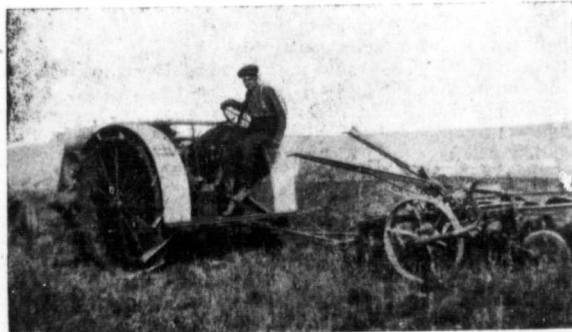


PRIOR to the introduction of the gasoline or kerosene tractor there was not much confusion about tractor ratings. While steam engines were underrated they were all underrated in about the same proportion. It seems that gas tractors have been in many cases overrated and cannot develop their advertised capacity for actual work on the belt or at the drawbar. In some instances it is due to the fact that tractor companies get the motors from a plant making a specialty of this particular and vital part. Due consideration of the power lost in transmission to the belt or the drawbar being omitted. From the farmers' standpoint it is highly desirable that tractor ratings should be placed on a rational, uniform and national basis which would be accurate and acceptable from coast to coast and not different at every meridian line. The tractor interests would profit by conservative and uniform ratings. The practice of overrating is shortsighted. We emphasize the fact in case there may be doubters that the reliable companies would be glad to fall in line and adopt any policy that could be mutually arranged. A solution for many of our present troubles is offered in the remainder of this discussion.

We will suppose that a practical farmer is in the market for a tractor. He has studied the problem carefully. He has looked through a list of specifications of various tractors in a vain endeavour to decide which one is the right machine for him. We present below several of the specifications he may have selected regarding four makes that may appeal most strongly to him.

Rating	Plows Recommended	Pounds Pull at Drawbar	Speed Miles Per Hour	Drawbar Horsepower
A 10-18	2	900	2 3-4	6 2-5
B 10-18	2	1800	2 1-3	11 1-5
C 10-20	3	1800	2 1-2	12
D 10-20	3	2650	2	14 2-15

The first two in the above list



N. B. Mack, Veteran, Alta., at home with his Hart-Parr

# Tractor Ratings

## Uniformity Necessary--A Proposed Solution

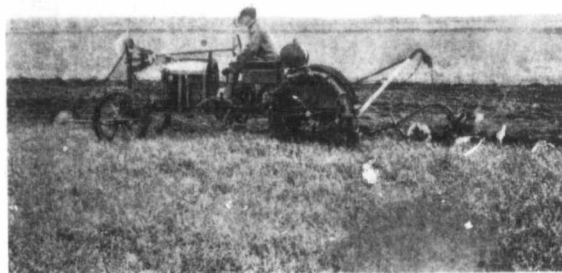
By PROFESSOR J. MACGREGOR SMITH, Saskatchewan University

are in a class of 10-18 (meaning 10 horse-power at the drawbar and 18 at the belt), the last two are in a class of 10-20 engines. However, all four are advertised as 10 horse-power machines at the drawbar, and they are all in one class. Let us examine each and from the data given in their respective cases see what can be developed. We know that the drawbar horse-power equals the pull in pounds multiplied by the distance travelled in feet per minute and the product of these two factors divided by 33,000 (the number of foot pounds of work per minute in one horse-power). Stating it briefly, we have:

Drawbar Horsepower =  
Pull in pounds  $\times$  Distance in feet per min.

33,000 (one horsepower)  
Take Tractor A in the list and work it out and you will find that:  
Drawbar Horsepower = 900 (Pull in pounds)  $\times$  242 (2 3/4 miles per hour = 242 feet per minute.)

33,000 (one horsepower)



An "Avery" 5-10 pulling Grand Detour plow

900 (pull in pounds)  $\times$  242 (distance in feet per minute), 217,800  
= 33,000 = 6 3/5

33,000 (foot pounds) of work per minute in 1 horse-power.  
And its rated as 10 drawbar horse-power. We have taken the advertised specifications. Something is wrong.

Now if you will examine B, C

and D in exactly the same way you will find that they respective-



E. L. Williams, Duhamel, with his P & O breaking plow (1 ton, 24-in.)

ly are able to develop 11 1-5, 12 and 14 2-5 drawbar horse-power. In every instance they exceed their rating, and therefore may be reasonably expected to give satisfaction.

If that does not mean chaos and

equipment now in the agricultural engineering departments of the agricultural colleges. The law governing the sale of tractors would demand that every type and every make of tractor be tested, and if the results of the test showed that it came up to its rating then a stamp of ap-

proval or guarantee, call it what you like, would be attached to all contracts involving the sale of the said type and size tractor. The plan is simple and would work as follows: The John Jones Company would notify the testing bureau that they wanted their 10-20 tractor tested. A qualified official would go down to the warehouse or car and select any engine at random, noting its serial number. The tractor would then be submitted for trial, and approved or rejected as the case might be. In a test of this kind Tractor A in our list would receive no stamp of approval, and would be placed in a class designating it as a 6 D.B.H.P., and why not? The other three machines B, C, D would pass and go on in the market as approved, government inspected 10-20 tractors. All other sizes would be dealt with in a similar way. Provincial laws would have to be uniform, in fact, there should be one rating for Canada or even North America. A company making an engine that could not come up to the standard would have two roads open to it, the first to improve their machine and the second "To shuffle off this mortal coil." Much more might be written about the tests, but enough has been said for the present, and there seems no reason why the details cannot be arranged to the mutual benefit of all. Something should be done.

How many plows will the engine pull? You might just as well ask how long will it last? No matter how conscientious we are we cannot answer your question unless we know the soil conditions, etc. The solution in this case is to have the country

Continued on page 18B