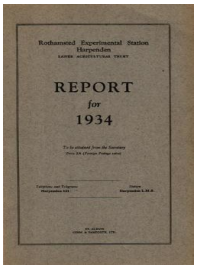
ROTHAMSTED RESEARCH

Report for 1934

Full Table of Content



Woburn Experimental Farm

Rothamsted Research

Rothamsted Research (1935) *Woburn Experimental Farm ;* Report For 1934, pp 115 - 123 **- DOI: https://doi.org/10.23637/ERADOC-1-66**

WOBURN EXPERIMENTAL FARM REPORT FOR 1933-34

BY DR. J. A. VOELCKER, C.I.E., M.A.

METEOROLOGICAL RECORDS.

	Rainfall.			*Temperature (Mean).*			
	Total Fall.	No. of Rainy Days.	Bright Sunshine.	Max.	Min.	1 ft. in Ground.	Grass Min.
1933—	Ins.	No.	Hours.	°F.	°F.	°F.	°F.
Oct. . .	1.44	16	87.2	55.9	43.5	50.9	39.1
Nov. . .	1.52	17	48.7	46.1	36.5	43.5	32.5
Dec. . .	0.34	11	43.2	37.5	28.5	34.4	24.0
1934—							
Jan. . .	1.09	17	63.7	44.1	32.4	38.8	28.2
Feb. . .	0.38	8	84.0	43.5	30.2	37.4	25.1
Mar.	1.53	15	130.5	47.7	33.8	40.6	28.9
April. .	1.37	18	135.4	54.0	39.4	47.7	35.2
May . .	0.48	6	218.1	62.8	42.8	57.1	38.3
June	1.28	11	186.5	68.9	49.0	64.2	44.0
July . .	1.29	6	261.3	75.8	52.4	69.3	46.7
Aug. . .	1.91	13	183.6	69.1	50.4	62.7	45.4
Sept. . .	2.05	13	169.1	67.9	49.7	58.6	44.1
Oct. . .	1.67	18	91.1	57.3	45.2	51.6	40.6
Nov. . .	1.94	13	43.0	47.0	37.9	43.1	33.9
Dec. . .	4.56	25	21.0	49.9	42.1	45.1	37.0
Total or mean for 1934 . .	19.56	163	1587.3	57.3	42.1	51.3	37.3

Notes.—A dry year, with very dry February and May, and unusually wet December. Arable Crops yielded well, especially sugar beet, but the hay crop was small.

CONTINUOUS GROWING OF WHEAT AND BARLEY

Stackyard Field, 58th Year (no manure since 1926). The plots were fallowed for cleaning. Hogweed (*Polygonum aviculare*) and Twitch (*Holcus mollis*) were removed in quantity.

ROTATION EXPERIMENTS

The Unexhausted Manurial Value of Cake and Corn (Stackyard Field) 1934.

Series C. Swedes, following Wheat.

The yield, in tons per acre, were: Cake-fed: Roots 13.55, Tops 1.47. Corn-Fed: Roots 12.39, Tops 1.47.

https://doi.org/10.23637/ERADOC-1-66

Series D. The swede crop of 1933 was fed off on both halves by sheep which received respectively cake and corn.

These foods supplied 75.6 lb. and 26.4 lb. nitrogen per acre respectively. Barley—"Plumage Archer"—was drilled in March. The yields per acre were :

Plot.	*Head Corn.* Bushels.	*Head Corn.* Weight per Bushel. lb.	*Tail Corn.* lb.	*Straw, Chaff, etc.* cwt.
1. After Cake-feeding	34.3	54.8	1.5	19.1
2. After Corn-feeding	32.5	55.0	2.0	16.8

Green Crop and Green-manuring Experiments

(a) *Stackyard Field (Series A)*

Upper Half—Green-Crop after Wheat. Tares and Mustard were sown in April, and fed off by sheep, which received cake supplying 7.6 lb. nitrogen per acre. Second green-crops were put in. They grew slowly and were ploughed-in in October.

Plot.	Green Matter. per acre. lb.	Dry Matter. per acre. lb.	Total Nitrogen per acre. lb.
Mustard (unlimed)	6088	1321	29.8
Mustard (limed)	4770	1070	22.9
Tares (unlimed)	7580	1449	50.7
Tares (limed)	7036	1340	49.1

Nitrogen contents : Mustard, 2.42% ; Tares, 3.24%.

