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76/R/RN/8 Cultivation/WEEDKILLER - Beans

Rothamsted Research

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76/R/RN/8

CULTIVATION WEEDKILLER

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

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

The 16th year, spring beans.

For previous years see 'Details' 1967, 68/R/6(t), 69/R/RN/8(t), 70/R/RN/8, 71/R/RN/8(t) and 72-75/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: 12 Nov, 1975
ROTAVATE	Rotary cultivated: 13 Nov, 1975
DEEPTINE	Deep-tine cultivated twice: 12 Nov, 1975

2. WEEDCNTL(76) Weed control to beans 1976:

MECHANCL	Mechanical
SIMAZINE	Simazine at 1.1 kg in 220 l (duplicated)

Sub plots

3. WEEDKLLR(751) Hormone weedkiller to barley 1975:

NONE	None
DI+ME+MC	Dicamba + mecoprop + MCPA ('Tetralex Plus' at 7.0 l in 220 l).

4. WEEDKLLR(752) Paraquat weedkiller to barley stubble autumn 1975:

NONE	None
PARAQUAT	Paraquat at 0.42 kg ion in 220 l

EXTRA plus three extra treatments

SPIKE	Spike rotary cultivated: 4 Mar, 1976. Given simazine to beans 1976, with sub plot treatments 3 and 4 above.
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(SH)PLGH	Shallow ploughed: 17 Nov, 1975. Given simazine to beans 1976 and paraquat to barley stubble autumn 1975, with sub plot treatment 3 above. Barley straw spread: 2 Sept, 1975. Straw burned: 10 Sept.
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STANDARD	Standard cultivations as considered best for each crop. Ploughed: 12 Nov, 1975. Given simazine to beans 1976, with sub plot treatments 3 and 4 above.
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76/R/BN/8

- NOTES: (1) Simazine applied: 9 Mar, 1976
 (2) Paraquat applied: 6 Oct, 1975.
 (3) MECHANCL plots: Mechanically weeded: 29 April, 25 May, 1976.
 (4) All plots, except SPIKE plots, heavy spring-tine cultivated:
 3 Mar, 1976.
 (5) All plots mechanically weeded: 28 May.

Basal applications: Manures: (0:14:28) at 400 kg.

Seed: Maris Bead, sown at 220 kg.

Cultivations, etc.: Fertiliser applied: 3 Mar, 1976. Seed sown: 4 Mar.
 Harvested: 20 July.

EXTRA PLOTS ONLY

GRAIN TONNES/HECTARE

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

EXTRA	SPIKE (SH)	PLGH	STANDARD
WEEDKLLR(751)			
NONE	0.31	0.95	0.75
DI+ME+MC	0.29	0.70	0.62
WEEDKLLR(752)			
NONE	0.26		0.67
PARAQUAT	0.35	0.82	0.71
MEAN	0.30	0.82	0.69

GRAIN MEAN DM% 74.8

SUB PLOT AREA HARVESTED 0.00488

76/R/RN/8

OMITTING EXTRA PLOTS

GRAIN TONNES/HECTARE

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

CULTIVTN	PLOUGH	ROTAVATE	DEEPTINE	MEAN
WEEDCNTL(76)				
MECHANCL	0.79	0.42	0.34	0.52
SIMAZINE	0.72	0.61	0.41	0.58
WEEDKLLR(751)				
NONE	0.68	0.53	0.28	0.50
DI+ME+MC	0.81	0.57	0.49	0.62
WEEDKLLR(752)				
NONE	0.68	0.48	0.36	0.51
PARQUAT	0.81	0.62	0.41	0.61
MEAN	0.75	0.55	0.38	0.56

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

TABLE	WEEDCNTL(76)	WEEDKLLR(751)	WEEDKLLR(752)	CULTIVTN
	0.093	0.056	0.056	0.108

TABLE	CULTIVTN WEEDCNTL(76)	CULTIVTN WEEDKLLR(751)	CULTIVTN WEEDKLLR(752)	
SED	0.187 0.162 0.132	0.128	0.128	MIN-REP MAX-MIN MAX-REP

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:
CULTIVTN 0.098 0.098

WEEDCNTL(76)
MIN-REP WEEDCNTL(76) MECHANCL
MAX-MIN MECHANCL SIMAZINE
MAX-REP SIMAZINE

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

STRATUM	DF	SE	CV%
BLOCK.WP	10	0.187	33.4
BLOCK.WP.SP	9	0.169	30.2

GRAIN MEAN DM% 76.7