

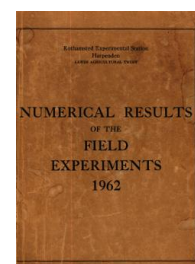
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62/R/B/10 Weedkiller-cultivation Rotation

Rothamsted Research

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62/B/10.1

WEEDKILLER CULTIVATION ROTATION

Great Harpenden I 1962, the second year

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

For previous history, rotation etc., see "Numerical Results of the Field Experiments" 61/B/10.

Area harvested (acres): Beans - 0.0201; Wheat, potatoes, barley - 0.0107 (sub plots).

Prometryne, at $2\frac{1}{2}$ lb active material in 20 gallons per acre, has replaced simazine as the weedkiller on potatoes.

Basal dressings per acre:- Spring wheat: 3 cwt compound fertiliser (16% N, 9% P_2O_5 , 9% K_2O) combine drilled. All other crops - as 1961.

Operations in 1962

Note: Spring beans and spring wheat were again sown instead of winter beans and winter wheat.

Cultivations, etc.: All plots except barley plots sprayed with dalapon at 8 lb in 40 gallons per acre: Sept 7, 1961 and again at 4 lb in 40 gallons per acre: Sept 26.

Spring beans: T plots rigid-tine cultivated 3 times: Nov 1, 3 and 4, 1961. P and reserve plots ploughed: Nov 6. R plots rotary cultivated: Nov 23. All plots except R plots spring-tine cultivated twice: Feb 23 and Mar 13, 1962. R plots rotary cultivated: Mar 13. Seed drilled at 200 lb per acre, all plots harrowed: Mar 14. X plots sprayed with simazine: Apr 11. M and reserve plots mechanically weeded: May 2. M and reserve plots tractor hoed 3 times: May 10, June 1 and June 20. Combine harvested: Sept 20. Variety: Tick 30B.

Spring wheat: T plots rigid-tine cultivated 3 times: Nov 1, 3 and 4, 1961. P and reserve plots ploughed: Nov 6. R plots rotary cultivated: Nov 23. Spring-tine cultivated twice (except R plots): Mar 2 and 15, 1962. R plots rotary cultivated, seed drilled at 3 bushels per acre, all plots harrowed: Mar 16. Rolled: Apr 30. H sub plots and reserve plots sprayed with MCPA/MBA at 4 pints in 40 gallons per acre: May 28. Combine harvested: Sept 14. Variety: Jufy I.

Potatoes: T plots rigid-tine cultivated 3 times: Nov 1, 3 and 4, 1961. P and reserve plots ploughed: Nov 6. R plots rotary cultivated: Nov 22. Spring-tine cultivated twice (except R plots), R plots rotary cultivated once: Mar 22, 1962. Basal compound fertiliser applied: Mar 23. Seed machine planted: Mar 27. Rolled: Mar 28. Mechanically weeded (except X plots): May 1. Chain harrowed (except X plots): May 2.

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Grubbed (except X plots): May 4. X plots sprayed with prometryne: May 23. Reridged (except X plots): May 31. Y plots sprayed with prometryne: June 2. Mechanically weeded (except X and Y plots): June 7. M and reserve plots grubbed: June 18. M, reserve plots and E sub plots of X plots grubbed and ridged: July 5. Sprayed with maneb at $1\frac{1}{2}$ lb active material in 18 gallons per acre: July 20. Sprayed with copper oxychloride fungicide at 2.3 lb Cu in 20 gallons per acre: Aug 10. Sprayed with undiluted BOV at 15 gallons per acre: Sept 25. Lifted: Oct 12. Variety: Majestic.

Barley: T plots rigid-tine cultivated twice, P and reserve plots ploughed: Oct 17, 1961. R plots rotary cultivated: Nov 22. Spring-tine cultivated twice (except R plots): Feb 23 and Mar 15, 1962. R plots rotary cultivated, seed drilled at $2\frac{1}{4}$ bushels per acre, all plots harrowed: Mar 16. Rolled: Apr 30. H sub plots and reserve plots sprayed with MCPA/MBA at 4 pints in 40 gallons per acre: May 28. Combine harvested: Aug 27. Variety: Proctor.

