

The Gasoline Tractor As a Source of Power on the Farm*

Conclusions Reached After Four Years' Experience During Which Accurate Cost Accounts Were Kept

TO utilize implements to the best advantage we must have efficient power. Man power for the major farm operations, such as plowing, harrowing, sowing and harvesting was long ago abandoned, and so scarce has labor become that for planting, hoeing, stoking and similar farm operations it has, through the invention of machinery and the adapting of cultural methods been reduced almost to a minimum. But in spite of these changes toward eliminating manual labor on the farm we have to-day a greater scarcity of farm labor than ever before. This condition is accentuated by the absence of so many farm boys who have beat their plow shares into swords and are now engaged in war even more important than plowing.

To relieve the shortage of labor the use of larger machinery will do something. Gang plows, wide harrows, two row cultivators, and other large implements should be used to a greater extent than they are. But the question may reasonably be asked, what can we expect in the way of more efficient power? Can mechanical power be used to advantage by Ontario farmers for plowing, harrowing, sowing and other field operations?

The Use of Mechanical Power.
Mechanical power for soil cultivation has been in use for over half a century. Within recent years the small tractor pulling from two to six plows has been coming into more general use in many European countries. In Canada few tractors were used for farming purposes until about ten years ago, and up to the present their use has been mainly in the prairie provinces. Eastern Canada has been invaded by tractor salesmen only during the past year or two. A few farmers in Ontario and Quebec have bought outfits and are sifting out for themselves how useful they are under eastern conditions. Others are holding back hoping to profit by the experience of their neighbors and ready to buy as soon as they are convinced that the tractor will be of real service to them.

In the west many thousands of tractors have been sold within the last decade. Among the army of purchasers may be found those in whose hands they have given supreme satisfaction, and others who cannot find words strong enough adequately to condemn them. The difference in experience is the sometimes to the land on which they were used, more frequently to the make of engine, but very often to the men who owned or operated them. It is impossible briefly to summarize the experience of western tractor owners; the conditions under which they worked were too divergent. Even if it were possible to summarize western experience it would not strictly apply here where farms are smaller and the class of farming different, but at the same time there are some factors which are the same, namely, the machine and the operator. After all, these are the most important. As one who has had some experience with traction engines in the west I want to bring to your attention some facts and figures on the cost and efficiency of their work, and some observations on their utility.

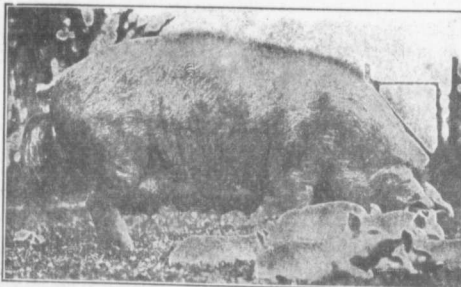
During the four years, 1911-14, over 50,000 acres were plowed by traction engine on the farm for which I have figures. Accurate cost accounts

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were kept of fuel, labor, repair parts, time spent in repairing, oil and the cost of overhauling. A record was also kept of the work done. The figures that I have available cover the season of 1913 for five steam and two gasoline engines. The gasoline engines averaged 159 days' plowing each a season. Gasoline was high, costing 35 cents a gallon.

Cost of Plowing With Gasoline Engines.

Acres plowed—5,480.
Acres plowed a day, per engine 125
Amount of gasoline used an acre 3 gallons
Average cost of engine crew a day \$9.20



A 600-lb. Brood Sow—Oak Lodge Princess and a Few of Her Progeny. She gave 3 pigs in five farrowings. Owned by Mr. John Warner, Haldimand Co., Ont.

Total cost of upkeep of engines for year including oil, repairs, repairing and overhauling \$1,687.60
Average cost of upkeep for one day's work 5.29
Cost of one day's plowing 2.57
Cost of one acre's plowing 2.57

The conditions under which the engines were working were not ideal. The land had all been plowed before, so that the footing was not perfect, and, moreover, the engines were all operated by hired labor. The charge for gasoline fuel is very high, \$1.05 an acre; probably more than would be the case ordinarily in eastern Can-

ada. The amount of gasoline used an acre may also appear high, but it must be borne in mind that the plowing was from six to seven inches deep, and as the work was continued throughout the whole summer the land was frequently too dry to plow to best advantage.

The cost of upkeep is even more striking. As already mentioned this includes cost of oils and grease, repair parts and repairing, overhauling during the winter and the wages and board of the supervising engineer. For each day's work done the upkeep cost for each gasoline engine was \$5.20. Where only one engine is operated it is customary to charge against upkeep only the bare cost of repair parts; the time spent in removing the broken parts and in fitting the new ones is overlooked. Odd days spent at repairing is seldom charged for by a man operating one engine only. In the figures here given all upkeep expenses are included.

Depreciation an Important Item.

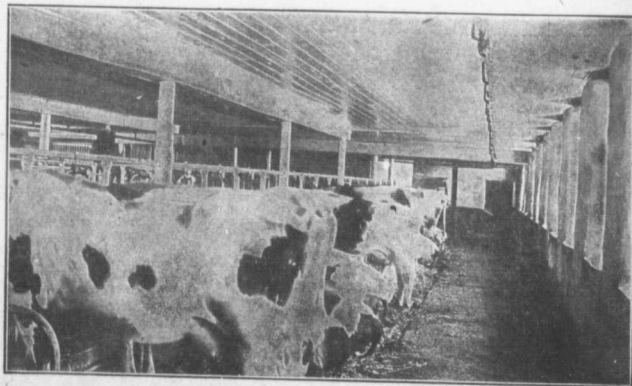
Still another important item to be considered is depreciation. Accurate data are not available; any figures that may be quoted are the opinions of those who have used tractors for a few years. The U. S. Department of Agriculture in Bulletin No. 719, issued last May, gives some figures that are probably as reliable as any.

The estimated average life of tractors in days of service is given as follows:

Size of tractor.	Average life in day's work.
2 plow	294
3 plow	352
4 plow	610
5 plow	845
6 plow	728

The advantage of the tractor lies not in the cheapness of the power, but in its ability to do heavy work and do it rapidly. There is not the same tendency to plow shallow with a tractor when the weather is hot or the ground hard that there is with horses. Where a large amount of land has to be plowed the tractor can accomplish the work in the right season, whereas, with

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The Sanitary Stable on the Farm of Peter Smith, Perth County.

The owner of this barn believes in cow comfort and convenience for attendants. Note the large windows, the stable posts, the stalls and the stanchions, also the ceiling which is painted a light color, thus adding still further to the good appearance of the entire interior.

*Part of an address before the Ontario Agricultural and Experimental Union, O. A. C., Guelph, Jan. 18, 1917.