Lower Half—Wheat after Green-crops

Two sowings of wheat (Red Standard) had to be given. The yields per acre were :

Plot.	*Head Corn.* Bushels.	*Head Corn.* Weight per Bushel. lb.	*Tail Corn.* lb.	*Straw, Chaff, etc.* cwt.
1. After Mustard fed off (unlimed) ..	11.0	61.8	15.0	10.7
2. After Mustard fed off (limed) ..	8.3	62.0	11.5	8.6
3. After Tares fed off (unlimed) ..	7.6	61.6	10.0	10.0
3. After Tares fed off (limed)	9.0	62.0	7.0	10.0

(b) *Lansome Field. Green Crops after Wheat.* Tares and mustard were sown in April. Second crops were sown in July and ploughed-in in October.

https://doi.org/10.23637/ERADOC-1-66

Plot.	Green Matter per acre. lb.	Dry Matter. per acre. lb.	Total Nitrogen per acre. lb.
1. Mustard old series ..	7,990	1,465	37.6
2. Tares old series ..	17,605	2,790	97.1
3. Mustard new series ..	9,780	1,833	43.7
4. Tares new series ..	15,590	2,583	97.4
5. Control new series ..	4,970	807	19.1

Nitrogen Contents : Mustard, 2·53% ; Tares 3,57%.

Lucerne Inoculation—Lansome Field

The yields in tons per acre for 1934, the third year of this crop, were :

	Green.	Hay.	Nitrogen in Hay.
Inoculated	12.50	3.96	2.36%
Non-inoculated	12.94	4.07	2.21%

https://doi.org/10.23637/ERADOC-1-66

WOBURN FARM

REPORT BY J. R. MOFFATT, 1934

The effect of the drought during the year 1933-34 was less marked than one would expect on the light Woburn soil. The grassland remained more fresh than in the previous year, although little growth took place during the summer, and hay crops were light. The early autumn rain brought on a fresh growth of young grass which was palatable to stock. The part of Warren field which was sown down to grass in 1933 was patched in the spring, and, considering the two exceptionally dry years, the seeds have taken well. The clover in the six course rotation failed completely, and the top end of Series D clover in Stackyard field had to be patched after harvest.

The season proved favourable to barley but very unfavourable to wheat. The average yield of the barley in the six course rotation was over 4 cwt. per acre above the three year average, and Series C barley also yielded well. The mean yield of wheat on the rotation was only 4.6 cwt. per acre, which is very poor when compared with the Rothamsted figure of 28.6 cwt. per acre for a similar experiment. The experiment on the time of applying nitrogen gave a mean yield of under 12 cwt. per acre, but in spite of this low yield there was no response to dressings of 1.5 cwt. per acre of sulphate of ammonia. The wheat in Series A of Stackyard field failed miserably.

The root crops did excellently. The average yield per acre of washed beet from the experiment was over 18 tons, with a sugar content of over 17 per cent. Kleinwanzleben " E " seed was used this year for the first time and sowing took place rather earlier than in previous years. The Kuhn variety was maintained on the six course rotation, and although growth was slower than the Kleinwanzleben " E," the mean yield of all plots was over 3 tons per acre above the average.

Swedes on Series C of Stackyard field yielded well, although many of the roots were attacked by club root (*Plasmodiophora Brassicae*).

Kale in Lansome field was sown in alternate strips on ridges and flat, but flea beetle attack necessitated redrilling some strips on each method. The crop yielded well.

The carrot experiment gave a very high yield of large and well-shaped roots, but unfortunately there was no immediate sale for them, and while in the clamp they were attacked by Sclerotinia Rot and Soft Rot, and became unfit for human consumption.

Potatoes looked healthy and clean throughout the year and yielded well.

Livestock

In the autumn of 1933, 88 ewes were put to the tup. Of the 85 that lambed, 54 produced doubles, 30 produced singles, but only one set of triplets was born. Neighbouring farmers also reported a scarcity of triplets. Ewe losses were smaller than usual, and there was only one

https://doi.org/10.23637/ERADOC-1-66

barren ewe. The ewes were wintered off the farm for about two months and so returned to fresh grass before lambing. The lambs did well and were sold throughout the summer and autumn.

Fifty Scotch half-bred gimmers were purchased in the autumn of 1934, to replace the culled ewes of the past two seasons. Fifteen of these were exchanged for a similar number of Rothamsted bred half-bred gimmers, so that the two different types could be compared at each farm.

Pigs have done well, and the number sold was slightly above last year's figure. The bacon factory grading returns are given on page 82. Two Large White in-pig gilts were purchased from a well-known herd in the autumn of 1934, and it is hoped to use them as the foundation stock of a Large White herd.

