

ment of Craigie Masterpiece represents a new departure in stock breeding in the Northwest. Its issue will be closely followed, and no doubt Mr. Weir's selection will be subjected to keen criticism. I have every confidence that the criticism will mainly take a favorable form. It is not possible to please everybody, but Mr. Weir certainly pleased himself within the limits that were open to him. By that is meant that he was under the necessity of purchasing not the horse which possibly pleased him in every detail, but only the horse for which it was possible to obtain liberation so that he might be shipped in time for the coming season in Canada. Mr. Weir has certainly got a right good horse, and it will surprise us if Craigie Masterpiece does not do much to rehabilitate the Clydesdale in the good opinion of some who may be disposed to cavil at inferior representatives of the Scottish breed which had found their way to Canada.

The Aberdeen spring show of Clydesdales has been held since I last wrote. It was a conspicuously successful event. The feature of it was a class of yearling fillies of wonderful merit. The leader was a daughter of the old sire Royal Favorite (10630), an exceedingly well-balanced and well-colored filly with beautiful limbs and very nice top. She was shown by her breeder, Mr. Robert Young, Parkhall, Polmont, Stirlingshire. Another feature was an extraordinary big two-year-old filly named Dunure Maud, owned by Falconer L. Wallace, of Balcairn, the great Shorthorn breeder. This is a grand filly of abnormal size for a Clydesdale of her age, and yet very uniform in her build. She is not long legged, but very deep with a grand top. Her future will be watched with interest as she represents a somewhat unusual type in the modern Clydesdale.

SCOTLAND YET.

**AUTOMOBILES, FARM MACHINERY AND FARM MOTORS.**

Much of the satisfaction and success in plowing depends upon the adjustment of the plow. Take time to adjust it properly and save time later on.

The man who gets the greatest amount of satisfaction from the tractor is the one who takes the greatest care of it and avoids expensive losses of time in the busy season.

How are the cultivator teeth? Are they sharp and in good condition for the spring work? The harrows also should be put in good shape and the teeth sharpened and cleaned.

The long delayed spring has given a little more grace to the man who has not got his farm machinery in shape for the spring work. With labor so scarce and expensive it will pay to utilize every spare moment in providing against delays later on that might have been avoided.

Has the mower been lying outside all winter? If so and if you expect to work with it this summer it will probably need some repairs. Repairs take considerable time and when haying time arrives there will be no time to spare. Get at it on the first rainy day and see that the haying machinery is in condition for the work it must do.

Before you blame the tractor for the difficulties experienced and the poor work done, be sure that you know how to adjust the tractor implements and how to operate the tractor properly. There are plows and plows for instance and because one can ride a sulky or handle a walking plow expertly is not necessarily an indication that one can pose as an expert with a tractor plow.

**Some Tractor Pointers for Everyday Use.**

This article consists of excerpts from a bulletin recently issued by the U. S. Dept. of Agriculture covering the results of an inquiry among more than 300 farmers in North and South Dakota concerning their experience with tractors. We have selected such parts of the bulletin as are deemed of greatest interest to our readers.

The cost of performing farm operations with the tractor is made up of four main factors; namely, operating expenses (including fuel, oil, and greases, repairs, depreciation, and man labor. To these are added some less important charges, such as interest on the investment, cost of housing, and time spent in caring for the outfit, other than repair work.

The approximate cost of plowing per acre with a tractor under conditions described as calculated from figures obtained would be as follows: 2-plow, gasoline, \$2.00; kerosene, \$1.79 1/2; 3-plow, gasoline, \$1.85; kerosene, \$1.55 1/2; 4-plow, gasoline, \$1.66 1/2; kerosene, \$1.37.

The items of cost include fuel, oil, greases, repairs, depreciation, man labor and interest. The cost of gasoline is figured at 99 cents and of kerosene 59 1/2 cents per gallon each case, but 1 1/2 cents of the kerosene cost is for gasoline for starting.

For all field operations the daily charges for interest, depreciation, and man labor will, of course, be about the same, but must be divided by the acreage covered by the implement used. This average will vary with different implements. The fuel and oil charge will be the same for a 10-hour day in other field operations

as in plowing, provided the tractor is loaded to the same extent. This, however, frequently is not the case. If a comparatively light load is drawn, the fuel and oil consumption will be somewhat reduced, but not in proportion to the load. For stationary work, if the engine is working to full capacity, the fuel and oil charges will be approximately the same as for a day's work in plowing, but no grease will be used on most machines. This, however, would be only a small item.

**ECONOMY.**

From the figures given it will be noted that the cost of plowing or performing other field operations with a tractor is approximately the same as with horses, excepting for the item of man labor. This will average lower with the tractor than where horses are used, assuming wages to be the same in each case.



The Operator Should be Able to Handle Both Tractor and Implements Easily.

This has been true of practically all improved farm machines, even of the grain binder, which is generally considered one of the greatest agricultural inventions of the nineteenth century, but which did not, contrary, perhaps, to general opinion, decrease the cost of harvesting wheat to any considerable extent, though it did increase about eightfold the acreage which one man could handle.

It should be remembered that the cost of doing the work with a tractor in most cases can not be compared directly with the cost of doing it with horses, since on farms where tractors are used, a number of horses generally are retained; any comparison, therefore, must be made between the cost of operating the farm with horses alone, and the cost of operating with the tractor and a certain number of horses. Not infrequently horses stand idle while the tractor is being used for field work because sufficient help is not available to use them at the same time, and in such cases part of the cost of their maintenance must be considered when figuring the cost of farm operation since they are as much a part of the farm power plant as is the tractor.

