ROTHAMSTED RESEARCH

Report for 1929

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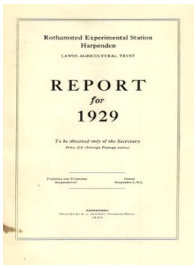

Duration of the Effect of Fallowing

Rothamsted Research

Rothamsted Research (1930) *Duration of the Effect of Fallowing ;* Report For 1929, pp 48 - 49 **- DOI: https://doi.org/10.23637/ERADOC-1-111**

Woburn.

Year	Potatoes	Swedes		Sugar Beet		Barley		Wheat		Oats	
		Roots	Tops	Roots	Tops	Grain	Straw	Grain	Straw	Grain	Straw
1926	6.1	—	—	4.3	8.5	—	—	—	—	—	—
	—	—	—	14.5	15.0	—	—	—	—	—	—
1927	7.4	—	—	13.7	17.2	—	—	—	—	—	—
	5.2	—	—	—	—	—	—	—	—	—	—
1928	7.1	—	—	9.3	15.1	22.5	19.4	—	—	—	—
	4.0	—	—	—	—	—	—	—	—	—	—
1929	11.6	—	—	18.0	21.0	9.6	12.3	—	—	—	—
	3.4	—	—	8.9	23.0	—	—	—	—	—	—

Outside Centres.

Year	POTATOES				SUGAR BEET				
	Norfolk (Stow-bridge)	Wisbech	Aber	Owmby	Colchester		Welshpool		Wye
					Roots	Tops	Roots	Tops	Roots
1927	—	—	—	—	7.4	—	—	—	—
1928	15.4	3.4	4.4	6.6	8.6	—	11.0	9.5	—
	6.7	—	—	—	—	—	—	—	—
1929	—	3.3	2.4	4.1	7.6	—	3.4	8.3	—
	—	—	—	—	5.4	5.3	—	—	10.5

THE EFFECT OF FALLOWING: HOW LONG DOES IT LAST?

In 1925 the Broadbalk wheat field became badly infested with weeds in spite of much stubble cleaning, and as there seemed no hope of coping with them during the growth of the wheat, it was decided to fallow the field. It was, however, important to maintain continuity of cropping, there having been no break since 1843. The field was therefore divided into five parts: the eastern two-fifths continued to grow wheat as usual, but the western (top) three-fifths were fallowed from October, 1925, to October, 1927, when the western two-fifths were sown with wheat, leaving the central fifth bare. The eastern two-fifths and the central fifth were then fallowed from October, 1927, to October, 1929, the western two-fifths being meanwhile cropped. Then in October, 1929, the whole field was sown with wheat.

Thus a crop was grown each year, but during the years 1926 and 1927 it was on the eastern part only, during 1928 and 1929 on the western part only, the remainder being fallowed, the end two-fifths for two years and the central fifth for four years.

The 1928 crop, after the fallow, was remarkable, the yields being high and the proportion of grain to straw unusually high. The 1929 crop on the same land was, however, nothing like so good: the yield of straw remained high but the grain fell off, and

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was, indeed, somewhat below the average for the 74 years preceding the fallow, excepting on Plot 10 (sulphate of ammonia only) and Plot 19 (rape cake), where it was above : on most plots, however, the yields are above those on the same ground for 1925. In part, the fall is due to the return of the weeds: *Alopecurus* (black bent) was bad on Plots 10, 11 and 12, and *Alopecurus* and *Stellaria* (chick weed) on Plots 2, 7, 8 and 16. There were few signs of the former serious weeds, *Papaver* (poppy), *Tussilago farfara* (coltsfoot), *Sonchus arvensis* (sow thistle), *Equisetum arvense* (horsetail) and *Cirsium arvense* (thistle). Already, however, they are appearing, and it is more difficult than formerly to cope with them, as we can no longer count on hand-hoeing in spring, owing to shortage of labour.

Typical yields were as follows :—

	Plot No.	Yield before fallow.		Yield after fallow.	
		Average 74 Years 1852–1925.	1925.	1st Year 1928.	2nd Year 1929.
Farmyard manure	2B	33.5	15.1	48.4	30.0
Artificials.					
Complete (Nitrate of Soda) ..	9	18.8†	16.3	56.1	21.6
,, (Sulphate of Ammonia)	6	21.7	10.1	47.3	17.7
Complete Double Nitrogen :					
(Nitrate of Soda) ..	16	29.9†	21.2	56.1	26.3
(Sulphate of Ammonia)	7	30.4	18.6	67.4*	20.9
No Nitrogen	5	13.5	6.8	35.2	9.1
No Manure	3	11.7	6.7	27.9	9.1

† 41 years only, 1885–1925. * Estimated from half plot.

The value of the fallow has soon gone, but the fault does not seem to be with the weeds. We are not yet able to give a satisfactory explanation.

WINTER FOOD FOR ANIMALS: HOME GROWN FEEDING STUFFS.

The increased number of livestock now kept on the farm enables us to investigate one of the most important of present-day agricultural problems : the provision of cheaper winter food for livestock. The present position is that "starch equivalent" can be purchased for 1d. per lb., while "protein equivalent" costs 1½d. per lb. On the other hand, fertilisers are cheap and are readily converted into foods. At what expenditure on fertilisers can a farmer produce these food substances on his own farm?

The results of the last 10 years' field experiments have shown the kind of increased crop that can reasonably be expected from a dressing of 1 cwt. per acre sulphate of ammonia on land where sufficient phosphate and potash is given during the rotation. The composition of the increase is also known. The yields in terms of food units are as follows :—

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