

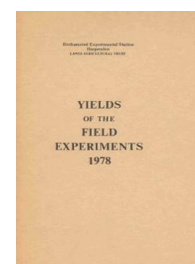
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78/R/RN/8 Cultivation/WEEDKILLER - Barley

Rothamsted Research

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78/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, G.V. Dyke, J.A. Currie.

The 18th year, barley.

For previous years see 'Details' 1967 and 1973 and 74-77/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: 6 Dec, 1977 |
| ROTAVATE | Rotary cultivated: 9 Dec |
| DEEPTINE | Deep-tine cultivated twice: 5 Dec |
| 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 spring wheat 1977 and barley 1978): |
| NONE | None |
| HORMONE | Hormone weedkiller |
| 4. WEEDKLLR(78) | Paraquat weedkiller to cereal stubbles: 2 Dec: |
| NONE | |
| PARAQUAT | |

NOTE: The combinations of 3 and 4 are tested on half plots: WEEDKLLR(75) NONE, WEEDKLLR(78) NONE and WEEDKLLR(75) HORMONE, WEEDKLLR(78) PARAQUAT on one block, remaining combinations on the other.

- | | |
|----------|---|
| EXTRA | plus three extra whole plot treatments: |
| SPNGTINE | Heavy spring-tine cultivated twice: 5 Dec, 1977. Given simazine to beans 1976, with sub plot tests 3 and 4 above. |
| (SH)PLGH | Shallow ploughed: 9 Dec, 1977. Given simazine to beans 1976 and paraquat to cereal stubbles with sub plot test 3 above. |

78/R/RN/8

STANDARD Standard cultivations as considered best for each crop.
Ploughed 6 Dec, 1977. Given simazine to beans 1976, with
sub plot tests 3 and 4 above.

Basal applications: Manures: (20:14:14) at 440 kg, combine drilled. Weedkiller:
Ioxynil plus mecoprop ('Atril C' at 7.0 l in 220 l). Fungicide: Tridemorph
at 0.53 kg in 220 l.

Seed: Porthos, sown at 160 kg.

Cultivations, etc.:— Power harrowed: 5 Apr, 1978. Seed sown: 6 Apr. Rolled:
7 Apr. Weedkiller and fungicide applied: 26 May. Combine harvested:
8 Sept.

EXTRA PLOTS ONLY

GRAIN TONNES/HECTARE

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

EXTRA	SPNGTINE	(SH)PLGH	STANDARD
WEEDKLLR(75)			
NONE	5.64	5.55	5.74
HORMONE	5.72	5.64	5.39
WEEDKLLR(78)			
NONE	5.78		5.50
PARAQUAT	5.58	5.59	5.63
MEAN	5.68	5.59	5.56

GRAIN MEAN DM% 79.7

SUB PLOT AREA HARVESTED 0.00408

78/R/RN/8

OMITTING EXTRA PLOTS

GRAIN TONNES/HECTARE

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

CULTIVTN	PLOUGH	ROTAVATE	DEEPTINE	MEAN
WEEDCNTL(76)				
MECHANCL	5.56	5.69	5.78	5.68
RESIDUAL	5.71	5.68	5.65	5.68
WEEDKLLR(75)				
NONE	5.67	5.69	5.77	5.71
HORMONE	5.65	5.68	5.62	5.65
WEEDKLLR(78)				
NONE	5.55	5.61	5.51	5.56
PARAQUAT	5.76	5.76	5.88	5.80
MEAN	5.66	5.68	5.69	5.68

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

TABLE	CULTIVTN	WEEDCNTL(76)	WEEDKLLR(75)	WEEDKLLR(78)
SED	0.119	0.103	0.063	0.063

TABLE	CULTIVTN	CULTIVTN	CULTIVTN	
	WEEDCNTL(76)	WEEDKLLR(75)	WEEDKLLR(78)	
SED	0.206			MIN REP
	0.179	0.142	0.142	MAX-MIN
	0.146			MAX REP

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:
CULTIVTN 0.110 0.110

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	0.206	3.6
BLOCK.WP.SP	10	0.190	3.3

GRAIN MEAN DM% 79.9

SUB PLOT AREA HARVESTED 0.00408