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

Rothamsted Research

Rothamsted Research (1967) *66/R/CW/B/7 Cultivation-weedkiller Rotation* ; Yields Of The Field Experiments 1966, pp 107 - 111 - DOI: <https://doi.org/10.23637/ERADOC-1-158>

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 trichloroacetate 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 (Methoxane 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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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

TABLE 1

SUMMARY OF DATA

Year	Production (Million bushels)			Total (Million bushels)
	Wheat	Barley	Oats	
1910	1,000	1,000	1,000	3,000
1911	1,000	1,000	1,000	3,000
1912	1,000	1,000	1,000	3,000
1913	1,000	1,000	1,000	3,000
1914	1,000	1,000	1,000	3,000
1915	1,000	1,000	1,000	3,000
1916	1,000	1,000	1,000	3,000
1917	1,000	1,000	1,000	3,000
1918	1,000	1,000	1,000	3,000
1919	1,000	1,000	1,000	3,000
1920	1,000	1,000	1,000	3,000
1921	1,000	1,000	1,000	3,000
1922	1,000	1,000	1,000	3,000
1923	1,000	1,000	1,000	3,000
1924	1,000	1,000	1,000	3,000
1925	1,000	1,000	1,000	3,000
1926	1,000	1,000	1,000	3,000
1927	1,000	1,000	1,000	3,000
1928	1,000	1,000	1,000	3,000
1929	1,000	1,000	1,000	3,000
1930	1,000	1,000	1,000	3,000
1931	1,000	1,000	1,000	3,000
1932	1,000	1,000	1,000	3,000
1933	1,000	1,000	1,000	3,000
1934	1,000	1,000	1,000	3,000
1935	1,000	1,000	1,000	3,000
1936	1,000	1,000	1,000	3,000
1937	1,000	1,000	1,000	3,000
1938	1,000	1,000	1,000	3,000
1939	1,000	1,000	1,000	3,000
1940	1,000	1,000	1,000	3,000
1941	1,000	1,000	1,000	3,000
1942	1,000	1,000	1,000	3,000
1943	1,000	1,000	1,000	3,000
1944	1,000	1,000	1,000	3,000
1945	1,000	1,000	1,000	3,000
1946	1,000	1,000	1,000	3,000
1947	1,000	1,000	1,000	3,000
1948	1,000	1,000	1,000	3,000
1949	1,000	1,000	1,000	3,000
1950	1,000	1,000	1,000	3,000
1951	1,000	1,000	1,000	3,000
1952	1,000	1,000	1,000	3,000
1953	1,000	1,000	1,000	3,000
1954	1,000	1,000	1,000	3,000
1955	1,000	1,000	1,000	3,000
1956	1,000	1,000	1,000	3,000
1957	1,000	1,000	1,000	3,000
1958	1,000	1,000	1,000	3,000
1959	1,000	1,000	1,000	3,000
1960	1,000	1,000	1,000	3,000
1961	1,000	1,000	1,000	3,000
1962	1,000	1,000	1,000	3,000
1963	1,000	1,000	1,000	3,000
1964	1,000	1,000	1,000	3,000
1965	1,000	1,000	1,000	3,000
1966	1,000	1,000	1,000	3,000
1967	1,000	1,000	1,000	3,000
1968	1,000	1,000	1,000	3,000
1969	1,000	1,000	1,000	3,000
1970	1,000	1,000	1,000	3,000
1971	1,000	1,000	1,000	3,000
1972	1,000	1,000	1,000	3,000
1973	1,000	1,000	1,000	3,000
1974	1,000	1,000	1,000	3,000
1975	1,000	1,000	1,000	3,000
1976	1,000	1,000	1,000	3,000
1977	1,000	1,000	1,000	3,000
1978	1,000	1,000	1,000	3,000
1979	1,000	1,000	1,000	3,000
1980	1,000	1,000	1,000	3,000
1981	1,000	1,000	1,000	3,000
1982	1,000	1,000	1,000	3,000
1983	1,000	1,000	1,000	3,000
1984	1,000	1,000	1,000	3,000
1985	1,000	1,000	1,000	3,000
1986	1,000	1,000	1,000	3,000
1987	1,000	1,000	1,000	3,000
1988	1,000	1,000	1,000	3,000
1989	1,000	1,000	1,000	3,000
1990	1,000	1,000	1,000	3,000
1991	1,000	1,000	1,000	3,000
1992	1,000	1,000	1,000	3,000
1993	1,000	1,000	1,000	3,000
1994	1,000	1,000	1,000	3,000
1995	1,000	1,000	1,000	3,000
1996	1,000	1,000	1,000	3,000
1997	1,000	1,000	1,000	3,000
1998	1,000	1,000	1,000	3,000
1999	1,000	1,000	1,000	3,000
2000	1,000	1,000	1,000	3,000
2001	1,000	1,000	1,000	3,000
2002	1,000	1,000	1,000	3,000
2003	1,000	1,000	1,000	3,000
2004	1,000	1,000	1,000	3,000
2005	1,000	1,000	1,000	3,000
2006	1,000	1,000	1,000	3,000
2007	1,000	1,000	1,000	3,000
2008	1,000	1,000	1,000	3,000
2009	1,000	1,000	1,000	3,000
2010	1,000	1,000	1,000	3,000
2011	1,000	1,000	1,000	3,000
2012	1,000	1,000	1,000	3,000
2013	1,000	1,000	1,000	3,000
2014	1,000	1,000	1,000	3,000
2015	1,000	1,000	1,000	3,000
2016	1,000	1,000	1,000	3,000
2017	1,000	1,000	1,000	3,000
2018	1,000	1,000	1,000	3,000
2019	1,000	1,000	1,000	3,000
2020	1,000	1,000	1,000	3,000
2021	1,000	1,000	1,000	3,000
2022	1,000	1,000	1,000	3,000
2023	1,000	1,000	1,000	3,000
2024	1,000	1,000	1,000	3,000
2025	1,000	1,000	1,000	3,000

