

THE FARM.

ANOTHER TRIBUTE TO ALFALFA.

The Utah Experiment Station has been conducting some experiments with feeds for dairy cows, and has added some more evidence to the value of alfalfa as a producer of milk and butter-fat. In summing up some of the experiments, Bulletin No. 101 says:

"To what extent can forage similar to bran in composition, be substituted for bran? is a question that has been investigated by a few of the experiment stations. At the Tennessee Station an experiment was carried out in which the following rations were compared: Silage, wheat, bran, and cottonseed meal; and the silage, alfalfa hay and wheat bran. The following are some of the conclusions drawn from this experiment: 'In substituting alfalfa hay for wheat bran, it will be best to allow one and a half pounds of alfalfa to each pound of wheat bran, and the results are likely to prove more satisfactory if the alfalfa is fed in a finely-chopped condition.'

"These tests indicate that, with alfalfa hay at \$10 per ton and wheat at \$20, the saving effected by substituting alfalfa for wheat bran would be \$2.80 for every hundred pounds of butter and 19.8 cents for every hundred pounds of milk. The farmer could thus afford to sell his milk for 19.8 cents a hundred less than he now receives, and his butter for about 22 cents, as compared with 25 cents a pound.

"These experiments show why alfalfa has been frequently used as a basis for manufactured food-stuffs, and indicate that the farmer who can grow it makes a mistake in purchasing artificial food-stuffs of which it forms a basis."

The following is taken from New Jersey Experiment Station Bulletins Nos. 161 and 148:

"A home-grown ration composed of thirteen pounds of alfalfa hay and thirty pounds of corn silage, proved both practical and economical when fed in comparison with a ration in which over two-thirds of the protein was derived from wheat bran and dried brewer's grains. Milk was produced from the home-grown ration for two-thirds the cost of that from the feed ration. The cost of milk per hundred was 55.9 cents, against 83.9 cents for the feed ration.

"On the basis of this experiment, when mixed hay (timothy and red-top) sells for \$16 per ton, wheat bran for \$26 per ton, and dried brewer's grains for \$20 per ton, alfalfa hay is worth \$24.52 per ton as a substitute for mixed hay, wheat bran and dried brewer's grains fed in the proportions indicated in the ration.

"A feeding experiment showed that the protein in alfalfa hay could be successfully and profitably substituted in a ration for dairy cows for that contained in wheat bran and dried brewer's grains, and for this purpose is worth \$11.16 per ton, when compared with the wheat bran and dried brewer's grain at \$17.00 per ton."

From these Station findings, one can readily understand that great value is given alfalfa in some of the American States in substituting it for grains of similar composition.

THE CULTIVATION PROPAGANDA IN ALBERTA.

Alberta has been hearing the gospel of soil cultivation from one of the best preachers of it, a Mr. Campbell, from across the line. His key is nothing more or less than the application of the well-known fact that by cultivating the top layer of the soil the moisture below is prevented from evaporating and is available for the roots of plants. Many men have known this, and have practiced it more or less extensively, especially upon corn land; but this man Campbell, living in a country where rainfall is light, and where a few pounds of moisture conserved at the roots of the plants exercise a more noticeable effect than the same amount would in a country of greater precipitation of moisture, has become an enthusiast upon the subject, and preaches the system in season and out of season. For this reason he has attained an international reputation, and has been lauded and blessed by farmers and real-estate men and land-holding railway companies all over that sparsely-vegetated area that lies to the eastern slope of the Rocky Mountains in the central part of the continent.

BREAKING BY POWER.

Steam plowing has been quite general upon the prairie the last few weeks, says "The Farmer's Advocate and Home Journal," of Winnipeg. The steam outfit, with several gangs, is doing a lot of work that was only considered possible of execution with animal traction and a hand-breaker. True, the sod is not as well laid as where it is turned up by a good plowman, but the time saved more than compensates for the difference in work.

BLIGHT IN THE OAT-FIELDS.

Editor "The Farmer's Advocate":

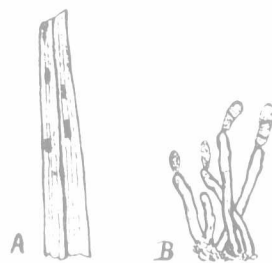
I have examined the specimens of oats received from you, and labelled, respectively, from a correspondent in the County of Oxford; Mr. Twedle, County of Wentworth; Mr. Brodie, Middlesex, and from several other farms in the County of Middlesex.

The disease on all the specimens has similar characteristics. It appears as a blighting of the outer end of the leaf (but not usually of every leaf of the plant), and spreads along the veins towards the stem. As the tissues die, the color changes to a yellowish or reddish brown. I find no mark in root, joint, stem or leaf of the invariable presence of any insect. If the affection were due solely to adverse conditions of soil or weather, all the leaves, as well as the other parts of the plant, might be expected to be similarly discolored.

The only other causes capable of producing so widely-spread an affection are of a bacterial or fungal nature. On all the specimens the microscope reveals the presence of fungi. Two difficulties, however, are encountered. On several of the plants there are more kinds of fungi than one, and they all belong to groups that usually invade weakened, dying or dead tissues.

The particular form most common on the leaves examined can be detected by the naked eye, where its spores and hyphae are massed as sooty blotches. This is a fungus which, I believe, has been named *Fusicladium destruens*. The specific name, *destruens*, means destructive. The common, dark-colored leaf-spot on the leaves and fruit of apple trees is another species of *fusicladium*.

