

versity, in co-operation with the state department of agriculture, recently conducted a survey among the tractor owners of the state. The objects were to determine the adaptability of the tractor and to find out if the owners were satisfied. The results accomplished by each individual make of tractor were also tabulated, and can be had by writing to the Extension Department, Ohio State University.

Much has been said and written about tractors in a general way, but there has been a lack of definite knowledge of just what a tractor can do. A tractor may have certain features that appear well on paper or are good advertising points, but if the farmers condemn them from actual experience they are of but little value. Farmers are continually writing for information concerning the adaptability of the tractor for certain farm conditions, and it is evident that the only satisfactory method of obtaining this information is from a farmer's personal experience.

Questionnaires with sixty-five questions covering all phases of the tractor in relation to its operation on the farm were sent to all the tractor owners in Ohio. More than 800 replies were received and on these the survey is based. The experience of 800 tractor owners operating their tractors under all conditions should be an invaluable aid to the farmer contemplating the purchase of a tractor.

The topography of Ohio varies from level land in the northwestern and central regions to rolling and hilly land in the south. The soil varies from a heavy clay to a light, sandy soil. The soil as a whole can be described as of a loamy nature.

Plowing is an operation to which tractors are especially adapted. Steady, deep plowing seems to have been the object of tractor manufacturers, but results show that owners are very reasonable in the depth they plow. The most common depth is seven to seven and a half inches, with an average of 7.14 inches.

Most of the farmers agree that one great advantage of the tractor is its ability to speed up production. To get a corn crop in on time, in many seasons, means the difference between a profit and loss; and the man with a tractor can do much more in a day than one with horses, for his machine never gets tired.

An interesting difference is shown in the average number of acres plowed a day by the several makes of tractors. Several two-bottom tractors plowed within two-tenths of an acre per day as much as some tractors pulling three bottoms. This can be ac-

counted for the difference in speed; two-bottom tractors could travel three and a half miles an hour, while the best the three-bottom tractors could do was two and a half miles an hour. Besides speed, several other factors determine the number of acres a tractor will plow in a day, such as the condition of the soil, whether spring or fall plowing, and the size and shape of the fields.

It will be seen from the table below that the number of acres plowed per day does not increase proportionately with the number of bottoms. This can be explained by the fact that every time the

pillar types. It does not seem that the tractor can be criticized seriously for packing the soil. The consensus of opinion is that where judgment is used, the tractor does not unduly pack the soil; but in heavy clay soils, regardless of the judgment used, the tractor does pack the soil to a considerable extent. Several factors determine the extent to which the soil is packed, such as type of soil, condition of soil as to moisture, and whether drive wheel runs in the furrow or on land. Undrained land encourages packing.

There is no doubt that the speed of a tractor has a definite relation

serve power and criticize the agent for rating the pulling ability of the tractor too high. Regardless of the size of farm, one desires a machine with sufficient power to enable it to pull out of any rut or obstacle that it encounters without wasting time.

It is true that a number of tractors have been overrated to the farmer. This is shown by the fact that some rated three-bottom tractors are pulling more two-bottom plows than they are three-bottom, but other rated three-bottom tractors, with very few exceptions, are pulling what they are rated. If one desires a three-bottom tractor he should not purchase one rated lower than 12 horse-power on the drawbar, regardless of what it is rated, unless his farm has exceptionally good soil.

Almost without exception the farmer of to-day is demanding a very light-weight tractor with a maximum of power. This can be followed through this survey. The big, heavy, slow tractor does not come up to the light, fast tractor in the field. It does not necessarily mean that if one has less than 153 crop acres that a tractor will not be a profitable investment; many farms of 100 acres and less are using tractors and are thoroughly satisfied with them.

The average number of days in the year that the tractor was used by the owner was 62.4 days. The greater the number of days that a tractor can be kept busy on the belt, the greater will be its value to the farmer. It is a question for the individual farmer whether a tractor will prove a good investment if used only for field work. The average annual repair cost for all tractors was \$22.42, which can be considered very reasonable, with present and past high prices. Here again there was a wide variation among the individual tractors; the lowest was \$7.11 and the highest \$56.50.

But the sum total of the outlook is the need for speed without prejudice to quality of work. How many average plowmen visiting the contest field at Portage la Prairie last June could have told which was the horse and which the tractor plowing? So uniform and clean, in fact, was the greater portion of the latter, that remarks were freely made as to its superiority in certain respects to the horse work. We are but starting in, yet the near future is colored with the certainty that in less time than it took to win the war, the right idea in power farming will have come into its own and that the tractor will cover the prairie with its perfect work and unvarying service, even as Nature serves.



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tractor is stopped there will be a greater loss of work with three

	PLOWING				Is the Packing of the Soil Detrimental?	
	Acres Plowed Per Day	Depth Plowed	Gallons of Fuel Per Acre		YES	NO
Two-bottom tractor ..	5.56	7.46	2.69	..	..	..
Three-bottom tractor ..	7.14	7.40	2.75	87	490	..

bottoms than with two. The amount of fuel used per acre differs considerably with kerosene and gasoline, always being lower for gasoline, though not more economical.

Is the packing of the soil detrimental in plowing? There is no doubt that some tractors pack the soil more than others, that the heavy four-wheeled type packs the soil more than the two-wheeled and light four-wheeled cat-

to the number of horses replaced. Tractors running more than three miles per hour are as a rule replacing well over two horses each, while those running three miles or less per hour are without exception replacing well under two horses. Much depends on the speed of the tractor as to the number of acres plowed per day or oats cut, and so forth; consequently the greater the speed the more work accomplished. Naturally, there is a limit to the speed that is practical.

The average size of farm for two-bottom tractors was 152.8 acres, with 136 farmers wanting a larger size and ten a smaller. Two hundred and two were satisfied with what they had. It seems true that most farmers are buying tractors too small for their uses; a great number cry for more re-