FARM.

Millet Growing.

There are several distinct varieties of this forage plant, of which Hungarian grass and common millet are the kinds most frequently sown. The German millet, a later variety, has been largely grown in some sections. The Experimental Station at Guelph, in conjunction with the Experimental Union, has conducted a number of tests of this plant, with the object of providing a good substitute for hay in the short years, and the reports are very favorable. According to the tests, the four best varieties of millet are: Salzer's Dakota, German or Golden, Golden Wonder and common millet, while Hungarian grass in point of yield was about equal to the German millet. Of Salzer's Dakota, the director of experiments. Mr. C. Zavitz, has the following in his report:—"The Salzer's Dakota millet, which heads the list in yield per acre for two years, is certainly an excellent variety. It did not do quite so well, comparatively, in 1893 as it did in 1892. It is a very strong growing variety and produces a large amount of foliage. It grows to a greater height than any of the other varieties and stands up remarkably well. Of the millets which have been grown on this farm for two years, Salzer's Dakota has certainly shown itself to be a most desirable variety. The Western-grown did very nicely during the present year, giving a large yield per acre. In three co-operative tests over Ontario in 1892, in which three varieties of millets were grown, the Salzer's Dakota gave an average yield per acre of nearly fifty per cent. over either of the other varieties."

In Canada, millet is grown almost exclusively as a forage crop either to be fed green or cured as hay. It is especially useful as a supplement to the hay crop in years of shortage, for a farmer can wait until he can estimate the yield of his hay or ensilage crops before sowing millet, which, unlike most other forage crops, does not require a long season to mature, and can be put in quite late in the season and still give a heavy cut of feed. The seed may be sowed either in drills or broadcast. The land should be rich, well fertilized, and the surface made very fine and mellow, so that the small seeds will not be buried too deeply. Millet will do well on any soil that will give a good crop of potatoes or corn. From three pecks to a bushel is sufficient when sown broadcast; if drilled, less will be required. The ground should be rolled immediately after sowing. The seed should be sown about the time corn planting is finished; when the weather has become settled and the nights are warm, which in most parts of Canada will doubtless be about the fore part of June.

Millet should be cut as soon as the heads are well formed, and before the seed begins to harden. As it ripens very irregularly, it is a good plan to cut on the early side, in order to get the best quality of feed. Cut and cure in the same manner as an ordinary crop of hay.

The chief objection to the general cultivation of this crop is that it is an annual, and thus the ground must be prepared and the seed sown each season. Another is that there is much danger in feeding large quantities after the seeds are ripe; though, from the evidence brought forward in response of Prof. Henry's call for practical experience in the feeding of millet, as published in the Breeders' Gazette, we would be led to suppose that the danger has been greatly exaggerated. The reports all favor the cultivation of millet, both as a hay crop and for green feed, but none of the writers have, so far, tested it as an ensilage crop. The following are a few extracts:—

"We have been feeding millet hay for five years, principally to young cattle and cows, and have never yet had a case of abortion that could be attributed to the feeding of millet hay. The millet crop, hay and seed, promises great things for the North Dakota farmer, and we shall be very slow in condemning its use in feeding horses and cattle. I never saw any ill effects from the feeding of millet, where care was taken at first by feeding very light."

An Oklahoma man says:

"I will say that I have fed millet for fifteen or twenty years, to all kinds of stock, and consider it one of the best grasses which we can cultivate here in the West, if properly harvested and fed; but millet over-ripe and full of seed heads is dangerous in the hands of an ignorant or careless feeder."

A voice from Nebraska says:

"The more millet the better. I find the steers like it, and never tire of it; but I must start them gradually at first, and then let them have all they will eat, and the more seed in it the better. I feed it to my stock cattle, calves, cows in calf, horses, hogs, and everything that will eat it, and they all do well. I have been in the stock business for ten years, and have fed millet every year, and never had but one cow lose her calf, and that was caused by a dog running her a mile (the dog met with a loss, too).

In Indiana man reports as follows:—"I have used millet for five years, and would rather have it than any rough feed I have ever used. Last winter I wintered my cattle on it without any grain."

A farmer from Wisconsin says that millet carried him through the winter. Owing to the severe drought of the summer, the grain all failed. He sowed German millet as late as July 2nd, and wintered nine horses, three mares in foal, twenty-six cows, eight calves, twenty sheep, ten pigs and sixty chickens, on nothing but millet.

