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## Yields of the Field Experiments 1964

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### 64/R/CW/B/9 Cultivation-weedkiller Rotation

#### Rothamsted Research

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64/B/9.1

## CULTIVATION - WEEDKILLER ROTATION

(CW)

Gt. Harpenden I 1964 - the 4th year

A comparison of weed control by various cultivation methods and by pre-emergence weedkillers.

For previous history, rotation, treatments etc., see 'Results' 61/B/10, 62/B/10 and 63/B/10.

Area harvested: Spring beans - 0.0110. Winter wheat, potatoes, barley - 0.0107.

Treatments. One plot per block of the 'Reserve' plots was allocated to a new treatment ('A'). For spring-sown crops: no cultivation in autumn or winter, rotary cultivated before sowing. For autumn sown crops: as treatment P. These plots are sprayed as 'X'.

From 1964 it was decided that on all sprayed plots beans would be drilled in rows 10.5 inches apart, on other plots the spacing would be 21 inches as hitherto. In 1964, however, the reserve plots were drilled at 10.5 inches in error, and were sprayed as treatment 'X'.

Weedkillers used on potatoes 1964:-

Prometryne (2 lb) and paraquat (0.75 lb ion) in 40 gals (X).

Linuron (2 lb) and paraquat (0.75 lb ion) in 40 gals (Y).

The earthing up treatment to potatoes is discontinued.

Barley variety 1964 Maris Badger.

Basal dressings: Winter wheat: 2.5 cwt 6:15:15 and 3 cwt 'Nitro-Chalk' in spring. Barley: 2.5 cwt 20:10:10. Potatoes and beans, as 1961.

## Operations in 1964

NOTE: Spring beans were sown instead of winter beans.

Cultivations, etc.:

Spring beans: Sprayed with dalapon at 11 lb a.e. in 40 gals:

Nov 16, 1963. T plots rigid-tine cultivated twice, P

and reserve plots ploughed: Jan 3, 1964. R plots rotary

cultivated: Jan 8. P, T and reserve plots spring-tine

cultivated: Mar 9. R and A plots rotary cultivated,

P, T and reserve plots spring-tine cultivated: Apr 1.

Seed drilled at 200 lb: Apr 2. All plots sprayed with

simazine: Apr 9. M plots tractor hoed: May 11. M

plots chain-harrowed: May 12. Combine harvested: Sept 2.



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Winter wheat: T plots rigid-tine cultivated twice: Nov 21, 1963.

P, A and reserve plots ploughed: Nov 27. P, T, A and reserve plots spring-tine cultivated twice, R plots rotary cultivated, seed drilled at 3 bushels: Dec 12. 'Nitro-Chalk' applied: Apr 13, 1964. H sub-plots and reserve plots sprayed with mecoprop/2,4-D (Methoxone Extra at 7 pints in 40 gals): May 7. Combine harvested: Aug 26.

Potatoes: Sprayed with dalapon at 11 lb a.e. in 40 gals:

Nov 16, 1963. T plots rigid-tine cultivated twice:

Jan 3, 1964. P and reserve plots ploughed: Jan 6. R plots rotary cultivated: Jan 8. Basal compound fertiliser applied, T, P and reserve plots spring-tine cultivated, A and R plots rotary cultivated: Apr 13. Plot 59 (TM) harrowed and couch grass carted off, P, T and reserve plots spring-tine cultivated, A and R plots rotary cultivated second time, seed machine planted: Apr 14. Ridges rolled: May 5. M plots grubbed and chain harrowed, X and Y plots sprayed: May 12. M plots grubbed: June 11. M plots earthed up: June 12. Sprayed twice with mancozeb at 1.2 lb in 35 gals: July 1 and Aug 7. Sprayed with diquat (Reglone at 4 pints in 40 gals): Sept 5. Lifted: Sept 14.

Barley: Sprayed with sodium trichloracetate at 18 lb in 40 gals:

Nov 21, 1963. All plots spring-tine cultivated: Dec 7.

Sprayed second time with sodium trichloracetate at 18 lb in 40 gals: Dec 18. All plots spring-tine cultivated: Jan 6, 1964.