Neither should it be forgotten that not only should the relative expense of operation with the two methods be considered, but also the relative results.



The Wearing Parts of the Tractor Should Not be Exposed to the Dust.

Not a few farmers, when considering the purchase of a tractor, hesitate because of the fear they may not be able to do the work as satisfactory as with horses. This applies particularly to plowing. That there is little reason for this attitude is indicated by the fact that 37 per cent. of tractor owners report that the quality of work, done by the tractor is better than done by horses, while only 2 per cent. say it is poorer. The remaining 61 per cent. see no difference.

The quality of work done in plowing does not depend so much upon the tractor as upon the plow and its adjustment. Under average conditions, the work done by most engine gang plows when properly adjusted is fully equal, and often superior, to the work done by either a walking or gang plow drawn by horses and operated by a skillful plowman. If a job of plowing where a tractor is used is not satisfactory, it is not usually the fault of the tractor, but of the plow, or, more probably, it is due to improper adjustment of the plows. Of course, in fields with obstructions, sharp rocks, etc., the tractor may be responsible for poor work because of its clumsiness, but under most conditions the plow and the operator determine the quality of the work done. The tractor's part is to furnish the power to pull the plows.

The average depth of plowing done with tractors by the Dakota farmers who furnish data is slightly less than 6 1/2 inches. The average depth they had previously plowed with horses was about 5 inches. While this deeper plowing is ordinarily considered as indicating a better quality of work, it does not appear to have had any marked effect on the crop yields, although increases from this cause were reported in a number of cases.

As to the quality of disking, or other work on plowed land, it will, of course, as with plowing, depend largely upon the implement drawn and the skill of the operator. The question of packing the soil is usually more important in connection with work on plowed land than in plowing, but that this is not a serious drawback, with modern tractors in a large portion of the Dakotas is indicated by the fact that 70 per cent. of Dakota tractor owners reporting say that their machines are satisfactory for use on plowed land.

The reliability of a tractor depends to a very great extent upon the ability of the operator. Of 281 tractor owners in the Dakotas who answered the question as to how many days their tractors were out of commission when needed, 139 (49 per cent.) reported that their outfits were not disabled a single day when needed during the past season. Of the remaining 51 per cent. the average number of days their tractors were out of commission when needed was 6. This average, however, did not include five men who stated that their machines were out of commission a large part of the time.

Of the tractors owned by Dakota farmers reporting, about 93 per cent. are operated by the owner or some member of his family, the best results usually being obtained by this class of operators. Thirty-two per cent. of Dakota owners reported no time lost in the field on account of trouble with the outfit. This probably means that the time lost was not worth mentioning. Most men do not consider it trouble so long as they know at once the cause of stoppage or other irregularity in the engine's operation and are able to remedy it promptly. The average time lost per day by the 68 per cent. reporting trouble is a little over three-quarters of an hour.

**DISPLACEMENT OF HORSES.**

The reports show that on Dakota farms, horses are displaced by the tractor on about 57 per cent. of the farms where the tractor is bought and where no increase is made in the acreage farmed. The tabulation of the reports from 108 farms where no increase was made in the acreage after the purchase of the tractor showed that on 62 of these farms horses were displaced while on 46 the same number were kept as before the purchase of the tractor. On the first group of 62 farms, with a total crop acreage of 18,904, or an average of 305 crop acres per farm, a total of 630 horses were kept before the purchase of the tractor, while only 406 horses are now used on these farms. In other words, an average of slightly less than four horses were displaced on each farm by the purchase of the tractor. On the second group of 46 farms, having a total of 15,553 crop acres, an average of 338 for each farm, 409 horses are now kept, the same as before the purchase of the tractor.

For a number of years following the introduction of gasoline and kerosene tractors the only special equipment for use with these machines was the gang plow. Experience soon demonstrated, however, that a great many of the horse-drawn machines which could be attached behind the tractor were not sturdy enough for use with mechanical power, because the latter is more powerful and unyielding than horses, and machines used in connection therewith are subject to more sudden and severe jolts. As a consequence during the past two or three years, more attention has been given to the development of disks, binders and other machines especially constructed to withstand the heavier service.

It is obviously impossible to obtain maximum results with a tractor when it is used with implements designed primarily for use with horses, and the objection of many tractor owners that the tractor can not be used with profit for certain types of field work will probably cease to hold good with the further development of special machinery for use with the tractor. There is considerable activity at present in the line of further inventions of implements and attachments designed especially for use with the tractor. Many of these will doubtless increase its value for farm work, making it practicable and economical for many field operations where its use is now both impracticable and uneconomical. It is for the purpose of doing work of the nature last mentioned that several horses are often kept after the purchase of the tractor. With the development of special machinery as above outlined, it seems probable that a higher percentage of work stock will be displaced where the tractor is used.

The amount of repairs required depends upon many factors, the most influential of which is the proficiency of the operator and the care he gives the outfit, both when in use and when idle. The conditions under which the outfit is used—that is, whether on rough ground, in dusty fields, etc.—the load it is required to pull, and, of course, the quality of the machine itself, all affect the repair bills. Many tractors are kept in repair by the manufacturer free of charge during the first year's service, excepting such items as are caused by some fault of the operator. It is not until the second year, therefore, that the owner bears the full expense.

Of 110 tractor owners in the Dakotas who had used their outfits one season or less (average age, 10 months), 38 reported that they had spent nothing for repairs. The others had repair bills varying from a few cents to \$100 or more, the average being \$29, making the average repairs for the entire group about \$19. The average repairs for 137 Dakota outfits between the

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