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Report 1918-20 With the Supplement to the Guide to the Experimental Plots Containing the Yields per Acre Etc.



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Stubble Cleaning

Rothamsted Research

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does it better, for it readily works to 7 inches while the horse teams usually go only to 5 inches. The value of this additional speed has been shown in the rate at which the sowing of wheat over the whole farm has been completed. In the old days of slow horse cultivations, sowings could not be completed in October or November, and there remained always fields to be sown in January or February, according as the weather allowed. Since the advent of the tractor, however, the work has been pushed well forward and the land has all been sown in November. The dates of completion of sowing are :—

	AUTUMN SEEDING TIME.	OATS.	WHEAT.
Horses only used .	1915	Oct. 16, 1915	Feb. 27, 1916
" " .	1916	" 17, 1916	Mar. 16, 1917
" " .	1917	" 27, 1917	Jan. 26, 1918
Tractor used .	1918	" 5, 1918	Nov. 26, 1918
" " .	1919	" 4, 1919	Oct. 30, 1919
" " .	1920	" 14, 1920	Nov. 11, 1920

Many of our experiments show the vital necessity on this land of sowing at the proper time; the following is an example :—

Wheat sown in time (Nov. 24th, 1915) 26 $\frac{3}{4}$ bushels
 . . . sown late (Feb. 17th, 1916) ... 19 $\frac{1}{4}$ bushels

II. CLEANING STUBBLES IN AUTUMN.

In the autumn of 1919 the arable fields were very weedy, as usual over wide tracts of England where cultivation had perforce been neglected for three years. Summer fallowing during 1920 would, of course, have been effective, but it was too costly; instead, therefore, the tractor was liberally used for cultivating the stubbles during harvest, and much cleaning was done during August, September and October. The effect was very striking. The weed seeds germinated in the warm moist land; the seedlings being very susceptible to injury were easily killed by cultivations; and as the cultivation was carried out before instead of after sowing the crop, it was entirely beneficial and did no damage. In consequence, the land which had been foul in 1919 became tolerably clean in 1920 in spite of the fact that a second winter corn crop was sown. The autumn cleaning was repeated in 1920 and a third corn crop sown; at the time of writing this remains free from troublesome weeds.

The advantage of this method is to give us much more latitude in cropping than we had before. Under the old horse cultivation it was imperative to grow a root crop once in 5 or 6 years to keep down weeds, and we were always rather beaten in the struggle; under the present method we can apparently grow any crops we please, unless a prolonged wet autumn should set in. This is illustrated by the Great Harpenden Field where the crops and yields per acre have been :—

Harvest of 1914	Mangolds 18½ tons, potatoes (varieties 7-10 tons)
„ 1915	Wheat (25 bush.), barley (40 bush.)
„ 1916	Wheat (26 bush.), oats (38 bush.)
„ 1917	Wheat (23 bush.)
„ 1918	Clover (weedy—1½ tons)
„ 1919	Oats (weedy), stubble cleaned (62 bush.)
„ 1920	Wheat (clean—32 bush.)
„ 1921	Wheat (still clean)

III. COST OF WORKING.

Our experience up to the present is that the cost of working with the tractor is less than with horses. For the Titan the figures for the cost of ploughing an acre of land have been :—

	1919		1920	
	By Tractor.	By Horses.	By Tractor.	By Horses.
Labour	7/7	10/2	8/9	12/6
Maintenance*	—	22/6	—	28/3
Oil, Paraffin and Petrol	7/8	—	10/7	—
Depreciation and Repairs	6/3	—	6/6	—
	21/6	32/8	25/10	40/9
Time taken	4 hours	1½ days		

* Including Labour Items.

IV. INCREASE IN EFFICIENCY OF LABOUR.

In our district the standard rate of wages per week has been :—

	Horseman.	Labourer.	Hours per week.
1914	18/-	16/-	57
1915	21/-	19/-	57
1916 (until May 19)	23/-	21/-	57
1917 (until March 23)	24/-	22/-	57
(until Nov. 30)	27/-	25/-	57
1918 (until May 17)	31/-	28/-	57
(until Sep. 6)	33/-	30/-	57
1919 (until May 19)	42/-	32/-	{ 48 winter 54 summer
(until Oct. 6)	48/6	38/6	{ 48 winter 54 summer
1920 (until April 19)	48/6	38/6	{ 48 winter 50 summer
(until Aug. 28)	52/6	42/6	{ 48 winter 50 summer
(after Aug. 28)	56/6	46/6	{ 48 winter 50 summer

but the efficiency of the work done with the same implements has not increased.