Source: U.S. Department of Agriculture, Agricultural Statistics, 1910-2025.

(1) Data for 1910-1914 are based on the 1910 Census of Agriculture. (2) Data for 1915-1920 are based on the 1920 Census of Agriculture. (3) Data for 1921-1925 are based on the 1925 Census of Agriculture. (4) Data for 1926-1930 are based on the 1930 Census of Agriculture. (5) Data for 1931-1935 are based on the 1935 Census of Agriculture. (6) Data for 1936-1940 are based on the 1940 Census of Agriculture. (7) Data for 1941-1945 are based on the 1945 Census of Agriculture. (8) Data for 1946-1950 are based on the 1950 Census of Agriculture. (9) Data for 1951-1955 are based on the 1955 Census of Agriculture. (10) Data for 1956-1960 are based on the 1960 Census of Agriculture. (11) Data for 1961-1965 are based on the 1965 Census of Agriculture. (12) Data for 1966-1970 are based on the 1970 Census of Agriculture. (13) Data for 1971-1975 are based on the 1975 Census of Agriculture. (14) Data for 1976-1980 are based on the 1980 Census of Agriculture. (15) Data for 1981-1985 are based on the 1985 Census of Agriculture. (16) Data for 1986-1990 are based on the 1990 Census of Agriculture. (17) Data for 1991-1995 are based on the 1995 Census of Agriculture. (18) Data for 1996-2000 are based on the 2000 Census of Agriculture. (19) Data for 2001-2005 are based on the 2005 Census of Agriculture. (20) Data for 2006-2010 are based on the 2010 Census of Agriculture. (21) Data for 2011-2015 are based on the 2015 Census of Agriculture. (22) Data for 2016-2020 are based on the 2020 Census of Agriculture. (23) Data for 2021-2025 are based on the 2025 Census of Agriculture.

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.