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# Yields of the Field Experiments 1981

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## 81/R/RN/8 Cultivation Weedkiller - W. Barley

### Rothamsted Research

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81/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 21st year, w. barley.

For previous years see 'Details' 1967 and 1973 and 74-80/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: 24 Sept, 1980   |
| ROTA DIG        | Cultivated by rotary digger: 23 Sept  |
| DEEPTINE        | Deep-tine cultivated: 23 Sept   |
| 2. WEEDCNTL(76) | Weed control to beans and potatoes in the rotation<br>beans, wheat, potatoes, barley practised until 1976.<br>Last applied to beans 1976: |
| MECHANCL        | Mechanical  |
| RESIDUAL        | Residual weedkiller (duplicated)  |

Sub plots

- |                 |  |
|-----------------|--|
| 3. WEEDKLLR(75) | Hormone weedkiller to cereals in the previous rotation,<br>last applied to barley 1975 (basal hormone weedkiller<br>to s. wheat 1977, s. barley 1978 to 1980 & w. barley<br>1981): |
| NONE            |  |
| HORMONE         |  |
| 4. WEEDKLLR(81) | Paraquat weedkiller to preceding cereal stubbles: 19<br>Sept, 1980.  |
| 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, but differing in cultivations for preceding crop:

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

NOTE: Paraquat was applied at 0.84 kg ion in 250 l.

Basal applications: Manures: (10:23:23) at 250 kg, combine drilled.  
'Nitro-Chalk' at 560 kg. Weedkillers: Chlortoluron at 4.4 l in 250 l.  
Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.7 l) in 250 l.  
Fungicide: Prochloraz at 0.4 l in 250 l.

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

Cultivations, etc.: - EXTRA plots direct drilled, remaining plots rotary harrowed, seed sown: 25 Sept, 1980. Chlortoluron applied: 27 Sept. N applied: 16 Apr, 1981. 'Brittox' applied: 21 Apr. Fungicide applied: 5 May. Combine harvested: 3 Aug.

EXTRA PLOTS ONLY

GRAIN TONNES/HECTARE

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

	EXTRA	DD(SP T)	DD(SH P)	DD(PL)	MEAN
WEEDKLLR(75)					
NONE		6.67	5.92	6.11	6.23
HORMONE		6.94	5.82	6.71	6.49
MEAN		6.80	5.87	6.41	6.36

GRAIN MEAN DM% 84.4

SUB PLOT AREA HARVESTED 0.00347

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OMITTING EXTRA PLOTS

GRAIN TONNES/HECTARE

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

CULTIVTN	PLOUGH	ROTA DIG	DEEPTINE	MEAN
WEEDCNTL(76)				
MECHANCL	6.01	6.17	6.67	6.28
RESIDUAL	6.40	6.21	5.97	6.19
CULTIVTN	PLOUGH	ROTA DIG	DEEPTINE	MEAN
WEEDKLLR(75)				
NONE	6.25	6.25	6.09	6.19
HORMONE	6.30	6.14	6.31	6.25
CULTIVTN	PLOUGH	ROTA DIG	DEEPTINE	MEAN
WEEDKLLR(81)				
NONE	6.39	6.25	6.24	6.29
PARAQUAT	6.15	6.14	6.16	6.15
MEAN	6.27	6.20	6.20	6.22

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

TABLE	CULTIVTN WEEDCNTL(76)	WEEDKLLR(75)	WEEDKLLR(81)	
SED	0.229	0.198	0.063	0.063
TABLE	CULTIVTN WEEDCNTL(76)	CULTIVTN WEEDKLLR(75)	CULTIVTN WEEDKLLR(81)	
SED	0.396			MIN REP
	0.343	0.241	0.241	MAX-MIN
	0.280			MAX REP
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
CULTIVTN		0.109	0.109	

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	0.396	6.4
BLOCK.WP.SP	10	0.189	3.0

GRAIN MEAN DM% 84.1

SUB PLOT AREA HARVESTED 0.00347