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69/R/RNO - Cultivation Weedkiller Rotation - Beans, Wheat, Potatoes & Barley

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CULTIVATION - WEEDKILLER ROTATION

(69/R/RN/8)

Great Harpenden I 1969 - the 9th year

A comparison of methods of primary cultivation and the effects of weedkillers. For previous history, rotations, treatments etc., see 'Details' 1967 and 'Results' 68/B/6.

Treatment C (hitherto reserve) is now used for the following 'standard cultivations' treatment, where the primary cultivation considered best for a crop is applied for it:-

For potatoes: plough in autumn, rotary cultivate in spring, weedkiller and rotor ridging as SY plots.

For barley: deep-tine cultivate, treated with same weedkiller as H sub-plots.

For beans: plough, weedkiller as S plots.

For wheat: plough or deep-tine cultivate, treated with same weedkiller as H sub-plots.

The paraquat treatment (G) is applied to stubbles on half plots.

Treatment B (minimum cultivations): The cereal straw is now burnt on these plots. For 1969 the wheat straw was not burnt and the bean straw was raked off, as there was insufficient to burn.

The pre-emergence weedkiller to potatoes is now paraquat at 0.375 lb ion plus linuron at 0.75 lb in 37 gals.

Area harvested: Spring beans: 0.0100. Winter wheat and barley: 0.0107. Potatoes: 0.0054.

Cultivations, etc.:-

Spring beans: Straw burned on B plots: 3 Sept, 1968. Paraquat applied to G sub-plots: 10 Sept. T and B plots deep-tine cultivated: 18 Oct. T plots deep-tine cultivated second time: 19 Oct. P and C plots ploughed: 21 Oct. R plots rotary cultivated (depth 6 ins): 23 Oct. P,T,B and C plots power-harrowed, R and A plots rotary cultivated: 25 Mar, 1969. Seed drilled at 200 lb: 26 Mar. S plots sprayed: 27 Mar. M and C plots tractor-hoed twice: 14 May, 5 June. Sprayed with demeton-s-methyl at 3.5 oz in 37 gals: 26 June. Combine harvested: 8 Sept.

Winter wheat: Straw raked off B plots: 23 Sept, 1968. Paraquat applied to G sub-plots: 28 Sept. T plots deep-tine cultivated twice, B plots once: 17 Oct. P,C and A plots ploughed: 18 Oct. P,T,A,B and C plots spring-tine cultivated, P,T,A and C plots power harrowed: 21 Oct. R plots and no paraquat half plots of B, rotary cultivated, seed drilled at 180 lb: 22 Oct. All plots harrowed and rolled: 14 Apr, 1969. 'Nitro-Chalk' applied: 16 Apr. H sub-plots and B plots sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals: 1 May. Combine harvested: 30 Aug.

Potatoes: Paraquat applied to G sub-plots: 10 Sept, 1968. T plots deep-tine cultivated twice: 18 Oct, 19 Oct. P and C plots ploughed: 21 Oct. R plots rotary cultivated: 23 Oct. Unsprayed half of B plots sprayed with paraquat at normal rate: 24 Oct. Basal compound fertiliser applied, P and T plots spring-tine cultivated: 11 Apr, 1969. P and T plots spring-tine cultivated second time, R,A,B and C plots rotary cultivated, potatoes machine planted: 15 Apr. S plots sprayed: 13 May. M and C plots chain harrowed and grubbed: 14 May. M and C plots grubbed second time: 6 June. M and C plots grubbed third time, Y plots grubbed: 18 June. M,C and Y plots rotary ridged: 23 June. All plots sprayed 3 times with mancozeb at 1.2 lb in 37 gals (the second time including demeton-s-methyl at 3.5 oz): 16 July, 4 Aug, 22 Aug. Sprayed with undiluted BOV at 15 gals: 5 Sept. Haulm destroyed mechanically: 9 Sept. Lifted: 22 Oct.

Barley: All plots spring-tine cultivated and sprayed with sodium trichloroacetate at 18 lb in 25 gals: 30 Oct, 1968. All plots spring-tine cultivated: 14 Nov. All plots spring-tine cultivated and sprayed with sodium trichloroacetate at 18 lb in 25 gals: 25 Nov. All plots spring-tine cultivated: 9 Dec. T and C plots deep-tine cultivated twice: 11 Dec. P plots ploughed, R plots rotary cultivated (depth 6 ins): 12 Dec. P,T,B and C plots power harrowed, R and A plots rotary cultivated, seed drilled at 140 lb: 25 Mar, 1969. All plots rolled: 3 Apr. H sub-plots and B plots sprayed with mecoprop at 36 oz and 2,4-D at 9 oz in 20 gals: 20 May. Combine harvested: 22 Aug.

