ROTHAMSTED RESEARCH

Yields of the Field Experiments 1966

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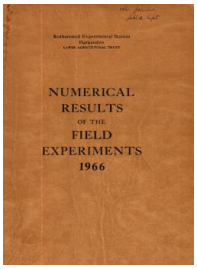

66/R/CW/B/7 Cultivation-weedkiller Rotation

Rothamsted Research

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66/B/7.1

CULTIVATION - WEEDKILLER ROTATION

(CW)

Great Harpenden 1966 - the 6th year

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

For previous history, rotations, treatments etc., see 'Results' 61/B/10, 62/B/10, 63/B/10, 64/B/9 and 65/B/8.

Area harvested: Beans - 0.0100, wheat, potatoes and barley - 0.0107.

Minimum cultivation plots: One plot per block (treatment B) receives minimum cultivations. (The remaining reserve plots will in future be described as treatment C). Details will vary according to conditions of soil etc. Paraquat may be used at any stage in this rotation, and special machinery maybe used for drilling these treatments if it is more suitable. In 1966 the cultivations were:-

Beans: Deep-tine cultivated, disc-harrowed, spring-tine cultivated, sprayed with simazine after drilling.

Wheat: Deep-tine cultivated, disc-harrowed, spring-tine cultivated, sprayed with the same selective weedkiller as used on H sub-plots.

Potatoes: Rotary cultivated, treated with herbicide as on X and Y plots.

Barley: Minimum cultivations necessary to produce a seedbed, sprayed with the same selective weedkiller as used on the H sub-plots.

In 1966 beans on both X and Y plots received the same treatment (simazine at 1 lb in 40 gals in spring) - these plots are denoted by S.

Potatoes on the X and Y plots received the same spray (1 lb linuron plus 0.75 lb ion paraquat in 37 gals), denoted by S. The Y plots received an additional cultivation by 'rotary ridger', which was also applied to the M plots.

Operations in 1966

Cultivations, etc.:-

Spring beans: T plots deep-tine cultivated twice and B plots once: Oct 21, 1965. P, A and C plots ploughed: Oct 22. T plots deep-tine cultivated 3rd time and B plots 2nd time, P, T, A, B and C plots disced: Oct 26. P, T, A, B and C plots disced: Oct 30.

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P, T, A and C plots spring-tine cultivated twice and B plots once, R plots rotary cultivated: Mar 8, 1966. R plots rotary cultivated 2nd time, seed drilled at 200 lb: Mar 9. S plots sprayed: Mar 15. M and C plots tractor hoed 3 times: May 16, June 3 and June 13. Combine harvested: Sept 16. Variety: Pedigree Tick.

Spring wheat: T plots deep-tine cultivated twice: Oct 21, 1965. P, A and C plots ploughed: Oct 22. T plots deep-tine cultivated 3rd time, B plots deep-tine cultivated twice, P, T, A, B and C plots disced: Oct 26. P, T, A, B and C plots disced: Oct 30. P, T, A, B, and C plots spring-tine cultivated twice: Mar 8, 1966. P plots rotary cultivated: Mar 9. R plots rotary cultivated 2nd time, P, T, A, B and C plots spring-tine cultivated 3rd time: Mar 14. Seed drilled at 180 lb: Mar 15. All plots rolled: Mar 21. H sub-plots and B plots sprayed with mecoprop/2,4-D (Methoxane Extra at 6 pints in 40 gals): May 13. Combine harvested: Sept 7. Variety: Kloka.

Potatoes: T plots deep-tine cultivated twice, P and C plot ploughed: Dec 21, 1965. R, A and B plots rotary cultivated: Mar 23, 1966. P and C plots spring-tine cultivated, T plots deep-tine cultivated 3rd time: Mar 24. Basal compound fertiliser applied: Mar 31. R, A and B plots rotary cultivated, T, P and C plots spring-tine cultivated twice: Apr 4. Potatoes machine planted: Apr 5. S plots sprayed: May 10. M and C plots chain-harrowed: May 14. M and C plots grubbed: May 14. M, Y and C plots rotary ridged: June 16. Sprayed 3 times with mancozeb at 1.2 lb in 37 gals: June 30, July 22 and Aug 5. Sprayed with undiluted BOV at 15 gals: Sept 8. Lifted: Sept 20. Variety: Pentland Dell.