At the Smithfield Club's Fat Stock Show in December, 1933, we were successful in obtaining the first prize for the cross-bred lamb carcass with a Southdown-Halfbred cross, and a highly commended award for a pig carcass of 100 to 160 lb. live weight. At the Bedfordshire Show in July we secured two first prizes for fat lambs and gilts, and were placed second for breeding ewes, and a sow and litter.

https://doi.org/10.23637/ERADOC-1-66

DATES OF SOWING AND HARVESTING, AND YIELD PER ACRE, WOBURN, 1934

(The Cultivations and Manurings of the replicated experiments are given in the appropriate Yield Tables)

Field.	Crop.	Variety.	Principal Cultivations and Dates.	Manuring per acre.	Sowing Dates.	Cutting Dates.	Carting Dates.	Yield per acre.
I. Arable Butt Close	Potatoes	Luxury Dunbar Cavalier	Mar. 15—Plough in dung ; Mar. 24—apply artificial manures ; Mar. 25 and 29—tractor cultivate ; Mar. 30—harrow and roll; April 12—ridge up at 27 ins. ; April 16-18—plant potatoes ; April 23—harrow down ; May 2—ridge up ; May 15—harrow down ; May 18—ridge up ; May 22—harrow ; May 24 and 30 and June 12—tractor hoe ; June 29—ridge up.	Farmyard Manure—12 tons in February 3 cwt. superphosphate 2 cwt. sulphate of potash	April 16-18	Luxury—Sept. 8-Oct. 5 Dunbar Cavalier—Oct. 12-Nov. 6	—	12 tons
Butt Furlong	Sugar beet	Klein-wanzleben	Nov. 4-6, 1933—tractor-cultivate potato land and harrow, and sow rye at 3 bush. per acre ; Mar. 26 to April 4—plough in rye; April 11-12—harrow and roll; April 13-14—spring-time harrow, and harrow ; April 27—harrow ; April 28-30—sow at 25 lb. per acre with rows 20 ins. apart ; May 3—Cambridge roll ; May 14-17—horse hoe : May 25-29—single ; June 4-12—horse-hoe ;—June 20-25—hand-hoe ; July 19 horse-hoe.	3 cwt. superphosphate 2 cwt. sulphate of potash	April 28-30	Oct. 10-14	—	16 tons
Lansome Piece (1)	Kale	Marrow-stem Thousand-headed	Jan. 12—plough in dung ; Mar. 8—tractor-cultivate ; Mar. 24—harrow down and sow 1 acre ; Mar. 30—harrow and roll remainder of area ; April 10—harrow ; April 24—sow 1 acre ; May 25—sow remainder of area ; May 2, 8, 14, 22, June 12, 13, July 9, 13, 21, 30—horse-hoe ; June 8, July 23-25—hand-hoe.	Farmyard Manure—12 tons in Jan. 3 cwt. sulphate of ammonia	March 24 April 24 May 25	Fed to stock	—	—

DATES OF SOWING AND HARVESTING, AND YIELD PER ACRE, WOBURN, 1934 (*Continued*)

Field	Crop	Variety	Principal Cultivations and Dates	Manuring per acre	Sowing Dates	Cutting Dates	Carting Dates	Yield per acre.
Lansome Piece (2)	Sugar beet	Kleinwanzleben	Jan. 12—plough in dung; Mar. 8—tractor-cultivate; Mar. 30—harrow and roll; April 24—manure with artificials; April 28—harrow; April 30—roll, drill, and harrow; May 14-15—horse-hoe; May 18-20—single; July 13, 20—horse-hoe; July 24-28—hand-hoe.	Farmyard manure—12 tons in Jan. 3 cwt. superphosphate 2 cwt. sulphate of potash	April 30	Dec. 1-10	—	14 tons
Stackyard Field	Permanent Wheat Permanent Barley	Fallow Fallow	Oct. 16-17, 1933—tractor-plough; Nov. 7-8,—tractor cultivate; April 25—tractor-cultivate; May 2—tractor-cultivate and harrow; May 11—tractor-harrow and roll; June 13-15—tractor-cultivate (twice) and harrow; July 25—tractor-cultivate; Aug. 7—tractor-harrow; Sept. 26—tractor-cultivate; Oct. 1—tractor-cultivate and harrow; Nov. 30-Dec. 1—tractor-plough.	—	—	—	—	—
Stackyard Field Series A	Wheat	Red Standard	Oct. 6-7, 1933—tractor-plough: Oct. 17—double harrow: Nov. 29—Cambridge roll and sow; April 12, 23, May 7, 10, 14, 18, 23 harrow; Aug. 16—cut and stook; Aug. 28, 30, Sept. 6, 10, 13,—cross-cultivate.	—	Nov. 29, 1933	Aug. 16	Aug.23-24	9 bush. (average)