T plots rigid-tine cultivated twice, P and reserve plots ploughed, R plots rotary cultivated: Jan 14. All plots except R and A plots spring-tine cultivated: Mar 9. R and A plots rotary cultivated, P, T and reserve plots harrowed: Mar 10. Seed drilled at 2.75 bushels: Mar 11. Rolled: Mar 12. H sub-plots and reserve plots sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in 40 gals): May 14. Combine harvested: Aug 12.

Standard errors per plot.

Spring beans, grain: Whole plot: 2.16 or 7.9% (11 d.f.)

Winter wheat, grain: Whole plot: 3.73 or 8.4% (8 d.f.)

Sub plot: 2.16 or 4.9% (9 d.f.)

Potatoes, total tubers: Whole plot: 1.084 or 10.6% (8 d.f.)

Barley, grain: Whole plot: 1.24 or 2.5% (11 d.f.)

Sub plot: 2.48 or 4.9% (12 d.f.)

NOTE: Potatoes. On plot 59(TM) there was a heavy infestation of twitch (*Agropyron repens*) and a very heavy infestation of chickweed (*Stellania media*).

64/B/9.3

## SUMMARY OF RESULTS

	P	R	T	Mean
SPRING BEANS				
GRAIN				
Mean ( $\pm 0.88$ )	27.9	26.6	27.4	27.3
M ( $\pm 1.53$ )	29.7	28.9	29.1	29.2 ( $\pm 0.88$ )
X ( $\pm 1.08$ )	27.0	25.5	26.6	26.4 ( $\pm 0.62$ )
	A	Reserve		
	X	X		
	27.8	28.0		

General mean: 27.5

Mean D.M.%: 86.6

WINTER WHEAT				
GRAIN				
Mean ( $\pm 1.52$ )	44.8	45.1	43.0	44.3
1963		( $\pm 2.64$ )		( $\pm 1.52$ )
M	44.6	45.0	43.5	44.3
X	43.1	43.9	42.7	43.2
Y	46.8	46.4	43.0	45.4
1964		(1) and (2)		( $\pm 0.51$ )
-	46.4	45.0	43.2	44.8
H	43.2	45.2	42.9	43.8
	A	A	Reserve	
	-	H	H	
	46.5	42.3	41.2	

General mean: 43.8

Mean D.M.%: 87.3

- (1) ( $\pm 0.88$ ) For use in vertical and interaction comparisons  
 (2) ( $\pm 1.65$ ) For use in horizontal and diagonal comparisons



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## POTATOES

	P	R	T	Mean
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## TOTAL TUBERS

Mean ( $\pm 0.442$ )	10.77	9.84	10.09	10.23
		( $\pm 0.766$ )		( $\pm 0.442$ )
M	10.60	9.11	7.73	9.15
X	10.61	10.35	10.30	10.42
Y	11.09	10.08	12.23	11.13
	A	Reserve		
	X			
	9.68	11.12		

General mean: 10.34

## % WARE

Mean	90.8	88.9	89.8	89.8
M	89.8	87.9	86.5	88.0
X	91.0	89.7	90.3	90.3
Y	91.7	89.2	92.7	91.2
	A	Reserve		
	X			
	84.9	92.0		

General mean: 89.8

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BARLEY

GRAIN

	P	R	T	Mean
Mean ( $\pm 0.51$ )	51.2	49.8	49.7	50.2
1963				
M ( $\pm 0.88$ )	50.6	50.8	48.1	49.8 ( $\pm 0.51$ )
X ( $\pm 0.62$ )	51.5	49.3	50.5	50.4 ( $\pm 0.36$ )
1964		(1) and (2)		( $\pm 0.58$ )
-	50.8	49.3	46.8	49.0
H	51.6	50.3	52.7	51.5
	A	A	Reserve	
	-	H	H	
	49.9	48.8	51.1	

General mean: 50.3

Mean D.M. %: 82.6

- (1) ( $\pm 1.01$ ) For use in vertical and interaction comparisons  
 (2) ( $\pm 0.88$ ) For use in horizontal and diagonal comparisons