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82/R/RN/8 Cultivation/WEEDKILLER - W. Barley

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82/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. Moffitt, J.A. Currie.

The 22nd year, w. barley.

For previous years see 'Details' 1967 and 1973 and 74-81/R/RN/8.

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

Whole plot dimensions: 12.8 x 12.2.

Treatments: All combinations of:-

Whole plots

- | | |
|-----------------|---|
| 1. CULTIVTN | Primary cultivations annually: |
| PLOUGH | Ploughed: 1 Oct, 1981 |
| ROTA DIG | Cultivated by rotary digger: 7 Oct |
| DEEPTINE | Deep-tine cultivated: 28 Sept |
| 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, s. barley 1978 to 1980 and w. barley
1981 to 1982): |
| NONE | |
| HORMONE | |
| 4. WEEDKLLR(81) | Paraquat weedkiller to preceding cereal stubbles last
applied for w. barley 1981: |
| NONE | |
| PARAQUAT | |

NOTE: The combinations of 3 and 4 are tested on half plots: WEEDKLLR(75) NONE, WEEDKLLR(81) NONE and WEEDKLLR(75) HORMONE, WEEDKLLR(81) PARAQUAT on one block, remaining combinations on the other.

EXTRA plus three extra whole plot treatments; all given simazine to beans in 1976, paraquat to preceding cereal stubble, direct drilled 1981 and 1982, but differing in cultivations for 1979 barley:

82/R/RN/8

DD(SP T) Heavy spring-tine cultivated twice for 1979 barley,
with sub plot test 3 above.
DD(SH P) Shallow ploughed for 1979 barley, with sub plot test 3
above.
DD(PL) Ploughed for 1979 barley, with sub plot test 3 above.

NOTE: Paraquat was applied to direct drilled plots at 0.56 kg ion in 220 l.

Basal applications: Manures: (10:23:23) at 250 kg, combine drilled.
'Nitro-Chalk' at 630 kg. Weedkillers: Glyphosate at 1.4 kg in 250 l.
Chlortoluron at 5.6 l in 250 l. Dicamba, mecoprop and MCPA (as 'Poly-
Farmon' at 5.0 l) applied with the prochloraz in 250 l. Fungicides:
Prochloraz at 0.4 kg. Propiconazole at 0.25 kg in 250 l.

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

Cultivations, etc.:- Glyphosate applied: 16 Sept, 1981. Paraquat applied
to EXTRA plots and these plots direct drilled, remaining plots rotary
harrowed, seed sown: 23 Oct. Chlortoluron applied: 24 Oct. Dicamba,
mecoprop and MCPA applied with prochloraz: 14 Apr, 1982. N applied:
22 Apr. Propiconazole applied: 3 June. Combine harvested: 26 July.

EXTRA PLOTS ONLY

GRAIN TONNES/HECTARE

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

EXTRA	DD(SP T)	DD(SH P)	DD(PL)	MEAN
WEEDKLLR(75)				
NONE	6.44	6.73	6.68	6.62
HORMONE	6.96	6.09	7.03	6.69
MEAN	6.70	6.41	6.85	6.66

GRAIN MEAN DM% 81.6

SUB PLOT AREA HARVESTED 0.00347

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OMITTING EXTRA PLOTS

GRAIN TONNES/HECTARE

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

CULTIVTN WEEDCNTL (76)	PLOUGH	ROTA DIG	DEEPTINE	MEAN
MECHANCL	6.01	6.89	7.00	6.63
RESIDUAL	6.39	6.54	6.71	6.55
MEAN	6.26	6.65	6.81	6.58

CULTIVTN WEEDKLLR(75)	PLOUGH	ROTA DIG	DEEPTINE	MEAN
NONE	6.35	6.63	6.81	6.60
HORMONE	6.18	6.67	6.81	6.55
MEAN	6.26	6.65	6.81	6.58

CULTIVTN WEEDKLLR(81)	PLOUGH	ROTA DIG	DEEPTINE	MEAN
NONE	6.23	6.69	6.85	6.59
PARAQUAT	6.29	6.62	6.77	6.56
MEAN	6.26	6.65	6.81	6.58

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

TABLE	CULTIVTN WEEDCNTL(76)	WEEDKLLR(75)	WEEDKLLR(81)
SED	0.130	0.113	0.080

TABLE	CULTIVTN WEEDCNTL (76)	CULTIVTN WEEDKLLR(75)	CULTIVTN WEEDKLLR(81)	MIN REP
SED	0.225			
	0.195	0.163	0.163	MAX-MIN
	0.159			MAX REP

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:
CULTIVTN 0.139 0.139

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	0.225	3.4
BLOCK.WP.SP	10	0.241	3.7

GRAIN MEAN DM% 83.6

SUB PLOT AREA HARVESTED 0.00347