Barley: All plots sprayed with sodium trichloroacetate at 18 lb in 40 gals: Oct 20, 1965. All plots spring-tine cultivated: Oct 28. All plots sprayed 2nd time with sodium trichloro-acetate at 18 lb in 40 gals: Dec 7. All plots spring-tine cultivated: Dec 22. T plots deep-tine cultivated: Feb 2, 1966. P and C plots ploughed: Feb 3. P, T and C plots spring-tine cultivated twice, B plots once: Mar 7. R and A plots rotary cultivated, seed drilled at 155 lb: Mar 8. All plots rolled: Mar 21. H sub-plots and B plots sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in 40 gals): May 13. Combine harvested: Aug 20.

Standard errors per plot.

Spring beans.	Grain, whole plot:	6.76 or 22.2% (8 d.f.)
Wheat.	Grain, whole plot:	2.97 or 8.6% (8 d.f.)
	sub plot:	3.24 or 9.4% (9 d.f.)
Potatoes.	Total tubers, whole plot:	1.782 or 11.1% (8 d.f.)
Barley.	Grain, whole plot:	2.04 or 4.7% (8 d.f.)
	sub plot:	2.79 or 6.4% (9 d.f.)

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66/B/7.5

BARLEY

GRAIN

	P	R	T	Mean
Mean (±0.83)	42.3	44.1	43.4	43.3
1965		(±1.45)		(±0.83)
M	41.2	43.8	44.3	43.1
X	40.2	45.3	43.4	43.0
Y	45.6	43.1	42.5	43.7
		(1) and (2)		(±0.66)
O	42.0	44.1	44.2	43.4
H	42.6	44.0	42.6	43.1
	A-	AH	BH	C
	43.9	41.8	42.4	39.4

General mean: 42.8

Mean D.M. %: 84.2

(1) (±1.16) For use in horizontal and diagonal comparisons
(2) (±1.14) For use in vertical and interaction comparisons

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66/B/8.1

CULTIVATION - WEEDKILLER ROTATION

(WCW)

A comparison of weed control by various cultivation methods and by a pre-emergence weedkiller - Woburn Great Hill I and II 1966, the seventh year.

For history, rotation, treatments etc., to barley, see 'Results' 60/B/11, 61/B/11, 62/B/11, 63/B/11, 64/B/10 and 65/B/9.

Area of each plot: 0.0482. Area harvested: Potatoes - 0.0069, barley - 0.0230.

Potatoes.
Treatments: All combinations of:-

1. Primary cultivations: Ploughed (P), rotary cultivated (R), deep-tine cultivated (T).
2. Weedkiller: None, normal cultivations (M), linuron 2 lb, plus paraquat 0.75 lb ion in 40 gals, with no cultivations (X), linuron, plus paraquat, with rotary ridging (Y).

Basal applications:
Barley: 340 lb (20:10:10) combine drilled. Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 35 gals).
Potatoes: 10 cwt (17:11:22). Fungicide: Mancozeb 1.2 lb in 33 gals. Haulm destroyer: Diquat (Reglone at 4 pints in 33 gals).

Cultivations, etc.:
Potatoes: T plots deep-tine cultivated (two strokes): Nov 26, 1965. P plots ploughed: Dec 14. P and T plots spring-tine cultivated, R plots rotary cultivated: Mar 23, 1966. T plots deep-tine cultivated (one stroke): Mar 24. Basal NPK applied: Mar 25. P and T plots spring-tine cultivated (twice), R plots rotary cultivated (twice), potatoes machine planted: Mar 31. All plots earthed up: Apr 1. M plots harrowed with weeder: Apr 26. M plots re-ridged: May 3. M plots ridges harrowed, X and Y plots sprayed with weedkiller: May 4. M plots harrowed with weeder: May 17. M plots grubbed: June 2. M and Y plots earthed up with rotary ridger: June 4. Fungicide applied: June 29, July 15 and Aug 4. Reglone applied: Sept 13. Haulm destroyed mechanically: Sept 16. Lifted: Sept 22. Variety: Maris Piper.

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