We would caution our readers to use great care in their selection of millet and Hungarian grass seeds to obtain that which is pure and free from foul seeds, as much mustard and similar weeds have been introduced into Manitoba and the Northwest in this way. To such an extent was this the case that in some sections every farmer who was growing millet could be pointed out at a distance by means of the yellow mustard blossoms in the crop.

How to Make Better Roads.

BY W. A. HALE.

That bicycle clubs should have been the first to call public attention to the unsatisfactory state of country roads generally, or at least the first to take active and practical steps towards their improvement, seem to show how slow we farmers are in joining together to bring about any needed reform, however important it may be to our own personal interests. The League of American Wheelmen in 1891 offered prizes of $20.00, $30.00 and $50.00 for the best collections of photographs showing "badness of bad roads," such as "the common spectacle of the farmers' waggon, hub-deep and knee-deep in the mud," etc, and also a collection "showing smooth hard roads and teams hauling loads over the same"; copies of some of these photographs I have seen, and they all clearly illustrate what I shall further try and prove, viz., that, as a rule, the best country roads are moderately wide, while the poor ones generally have a greater width between the ditches than the road taxes are able to maintain.

In the United States many municipalities have employed engineers to make estimates of the cost of thoroughly macadamizing their principal thoroughfares, borrowing money on debentures at 5% to enable them to do the work, and in most cases have found that when well done, they have at once and-for all time a first-class road, the annual saving in repairs of which far more than exceeds the interest and sinking fund on the money borrowed.

Another scheme is being proposed, and one which, in the near future, will probably in many localities be successfully carried out, and that is that electric railways combine with country municipalities in building tramways to be used by public vehicles as well as electric cars on the main roads leading to and from towns and villages where traffic is sufficient to warrant the same: but over a large area of Canada, and for many years to come, a more economic plan than either of the above must be adopted, and I know of none that is so likely to succeed as the employment of a road making machine. Doubtless there are various patterns of these machines, but the one that I have had several years practical experience with is called the "American Champion," and, as it is now made in Ontario, can be bought at first cost without the addition of duty, the price being $250, and to say that the machine will, in any ordinary township, more than pay for itself in one year is putting it very mildly. Some of our more enterprising municipalities have purchased one or more of these machines, and have taken upon themselves the principal part of the making and repairing of the municipal roads, giving the residents a chance whenever possible of working a part of their road tax in statute labor, and while the roads are uniformly very much improved the annual amount actually expended on them has fallen to from 75 even to 30 per cent. of what it used to cost to keep up an indifferent set of roads by the old method. I have had impartial reports from contractors and superintendents of corporation roads as to the capacity of these machines in rounding up and making roads, and the most conservative of them have put it as being equal to the work of fifty men with picks and shovels, even after the ditches may have been ploughed out, and the quality of the work done is so superior to this old-fashioned ditch-cleaning method of mending roads, that few who have seen the comparison would be willing to submit to the primitive plan necessarily adopted by the earlier settlers. Four horses will work these machines, but six are better. They are remarkably strong and very easily handled. Of course, where there are large stones or boulders it is best to remove as many as possible before using the machine; but still, the mould-board is so easily and quickly raised and lowered that there is very little trouble in passing over boulders, ledges and even stumps. And where a fair amount of grubbing has been done it is wonderful what satisfactory work it will accomplish, even where it has to cut its way through good sized roots. In working these machines, it has been found that, as a rule, the ordinary country road is not only too flat, but much wider than there is any necessity for, or than can be satisfactorily kept in good order. And also, that the ditches are too deep and narrow, and not of the proper slope; and that between the ditch and the road track there is a strip of sod, weeds, raspberry bushes, &c., &c., on each side. Now, where the road machine can find soil enough to work upon within these strips of grass, it is often best to leave them and to make the road inside them in the form of a low, flat arch, gradually rounding it up, and leaving a shallow ditch on either side, (of which the road itself forms one side), and into which, if necessary, it is possible to drive without upsetting. Then, with a strip of gravel ballast seven or eight feet wide in the middle, such a road is formed as would gladden the heart of the most fastidious, be he a light driver or a heavy teamster. And one, too, that can year by year be easily repaired and improved with increasing ease by the occasional use of this machine. Where the road bed is narrow and the grass strips at the sides have to be taken in, it is generally best not to scrape them into the middle of the road, where they at best form little else than mud or dust. But by reversing the set of the mould-board they can be stripped off or pushed outwards, into or across the old dithes, and only the firm soil underneath brought into the road. It is always advisable to let one man take charge of the working of the machine, and travel with it from one road district to another, and always with the same pair of pole horses, taking the additional teams from the settlers of the various districts so as to give them the chance of working in their horses, provided always that these extra pairs are strong, willing workers.

