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61/W/B/11 Weedkiller-cultivation Rotation

Rothamsted Research

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61/B/11.1

WEEDKILLER CULTIVATION ROTATION

A comparison of weed control by various cultivation methods and by a pre-emergence weedkiller - Woburn Great Hill I and II 1961.

For previous history see "Results of the Field Experiments" 60/B/11.

Rotation (commencing 1960): Potatoes, barley.

Design: 2 randomised blocks of 9 plots each per crop.

Area of each plot (acres): 0.0482. Area harvested: Potatoes - 0.0107, barley - 0.0115.

Treatments:

Potatoes: All combinations of:-

Cultivations before planting: Ploughed and spring-tine cultivated (P) - duplicate plots. Ploughed and rotary cultivated (R).

Treatments after planting: Normal cultivations (N); simazine* applied after planting (Sx); simazine* applied after early cultivations (Sy).

Barley: All combinations of:-

Cultivations: Ploughed (P); rotary cultivated (R); rigid-tine cultivated (T).

Simazine to potatoes 1960: None; 1; 2 lb per acre.

*Simazine at 1 lb active material in 40 gallons per acre.

Basal dressings per acre:

Potatoes: 10 cwt compound fertiliser, 17% N, 11% P₂O₅, 22% K₂O.

Barley: 4 cwt compound fertiliser, 16% N, 9% P₂O₅, 9% K₂O, combine drilled.

Cultivations, etc.

Potatoes: All plots ploughed: Dec 12, 1960. P plots spring-tine cultivated twice: Mar 16, 1961. P plots rolled and then spring-tine cultivated twice: Mar 23. R plots rotary cultivated: Mar 23.

Basal dressing applied, potatoes machine planted: Mar 24.

Simazine applied on rolled bouts to Sx plots: Mar 31. N and Sy plots earthed up: May 2. Sy plots earthed up and sprayed with simazine: May 19. Sx plots grubbed twice: May 30. N and Sx⁺ plots earthed up: June 14. Sprayed with undiluted BOV at 12 gallons per acre: Sept 18. Lifted: Sept 21.

Variety: Majestic.

⁺Because of failure of Sx treatment.

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Barley: P plots ploughed, T plots rigid-tine cultivated twice: Feb 24, 1961. P and T plots disced: Mar 17. P and T plots rolled and spring-tine harrowed: Mar 23. R plots rotary cultivated: Mar 23. Seed combine drilled at $2\frac{1}{4}$ bushels per acre: Mar 24. Sprayed with MCPA/TBA at 4 pints in 40 gallons per acre: May 10. Combine harvested: Aug 17. Variety: Proctor.

Standard errors per plot.

Potatoes, total tubers: 0.977 tons per acre or 16.5% (11 d.f.)
 Barley, grain (at 85% dry matter): 1.76 cwt per acre or 8.2% (8 d.f.)

Summary of Results

Potatoes

Cultivation before planting

Treatment after planting	P	R	Mean
<u>Total tubers: tons per acre</u>			
	(±0.488)	(±0.691)	(±0.399)
N	7.16	7.54	7.28
Sx	1.82	2.61	2.08
Sy	8.61	8.14	8.45
Mean	5.86 (±0.282)	6.09 (±0.399)	5.93
<u>Percentage ware ($1\frac{1}{2}$" riddle)</u>			
N	90.7	89.1	90.1
Sx	77.8	81.1	78.9
Sy	91.8	88.4	90.6
Mean	86.8	86.2	86.5

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Barley

Grain (at 85% dry matter): cwt per acre

Simazine to potatoes 1960 lb per acre	Cultivation			Mean
	P	R	T	
		(±1.25)		(±0.72)
None	21.0	22.8	20.9	21.5
1	23.4	22.3	19.9	21.8
2	21.1	22.2	21.0	21.4
Mean (±0.72)	21.8	22.4	20.6	21.6