In a New York State report, Prof. C. H. Peck, the State Botanist, wrote of *Fusicladium destruens* as follows: "In the southern part of St. Lawrence County, which was visited by the writer the



FUSICLADIUM DESTRUENS.—A: part of an oat leaf, showing four sooty blotches. (Natural size.) B: five hyphae and four spores (from one of the blotches as magnified by the compound microscope).

past summer (1889), scarcely a field of oats was free from this disease. So prevalent was it that the general color of the fields was changed thereby, and it was the opinion of the owners that their oats were rusting badly. Upon close examination, no rust was to be found. In its stead, the discoloration of the leaves and the fungus now described appeared. It is apparently a very injurious and destructive fungus."

In the following year, Prof. Peck, who is one of the best mycologists in America, studied this disease of the oat-fields, and modified his former opinion. To quote him again: "When my last report was written, this fungus (*Fusicladium destruens*) was suspected of being the cause of the disease, which has appeared over a wide extent of country, and in the fields examined scarcely an unaffected plant could be found." He refers to other fungi found on the dead and dying leaves, and proceeds to express the belief "that it is hardly probable that the *fusicladium* could have spread so extensively in so short a time. It is more reasonable to suppose that it, like the other fungi mentioned, is a consequence rather than a cause of the disease." He added that there seemed no indication of the work of insects or nematodes.

His description of the affected oat-fields agrees exactly with those of your correspondents. The fungus he most strongly suspected at first is present on most of the leaves received here. If it is not the cause, but only a concomitant of the disease, then I should say that we have here either a destructive bacterium to be put in the class with the bacterium of pear-blight, or a case of the reduction of the vitality of the oats by some climatic cause, to such an extent as to permit the invasion of the fungi observed. The problem is an interesting and important one. It may already have been attacked and settled so far as the bacteriologist is concerned. If so, I have not heard the result.

Were several correspondents in widely-separated districts to send you reports of their observations upon this disease, accompanied with typical specimens, valuable material would be afforded for further study of it.

J. DEARNESS.

GOOD VALUE FOR EXPENDITURE AT THE O.A.C.

Editor "The Farmer's Advocate":

Allow me to call attention to the report of the Agricultural College and Farm just published, the amount of cash expended being not less than \$129,042.10. May I ask in what way do the people of this Province receive an adequate return, or do they receive, any? Many subjects are discussed in "The Farmer's Advocate," but this, which is of much importance, is left untouched by all. Any light thrown on this subject will, I have no doubt, be appreciated by your readers.

D. MESSENGER.

Wellington Co., Ont.

In reference to the total expenditure at the Ontario Agricultural College and Experimental Farm and Macdonald Institute last year, would say that the only justification for such a large expenditure is the fact that the farmers of this Province insist on our keeping a thoroughly equipped and up-to-date institution. In the report from which your correspondent quoted the figures, it may be noted on page 14 that we had in attendance 957 students in all departments. While these men and women came mostly from Ontario, we also had students here from each of the other Provinces of the Dominion, and from seventeen foreign countries.

The farmers of Ontario, who visit the College in increasingly large numbers each year, demand that the one institution supported by the Ontario Government for farmers' sons and farmers' daughters shall be the very best of its kind, and the 31,000 farmers who took lunch with us at the Government's expense in June of this year seemed pleased with what they saw here. The Government has seen fit also to make the fees so low that the poor boy can come here and get an education. The result is that the revenue is correspondingly small, the Government being willing to help worthy persons to secure a practical education at the lowest possible cost.

Another side of the question also is that a large part of the farm is devoted to experimental work. This requires a vast amount of labor on each acre, but you and your readers are aware of the benefits that have been derived to the country by the work which has been done here in the improvement of varieties, the distribution of seeds to the farmers, the reports and bulletins which have gone to the farm homes, and the work which our professors and instructors have done through the Farmers' Institutes and the fall fairs to improve the agricultural conditions of the Province.

As I said in the beginning, the amount seems a good deal in the aggregate, but I do not believe that our farmers would consent to reducing it by one penny.

G. C. CREELMAN, President.

A WESTERN FARMER WHO MAKES HAY CAREFULLY.

Farmers in Eastern Canada who deem it too much trouble to cure hay by putting into coils, are respectfully informed that a Manitoba farmer, J. A. Russell, writing in "The Farmer's Advocate and Home Journal," of Winnipeg, tells how last year, in an unusually wet season (for that country), he cut, coiled and stacked two hundred and twenty-five acres of timothy, averaging a ton to the acre, with the aid of four men, besides himself and boy ten years old. The coiling was not done with the horse rake, but by hand, and in the most careful and precise manner, with a view to making coils that would shed rain. All the haymaking machinery he used was the mower and horse rake, but he intends to use this season the hay fork, attached to two poles. We often wonder, in travelling through the country, whether many of us are not, while seeking short-cuts in haymaking, abbreviating the process too much, and thereby sacrificing quality to an unprofitable extent. There are some places where labor can be saved to unquestionable advantage, and then, again, there are places where this effort can be carried too far.

OUR GROWING NEED FOR TIMBER.

The scarcity of timber suitable for telephone and telegraph poles has of late assumed serious proportions. To users of poles, therefore, the question of how best to meet this situation is of first importance. Latest reports of the Census Office of the United States Government show that there were in operation in 1902, approximately, 700,000 miles of line. It is safe to assume that there are in operation at present fully 800,000 miles of line. The average line contains about 40 poles per mile, so that there are, approximately, 32,000,000 poles in use. Assuming that the average life of a pole is 12 years, it follows that for the maintenance of the lines now in operation there are needed each year more than 2,650,000 poles. Such an enormous demand must soon deplete the available supply. This is fully recognized by different companies.

Potato bugs are said to be more numerous and persistent in Manitoba this year than they have ever been in any district of the Dominion. And Manitoba used to boast immunity from the ravages of this pest. Verily the prairie settler had a great snap for a good while, but the bug cometh, when all men must spray.