Standard errors per plot.

Spring beans, grain (at 85% dry matter): 3.84 cwt per acre or 13.2% (15 d.f.)

Spring wheat, grain (at 85% dry matter)

Whole plot: 2.49 cwt per acre or 7.6% (15 d.f.)

Sub plot: 1.27 cwt per acre or 3.9% (18 d.f.)

Potatoes, total tubers

Whole plot: 1.458 tons per acre or 10.3% (12 d.f.)

Sub plot: 0.900 tons per acre or 6.3% (15 d.f.)

Barley, grain (at 85% dry matter)

Whole plot: 3.21 cwt per acre or 7.8% (12 d.f.)

Sub plot: 1.60 cwt per acre or 3.9% (15 d.f.)

Summary of Results

Beans, grain (at 85% dry matter): cwt per acre

Treatment after planting	Initial cultivation			Mean
	P	R	T	
M (± 2.72)	27.0	31.1	27.8	28.6 (± 1.57)
X (± 1.92)	29.4	30.0	28.1	29.2 (± 1.11)
Mean (± 1.57)	28.6	30.3	28.0	29.0

Reserve plots 29.3 (± 1.57)

General mean: 29.1

Mean dry matter % as harvested: 78.0

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Spring wheat, grain (at 85% dry matter): cwt per acre

	Initial cultivation			Mean
	P	R	T	
Mean (± 1.02)	31.8	33.7	34.0	33.2
<u>Treatment in 1961</u>				
M (± 1.76)	32.5	33.2	35.1	33.6 (± 1.02)
X (± 1.24)	31.5	34.0	33.4	33.0 (± 0.72)
<u>Spray in 1962</u>				
- (± 1.08) ⁽²⁾	33.2	33.7	35.4	34.1
H	30.5	33.8	32.5	32.3
Diff (± 0.74)	-2.7	+0.1	-2.9	-1.8 (± 0.42)

Reserve plots: 30.8 (± 1.02)

General mean: 32.6

Mean dry matter % as harvested: 74.2

Potatoes

Treatment after planting	Initial cultivation				Mean	Not earthed up	Earthed up
	P	R	T	Mean			
<u>Total tubers: tons per acre</u>							
	(± 1.031)			(± 0.595)	(± 0.367) ⁽¹⁾ (± 0.649) ⁽²⁾		
M	14.97	15.44	14.44	14.95	14.92	14.98	
X	14.09	12.63	12.15	12.95	13.17	12.74	
Y	13.11	15.51	14.29	14.30			
Mean (± 0.595)	14.06	14.53	13.62	14.07			

Reserve plots: 14.56 (± 0.595)

General mean: 14.19

(1) For use in vertical and interaction comparisons

(2) For use in horizontal and diagonal comparisons

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Potatoes

Treatment after planting	Initial cultivation				Not earthed up	Earthed up
	P	R	T	Mean		
	<u>Percentage ware ($1\frac{1}{2}$" riddle)</u>					
M	96.4	97.1	96.4	96.6	96.2	97.1
X	96.9	97.2	96.8	97.0	97.1	96.8
Y	95.7	96.3	95.7	95.9		
Mean	96.3	96.9	96.3	96.5		

Reserve plots: 95.8

General mean: 96.3

Barley, grain (at 85% dry matter): cwt per acre

	Initial cultivation			
	P	R	T	Mean
Mean (± 1.31)	41.8	39.8	38.3	40.0
<u>Treatment in 1961</u>		(± 2.27)		(± 1.31)
M	40.5	41.0	38.3	39.9
X	44.3	40.3	36.9	40.5
Y	40.6	38.3	39.8	39.6
<u>Spray in 1962</u>				
- (± 1.39)*	42.8	41.0	38.8	40.8
H	40.8	38.7	37.9	39.1
Diff (± 0.92)	-2.0	-2.3	-0.9	-1.7 (± 0.53)

Reserve plots: 43.9 (± 1.31)

General mean: 41.0

Mean dry matter % as harvested: 82.2

* For use in horizontal and diagonal comparisons.