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Yields of the Field Experiments 1956

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56/R/BB/1 Deep Cultivation Rotation

Rothamsted Research

Rothamsted Research (1957) *56/R/BB/1 Deep Cultivation Rotation* ; Yields Of The Field Experiments 1956, pp 29 - 31 - DOI: <https://doi.org/10.23637/ERADOC-1-176>

56/Bb/1.1

DEEP CULTIVATION ROTATION EXPERIMENT

The 13th year

Deep ploughing, fertilizers and dung - Long Hoos I and II 1956.

For treatments etc. see "Details of the Classical and Long Term Experiments" 1956.

Area of each plot: 0.0312 acres. Area harvested:
Barley, spring oats, 0.0265 acres; ley, 0.0275 acres;
wheat, 0.0188 acres.

Termination of Experiment. Series 1 and 2, due to carry sugar beet and potatoes in 1956, were terminated. They completed the two cycles of the 6 course rotation in 1955 and were sown with barley this year.

Cultivations, etc.:

Barley

Ploughed: Dec 22, 1955. Ground chalk at 20 cwt per acre applied: Jan 3, 1956. Basic slag and sulphate of ammonia applied: Mar 10. Seed drilled at 3 bushels per acre: Mar 14. Seeds for 1 year ley undersown: Apr 24. Harvested: Aug 29. Variety: Plumage Archer.

Ley

Seeds undersown: Apr 26, 1955. Cut: June 21, 1956. Seeds mixture 18 lb S24 perennial ryegrass, 8 lb Montgomery red clover, 2 lb American Alsike clover.

Wheat

"Deep" plots ploughed: Oct 5, 1955. "Shallow" plots ploughed: Oct 6. Seed drilled at $2\frac{3}{4}$ bushels per acre: Oct 25. Sulphate of ammonia applied: Apr 30, 1956. Sprayed with MCPA, 3 pints in 40 gallons per acre: May 15. Combine harvested: Aug 29. Variety: Yeoman.

Oats

Ploughed: Nov 1, 1955. Ground chalk at 20 cwt per acre applied: Dec 2. Sulphate of ammonia applied: Mar 10, 1956. Seed drilled at 4 bushels per acre: Mar 13. Sprayed with MCPA, 3 pints in 40 gallons per acre: May 15. Harvested: Aug 30. Variety: Star.

Standard errors per plot:

Barley, Grain (at 85% D.M.):	1.81 cwt per acre or 6.4% (4 d.f.)
Ley, Hay:	3.38 cwt per acre or 15.1% (4 d.f.)
Wheat, Grain (at 85% D.M.):	1.08 cwt per acre or 3.9% (4 d.f.)
Spring Oats, Grain (at 85% D.M.):	0.945 cwt per acre or 3.9% (4 d.f.)

56/Bb/1.2

Summary of Results

Responses to treatments to previous sugar beet

Response to	Mean	Ploughing		Dung		Phosphate		Potash	
		Shallow	Deep	Abs.	Pres.	Abs.	Pres.	Abs.	Pres.

Barley

Grain (at 85% dry matter): Mean yield 28.2 cwt per acre

	(±0.90)	(±1.28)							
Ploughing deep-shallow	0.0	-	-	+0.3	-0.3	+0.9	-0.9	+0.1	-0.1
Dung	+1.8	+2.1	+1.5	-	-	+1.1	+2.5	+2.4	+1.2
Phosphate	-0.2	+0.7	-1.1	-0.9	+0.5	-	-	-0.7	+0.3
Potash	+0.3	+0.4	+0.2	+0.9	-0.3	-0.2	+0.8	-	-

Straw (at 85% dry matter): Mean yield 34.9 cwt per acre

Ploughing deep-shallow	+3.1	-	-	+3.2	+3.0	+2.3	+3.9	+1.8	+4.4
Dung	+6.6	+6.7	+6.5	-	-	+6.1	+7.1	+9.5	+3.7
Phosphate	+0.3	-0.5	+1.1	-0.2	+0.8	-	-	+1.3	-0.7
Potash	+1.3	0.0	+2.6	+4.2	-1.6	+2.3	+0.3	-	-

Ley

Hay: Mean yield 22.3 cwt per acre

	(±1.69)	(±2.39)							
Ploughing deep-shallow	+1.4	-	-	+1.4	+1.4	0.0	+2.8	-0.4	+3.2
Dung	+3.9	+3.9	+3.9	-	-	+3.3	+4.5	+3.4	+4.4
Phosphate	-0.8	-2.2	+0.6	-1.4	-0.2	-	-	-1.2	-0.4
Potash	+1.3	-0.5	+3.1	+0.8	+1.8	+0.9	+1.7	-	-

Wheat*

Grain (at 85% dry matter): Mean yield 27.7 cwt per acre

	(±0.54)	(±0.76)							
Ploughing deep-shallow	+3.6	-	-	+5.2	+2.0	+3.5	+3.7	+3.0	+4.2
Dung	+2.5	+4.1	+0.9	-	-	+1.4	+3.6	+4.2	+0.8
Phosphate	+0.7	+0.6	+0.8	-0.4	+1.8	-	-	+0.4	+1.0
Potash	+1.3	+0.7	+1.9	+3.0	-0.4	+1.0	+1.6	-	-

*Cultivation treatments direct to wheat, manures to previous sugar beet.

Mean dry matter % as harvested:

Barley, grain: 76.8

straw: 73.7

Wheat, grain: 73.3

56/Bb/1.3

Responses to treatments to previous potatoes

Response to	Ploughing		Dung		Phosphate		Potash	
	Mean	Shallow Deep	Abs.	Pres.	Abs.	Pres.	Abs.	Pres.

Spring Oats

Grain (at 85% dry matter): Mean yield 24.2 cwt per acre

	(± 0.47)				(± 0.67)				
Ploughing deep-shallow	-1.8	-	-	-1.9	-1.7	-0.8	-2.8	-2.1	-1.5
Dung	+1.3	+1.2	+1.4	-	-	+2.3	+0.3	+2.0	+0.6
Phosphate	+2.0	+3.0	+1.0	+3.0	+1.0	-	-	+1.6	+2.4
Potash	+2.7	+2.4	+3.0	+3.4	+2.0	+2.3	+3.1	-	-

Straw: Mean yield 41.3 cwt per acre

Ploughing deep-shallow	+1.3	-	-	+2.8	-0.2	+3.5	-0.9	+1.2	+1.4
Dung	+2.8	+4.3	+1.3	-	-	+1.5	+4.1	+3.2	+2.4
Phosphate	+1.2	+3.4	-1.0	-0.1	+2.5	-	-	+0.5	+1.9
Potash	+2.9	+2.8	+3.0	+3.3	+2.5	+2.2	+3.6	-	-

Mean dry matter % as harvested:

Spring oats, grain: 79.2