Standard errors per plot.

Spring beans: Grain, cwt, whole plot:	1.52 or 6.2% (8 d.f.)
	sub plot: 1.29 or 5.3% (8 d.f.)
Winter wheat: Grain, cwt, whole plot:	1.57 or 2.8% (8 d.f.)
	sub plot: 0.63 or 1.1% (8 d.f.)
Potatoes: Total tubers, tons, whole plot:	0.763 or 6.4% (8 d.f.)
	sub plot: 0.773 or 6.5% (8 d.f.)
Barley: Grain, cwt, whole plot:	0.82 or 1.9% (8 d.f.)
	sub plot: 1.23 or 2.8% (8 d.f.)

SUMMARY OF RESULTS

SPRING BEANS

GRAIN: CWT

	P	R	T	Mean
Mean (± 0.62)	24.6	24.7	24.4	24.6
M (± 1.07)	25.4	24.9	26.9	25.7 (± 0.62)
S (± 0.76)	24.1	24.6	23.2	24.0 (± 0.44)
Q	24.6	25.1	23.4	24.4
G	24.5	24.3	25.4	24.7

A AG B BG C CG

22.6 24.0 23.0 23.1 25.4 25.2

General mean: 24.4

Mean D.M. %: 82.4

WINTER WHEAT

GRAIN: CWT

	P	R	T	Mean			
Mean (± 0.64)	57.0	55.9	56.9	56.6			
M* (± 1.11)	55.8	54.6	57.4	55.9 (± 0.64)			
S* (± 0.78)	57.5	56.5	56.7	56.9 (± 0.45)			
O	57.4	55.7	57.1	56.7			
G	56.6	56.0	56.7	56.4			
O	57.8	56.5	56.9	57.0			
H	56.1	55.2	57.0	56.1			
A	AG	AH	AGH	B	BG	C	CG
60.9	54.6	56.3	59.5	55.3	57.1	56.6	56.3

General mean: 56.6

Mean D.M. %: 82.3

* Applied 1968.

POTATOES

TOTAL TUBERS: TONS

	P	R	T	Mean
Mean (± 0.312)	11.39	12.03	12.40	11.94
		(± 0.540)		(± 0.312)
M	9.30	10.12	11.61	10.35
S	13.11	12.77	13.13	13.00
.SY	11.74	13.20	12.47	12.47
		(1) and (2)		(± 0.182)
O	11.37	12.16	12.21	11.91
G	11.40	11.90	12.60	11.96

(1) (± 0.383) For use in vertical and interaction comparisons only
 (2) (± 0.315) For use in horizontal and diagonal comparisons only

A AG B C CG
 11.75 11.34 12.38 10.70 10.28

General mean: 11.8

POTATUES

% WARE

	P	R	T	Mean
Mean	95.8	96.6	96.6	96.3
M	95.1	96.5	96.8	96.1
S	96.2	96.4	96.6	96.4
SY	96.1	96.9	96.4	96.5
O	95.9	96.7	96.4	96.3
G	95.7	96.5	96.8	96.3

A	AG	B	C	CG
96.2	95.6	95.9	96.0	95.3

General mean: 96.2

BARLEY
GRAIN: CWT

	P	R	T	Mean
Mean (± 0.34)	43.6	44.0 (± 0.58)	44.0	43.8 (± 0.34)
M*	43.9	43.9	43.6	43.8
S*	43.2	43.9	43.9	43.7
SY*	43.6	44.2	44.5	44.1
		(1) and (2)		(± 0.29)
O	43.6	43.1	44.3	43.7
H	43.6	44.8	43.7	44.0

(1) (± 0.49) For use in vertical and interaction comparisons only

(2) (± 0.50) For use in horizontal and diagonal comparisons only

A	AG	AH	AGH	B	BG	C	CG
42.8	47.5	45.5	42.3	43.8	45.5	46.0	44.1

General mean: 44.1

Mean D.M. %: 80.8

* Applied 1968.