DATES OF SOWING AND HARVESTING, AND YIELD PER ACRE, WOBURN, 1934 (*Continued*)

Field.	Crop.	Variety.	Principal Cultivations and Dates.	Manuring per acre.	Sowing Dates.	Cutting Dates.	Carting Dates.	Yield per acre.
Stackyard Field Series A	Tares and Mustard	—	Oct. 6-7, 1933—tractor-plough: Nov. 7, 8, 28—cross-cultivate; Feb. 16—plough: Mar. 29—Tractor-cultivate; April 10—harrow and roll; April 12—tractor-cultivate; April 23—harrow, roll and sow manures; April 24—sow tares and harrow; May 1—sow mustard and harrow; May 4—Cambridge roll; May 10—harrow tares; May 23—harrow whole area; July 5-18 graze with sheep, with 1½ cwt. cake per acre; July 20-27—plough; Aug. 1—sow tares and harrow; Aug. 20—double-harrow, roll and sow mustard; Oct. 12-16—Green crops ploughed in.	3 cwt. superphosphate 1 cwt. sulphate of potash	*Tares*—April 24 and Aug. 1 *Mustard*—May 1 and Aug. 20	Grazed 1st crop with ¾ cwt. cotton cake and ¾ cwt. linseed cake on July 5-18	—	—
Stackyard Field Series C	Swedes	Magnificent	1933, Aug. 20-30, Sept. 7-8—tractor-cultivate; Sept. 18-19—tractor-plough; Sept. 30, Nov. 8, 28—tractor-cultivate; 1934, Feb. 14—tractor-plough; Mar. 28—tractor-cultivate; April 10—harrow and roll; April 12, 30, May 7—tractor-cultivate; May 10, 18—harrow and roll; May 23—sow manures; May 24—sow swedes and roll; June 11—horse-hoe; July 2-12—single; July 13, 17—horse hoe; Aug. 8-9—horse-hoe and hand-hoe.	3 cwt. superphosphate, 1 cwt. sulphate of potash	May 24	Fed off with cake or corn —Jan. 10-Mar. 1, 1935	—	13 tons roots

DATES OF SOWING AND HARVESTING, AND YIELD PER ACRE, WOBURN, 1934 (*Continued*)

Field	Crop	Variety	Principal Cultivations and Dates	Manuring per acre	Sowing Dates	Cutting Dates	Carting Dates	Yield per acre
Stackyard Field Series D	Barley (with clover)	Plumage-Archer	Jan. 3-Feb. 14—roots fed off with sheep, with cake or corn; Feb. 15—tractor-plough; Mar. 7—double-harrow; Mar. 8—sow barley and harrow; April 3—Cambridge roll; April 23-24—harrow; May 1—sow alsike clover and roll.	Manured by feeding off roots with cake or corn	Barley—March 8 Clover—May 1	July 30	Aug. 16	33½ bush. (average)
Lansome Piece (Green Manuring)	Tares and Mustard	—	1933, Oct. 10-11—plough; Oct. 14—double-harrow; Nov. 11—cross-cultivate; 1934, Jan. 10, Feb. 9—harrow; Mar. 19—plough; Mar. 23—double-harrow; April 9—harrow and roll, and manure; April 10—sow tares and harrow; April 16—Cambridge roll; April 24—sow mustard and harrow; May 3—harrow tares and control, and roll mustard; May 26—harrow; June 27-29—plough in green crops; July 12—Cambridge-roll; July 17—sow tares and roll; July 28—harrow; Aug. 18—sow mustard and harrow; Oct. 16-19—plough in green crops.	3 cwt. superphosphate, 1 cwt. sulphate of potash	Tares—Apl. 10 and July 17 Mustard—Apl. 24 and Aug. 18	Ploughed in on June 27-29 and Oct. 16-19		
II. Grassland.	Broad Mead, Great Hill Bottom, Honey Pot, Long Mead, Mill Dam Close, Great Hill, Road Piece, were grazed and cut over. Warren Field was grazed, and then laid in for hay, which was cut June 6th, 22nd-23rd.							