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# Yields of the Field Experiments 1961

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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%  $P_2O_5$ , 22%  $K_2O$ .

Barley: 4 cwt compound fertiliser, 16% N, 9%  $P_2O_5$ , 9%  $K_2O$ , 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<sup>+</sup> plots earthed up: June 14. Sprayed with undiluted BOV at 12 gallons per acre: Sept 18. Lifted: Sept 21.

Variety: Majestic.

<sup>+</sup>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<br>after<br>planting                             | P                       | R                       | Mean            |
|------------------------------------------------------------|-------------------------|-------------------------|-----------------|
| <u>Total tubers: tons per acre</u>                         |                         |                         |                 |
|                                                            | ( $\pm 0.488$ )         | ( $\pm 0.691$ )         | ( $\pm 0.399$ ) |
| N                                                          | 7.16                    | 7.54                    | 7.28            |
| Sx                                                         | 1.82                    | 2.61                    | 2.08            |
| Sy                                                         | 8.61                    | 8.14                    | 8.45            |
| Mean                                                       | 5.86<br>( $\pm 0.282$ ) | 6.09<br>( $\pm 0.399$ ) | 5.93            |
| <u>Percentage ware (<math>1\frac{1}{2}</math>" 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<br>potatoes 1960<br>lb per acre | Cultivation |                |      | Mean           |
|---------------------------------------------|-------------|----------------|------|----------------|
|                                             | P           | R              | T    |                |
|                                             |             | ( $\pm 1.25$ ) |      | ( $\pm 0.72$ ) |
| 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 ( $\pm 0.72$ )                         | 21.8        | 22.4           | 20.6 | 21.6           |