plots: WEEDKLLR(75)
NONE, WEEDKLLR(80) NONE and WEEDKLLR(75) HORMONE, WEEDKLLR(70)
PARAQUAT on one block, remaining combinations on the other.

EXTRA plus three extra whole plot treatments:

 SPNGTINE Heavy spring-tine cultivated twice: 24 Oct, 1979.
Given simazine to beans 1976, with sub plot tests
3 and 4 above.

 SH PLGH Shallow ploughed: 24 Oct, 1979. Given simazine to
beans 1976 and paraquat to cereal stubbles with sub
plot test 3 above.

80/R/RN/8

STANDARD Standard cultivations as considered best for each crop. Ploughed 24 Oct, 1979. Given simazine to beans 1976, with sub plot tests 3 and 4 above.

NOTE: Paraquat was applied at 0.56 kg ion in 220 l.

Basal applications: Manures: Chalk at 7.5 t. (20:10:10) at 450 kg, combine drilled. Fungicide: Tridemorph at 0.53 kg in 250 l applied twice, with weedkillers on the first occasion. Weedkillers: Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.5 l).

Seed: Georgie, sown at 160 kg.

Cultivations, etc.: Chalk applied: 9 Oct, 1979. Spring-tine cultivated: 2 Mar, 1980. Rotary harrowed: 3 Mar. Seed sown: 4 Mar. Rolled: 5 Mar. Weedkiller and fungicide applied: 9 May. Fungicide applied: 4 June. Combine harvested: 18 Aug.

EXTRA PLOTS ONLY

GRAIN TONNES/HECTARE

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

EXTRA	SPNGTINE	SH PLGH	STANDARD
WEEDKLLR(75)			
NONE	6.22	5.75	6.25
HORMONE	6.13	6.43	5.43
WEEDKLLR(80)			
NONE	6.17		5.70
PARAQUAT	6.18	6.09	5.99
MEAN	6.17	6.09	5.84

GRAIN MEAN DM% 83.8

SUB PLOT AREA HARVESTED 0.00434

80/R/RN/8

OMITTING EXTRA PLOTS

GRAIN TONNES/HECTARE

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

	CULTIVTN	PLOUGH	ROTAVATE	DEEPTINE	MEAN
WEEDCNTL(76)					
MECHANCL		5.77	5.63	5.68	5.69
RESIDUAL		6.28	5.79	5.69	5.92
MEAN		6.11	5.74	5.69	5.84
WEEDKLLR(75)					
NONE		6.07	5.59	5.59	5.75
HORMONE		6.15	5.88	5.78	5.94
MEAN		6.11	5.74	5.69	5.84
WEEDKLLR(80)					
NONE		6.19	5.68	5.67	5.85
PARAQUAT		6.02	5.79	5.71	5.84
MEAN		6.11	5.74	5.69	5.84

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

TABLE	CULTIVTN	WEEDCNTL(76)	WEEDKLLR(75)	WEEDKLLR(80)
SED	0.127	0.110	0.127	0.127

TABLE	CULTIVTN WEEDCNTL(76)	CULTIVTN WEEDKLLR(75)	CULTIVTN WEEDKLLR(80)	
SED	0.220			MIN REP
	0.190	0.201	0.201	MAX-MIN
	0.155			MAX REP

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:
CULTIVTN 0.220 0.220

WEEDCNTL(76)
MIN REP MECHANCL
MAX-MIN MECHANCL V RESIDUAL
MAX REP RESIDUAL

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

STRATUM	DF	SE	CV%
BLOCK.WP	11	0.220	3.8
BLOCK.WP.SP	10	0.380	6.5

GRAIN MEAN DM% 84.0

SUB PLOT AREA HARVESTED 0.00434