For making roads across hillsides, these machines are admirably adapted, and the amount of work that they can accomplish in a day in this way is something marvelous. The mould-board is so arranged as to work both going and coming across a slope, and also to work on either side of the road while coming *down* a hill. As a proof of the good work they are capable of doing, I have found that those municipalities which do not own one are quite willing to pay $5.00 a day for the use of one, besides paying for the caretaker and the teams to draw it, and until we can afford to make macadamized roads at a cost of from $1,000 to $2,000 a mile, I believe there is no other method that will come so near perfection as by using a six-horse road machine, supplementing the work by gravel ballast.

New Departures in Agriculture.

In a recent address the Hon. John Dryden, Provincial Minister of Agriculture, stated what he considered to be the branches of agriculture to which the farmers of this Province might successfully turn their attention at the present time. These were fruit growing, dairying, stock raising and the poultry industry. After briefly reviewing what his Department had accomplished in the past, he proceeded to outline some new departures for further development along the lines he had indicated. He stated that one direct result of the Chicago Exposition had been to attract the attention of American buyers to the superior quality of Ontario's fruit, the excellence of which long ago won for it a front rank in the British market. A greatly increased demand was therefore probable in the near future, and with this in view he had asked the Legislature for a grant of $1,000 in order to place such information on the subject of fruit culture in the possession of the farmers as will enable them to take advantage of it. For this purpose it is proposed to establish Experimental Fruit Stations in different sections of the Province. It was pointed out that the project is of a simple, practical kind, not involving any large expenditure and yet designed to supply the farmers of each district with reliable data concerning the varieties and methods best suited to their particular requirements. To begin with, four or five stations are to be organized. The intention is to select practical men—specialists in fruit growing—as experimenters, and distribute to them from time to time such varieties of trees and plants as may be suited to their sections. These they will plant upon their farms and take special care of, and in due time they will report to the Department the results for publication. The trees and the fruit will become the property of the experimenters, who will be allowed, in addition, a small annual fee of about $100 each to cover the extra expense. A board of control, consisting of the President and Horticulturist of the Ontario Agricultural College, and three representatives of the Fruit Growers' Association, will direct, with the approval of that Association, the line of work to be pursued. Each experimenter is to act in conjunction with the director of the Fruit Growers' Association representing his district, these two forming a local executive. The Horticulturist will visit the stations at suitable periods to generally supervise the work and to secure any information that may be available for publication in bulletin form. The Fruit Growers' Association has for some time been carrying on a system of experiments by the distribution of seeds and plants, and as the experimenters are to be selected from among its members, these gentlemen will be in a position to give to the Department the results of the work they have hitherto engaged in, which will be at once utilized. The following stations and experimenters have already been selected:—One in Wentworth—Mr. M. Pettit, experimenter, Winona: one in Essex—Mr. W. W. Hilborn, experimenter, Leamington; one in Simcoe—Mr. G. C. Caston, experimenter, Craighurst; one in the Bay of Quinte District—Mr. W. H. Dempsey, experimenter, Trenton. If these succeed others will be arranged for other sections.

Should the exigencies of the future demand it, as they at present seem to indicate, Mr. Dryden has also in view the providing of increased accommodation for students in dairying, an appropriation for which was voted at the recent session of the Legislature.

As regards the live stock interests, an additional grant of $150 has been made to the Dominion Sheep Breeders' Association to enable that organization to meet the expenditure necessitated by the important work it has in hand.

Regarding the poultry industry, preparations are being made to give instruction in this department at the Agricultural College for the benefit of those who may desire it. Buildings for the accommodation of poultry are now in process of construction. We are also informed that the report of the Ontario Poultry Association is now ready for distribution. It is well illustrated and contains this year some valuable information on the subject of poultry on the farm. It may be obtained free on application to the Department.