

WE HAVE discussed the question of horse-power in the last three issues of the Canadian Thresherman. We hope we have made the subject clear to the majority of those interested in the question. It is a very important question. The discussion naturally concludes with the question: What size of a tractor shall I buy?

This tractor must be an all-round machine if it is to be of the greatest use in Western Canadian agriculture. We must take into consideration the number of plows it can handle as well as its adaptability for belt work.

The question responsible for the following discussion is: What size of tractor is the best for the average Western farm conditions, taking into account the number of plows it should handle as well as its suitability for belt work?

In answering such a question the writer knows that it is impossible to give one that would meet the requirements of everyone. We all have our own opinions, and since there are a number of very desirable tractors on the market that can give a very good account of themselves, we have decided to lay before our readers certain data which may help the individual to attack his own problem.

The actual size of the tractor will depend upon your system of farming. If you plan to hire an engineer at a wage of from \$100 to \$200 per month with board, you should have nothing smaller than a 4-plow outfit. On the other hand, if you plan to operate it yourself, or with ordinary unskilled labor, then a 2-plow, or better, a 3-plow outfit may be more desirable. Many farmers are getting better acquainted with the internal combustion engine through the automobile, and it may be better for them to operate the engine themselves and hire cheaper labor to handle their teams. Many farmers who are engaged in mixed farming, and using horse-power, could use a small 2-plow outfit to great advantage in heavy work of spring and fall plowing, breaking and summerfallowing in hot weather.

For average conditions we must have an all-round tractor, good on the drawbar and good on the belt. We will also assume that we should have the following classes to choose from:

Class 1—A tractor that can pull two 14-inch plows at a depth of 6 inches at a speed of  $2\frac{1}{2}$  miles per hour. This means from 8 to 10 drawbar horse-power.

Class 2—A tractor that can pull three 14-inch plows at a depth of 6 inches at a speed of  $2\frac{1}{2}$  miles per hour. This means 12 to 15 drawbar horse-power.

Class 3—A tractor that can pull

## What Size of Tractor Should I Buy?

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four 14-inch plows at a depth of 6 inches at a speed of  $2\frac{1}{2}$  miles per hour. This means 18 to 20 drawbar horse-power.

Class 4—A tractor that can pull six 14-inch plows at a depth of 6 inches at a speed of  $2\frac{1}{2}$  miles per

hour. This means 25 to 30 drawbar horse-power. This means 18 to 20 drawbar horse-power. This means 18 to 20 drawbar horse-power.



Two-plow outfit being operated by A. Spencer, Manitou Rapids Reserve, Emo, Ont.

hour. This means 25 to 30 drawbar horse-power.

We will eliminate Class 4 because it does not concern the average farmer; the large farmer and thresherman will have to consider this class.

There are still many things concerning tractors that are confusing to the farmer, and dealer, too, for that matter. The one outstanding point, if we read correctly between the lines of the question, is the relationship be-

as the number of plows pulled does not necessarily mean the greatest efficiency.

Let us turn, first, for a few moments to the experience of the farmers in the United States. Bulletin 719 sums up the whole situation very well in one paragraph: "The 4-plow size seems to meet the tractor requirements of the average farm in Illinois; it enables plowing to be performed at a much faster rate than is usual when horses are employed. The



L. C. Peters, of Coaldale, Alta, pushing his three-plow horse for all it is worth.

tween horse-power, drawbar pull, and the number of bottoms that can be handled to advantage. We have discussed recently in these columns the "horse-power" problem in detail, so that it is not our purpose at this time to burden you further with definitions and formulae concerning foot-pounds of work per minute. Much

man-labor is also reduced when using this size tractor, as one man attends to four plows at one time, instead of two, as is ordinarily the case when horses are used. Furthermore, this size of tractor is generally powerful enough to operate all the machines which are so commonly found on the average farm, including the en-

silage cutter and medium-sized thresher. At the same time it is not too expensive in operation to prohibit its use for many odd jobs which do not demand a great deal of power.

Tractor investigations were conducted by the American Thresherman in 1915, and again in 1917. The reports tabulated as received and came in from the Canadian Northwest to Texas, and averaging over 90 reports, we find the average repair bill was \$50, while 21 machines averaged \$13.92 annually. The relationship of the rated horse-power to the work done in 10 hours' plowing:

Rating of Tractors	Acres Plowed
5-12	6.3
8-16	6.6
10-20	7.7
12-25	9.0
15-30	11.8
25-45	19.2
30-60	21.0
40-80	25.75

The figures seem low in some cases and high in others, but they represent field conditions, and, of course, some people call 16 hours a day, in which case the average can easily be increased.

Go to the plowing demonstrations such as the one held at Brandon in July, or to any local demonstration you can attend, and see what each machine can do. Compare the soil they are in with your own, and a very close estimate can be formed of what you may expect. Do not overload. Take off a plow and put on a harrow, and you can probably go along at a higher speed. It still seems to be the ambition of some owners to see how much they can get the engine to pull. Stick it, if possible, is their ambition. It is a short-sighted policy.

Here is an engine that has two speeds, 1.85 and  $2\frac{1}{2}$  miles per hour. Let us suppose that it is in land where it has to labor very hard to pull three plows in low gear. In fact, it works something like this: The engine pounds and almost stops, the clutch is pulled and shoved in again as soon as the speed is up, then a plow is pulled just as the engine dies. After cranking 15 minutes, off it goes again, and the same operations are repeated. A waste of time. While by taking one plow right off, and perhaps attaching a harrow, it can go right along in high gear. Let us suppose it plowed continuously for 10 hours, what would be the difference in the amount of work done?

3 plows at 1.85 m.p.h. in 10 hours = 7.84 acres plowed.

2 plows at  $2\frac{1}{2}$  m.p.h. in 10 hours = 7.09 acres plowed and harrowed.

Of course, we refer to a case where the engine was overloaded with three plows; there are parts (Continued on Page 16)