

many uncultivated fields, especially if little rain falls after the crop was cut. The horses, as well as their driver, will also share in the advantages of plowing a moist soil by being able to draw the plow more easily, and not be required to unnecessarily exert themselves.

Let all farmers who can at all get their gang-plows going, and not only destroy many of their worst weed enemies, but make fall plowing a more pleasant and easier task for both man and best.

"MAC."

Favors Good Honest Plowing.

Editor "The Farmer's Advocate":

Judging by results these last few years, moisture is more necessary to produce good crops than fertility. The question of retaining the soil moisture is very appropriate at the present time. It has been said by eminent agriculturists that there is enough moisture in the soil through melting snow and rain during the fall and winter to produce and mature good crops, without any rainfall during the growing season. Be that as it may, we do know that much can be done by better preparation of the soil to produce a good crop, irrespective of the season.

One point brought out by your article entitled "Dry-weather Crops," is that a good deal of mischief has been done in recent years by shallow plowing or skimming, which I believe to be only too true. I am satisfied that the farmer who plows his land shallow and works it shallow is assisting the water to evaporate from the soil. Surface cultivation is all right, but there is a vast difference between the good old honest system of cultivation and the so-called surface cultivation. It also seems to me that the quicker we get rid of this shallow plowing idea, the better it will be for ourselves. Deep plowing is all the more important, when we consider that it has its advantage in a wet season, as well as in a dry one.

It is a question with me whether spring plowing will not conserve more moisture and produce a better crop of spring grain than the system so much in use of simply cultivating and harrowing the ground plowed in the fall before sowing. On the writer's farm this season (a very dry one) have been found two instances where the spring plowing has given much the best results. A field of ten acres was in 1910 manured, and rape sown. This was fed off in the fall, and about two acres plowed, when frost put an end to the job. The balance was plowed this spring, and the whole sown with barley. That sown on the spring-plowed ground came up better and kept the lead all through the season. It was about six inches longer, and much better headed than the other. On another field, where corn and roots were grown last year, the corn ground was plowed last fall, and worked up in the usual manner this spring. The root ground was plowed this spring, and well harrowed and rolled. The results in this case were even more pronounced than in the other.

Perhaps some of your readers have had similar experience in this respect. We are told that on many of the farms of the United States plowing to a depth of sixteen inches is quite frequent. How much more will be the ability to hold water in land like that than where it has a depth of four inches?

WM. ELLIOTT.

Waterloo Co., Ont.

White Grub Fungus.

Editor "The Farmer's Advocate":

I have read with much interest, both last summer and this, the various letters regarding the white grub, which does so much damage in many places. Two or three years ago the June beetles were very numerous, and it was feared much damage would follow, but, strange to say, this summer it is seldom we find a white grub. There is a fact not generally known, that a parasite follows these grubs, and, unobserved, from time to time, the grubs are destroyed. This parasite, if it may be so termed, is found attached to the grub on the back, just behind the head. It is of purple color, and looks like the sprout of a dahlia bulb, only much smaller. These curious plants grow till the grub is consumed, and only the shrivelled skin remains. These plants may attain two inches in height, and even appear above the surface of the ground. It soon dies for want of food. If it were possible to start this remedy at will, white grubs would soon disappear.

The late Dr. Fletcher explained this some years ago, after his experience with the Hon. Sydney Fisher's lawn, at Knowlton, which was entirely destroyed by the grub, when they in turn fell victims of the parasite, and were seen no more.

I am inclined to think that the same thing happened here last year. I have never found but one specimen.

P. P. FOWLER.

[Note.—The parasite to which Mr. Fowler refers is no doubt the white-grub fungus (*Cordyceps ravenelli*), which is usually a potent cause in the suppression of the white grub. Efforts have been made in the past to cultivate this fungus, without success. In France, some years ago, a fungus

which destroyed the European species of white grub was cultivated artificially and distributed, its use being followed, I believe, with a certain amount of success.—C. Gordon Hewitt, Dominion Entomologist.]

Dry-weather Crops.

Editor "The Farmer's Advocate":

It is a timely question both in Ontario and Western Canada, how to produce good crops without sufficient rainfall.

It is a very pleasant sight to see good crops and neat, well-kept farms. A drive through such a district would be a feast for the eyes, but this is rarely to be found. Some farmers do not have good crops because they do not try. This is, perhaps, the main reason why the crops on one side of the road are good, and on the other side poor. There is certainly no such thing as "magic farming," but there is such a thing as "good farming," and it embraces a good deal. When the farmer really understands why he follows certain methods, and finds the results gratifying in larger yields, he is encouraged to continue his scientific work, and thus farming gives him pleasure.

Now, coming to the question of cultivating the soil in very dry weather to help a crop of corn or beans, we must accept what scientists tell us, put it into practice, and watch the results. Frequent cultivation not only conserves moisture, but allows the air to pass into the soil. By this means, the organic remains of former crops and manuring are oxidized, the nitrogen being converted into nitric acid.

We can see the result of cultivating in dry weather by the increased growth of the crop. Not only this, but it is a splendid preparation for the following crop. Plow down a clover sod for beans. Cultivate and keep clean, and you have an ideal preparation for wheat. A clean corn field, disked about three or four inches deep the following spring, will yield a larger crop of oats or barley than if the field was plowed. I have seen this tried in former years, and to-day I can point to three fields of oats prepared as mentioned above, and they are the best-looking oats in the district. The earliest sowed field is the best of the three.

It is very plain that a man cannot farm one year at a time. He must always work for the future, and make one crop prepare the soil for the next. It is good practice to seed down all wheat and oats with red clover. What is not needed for hay makes good fresh pasture late in the summer, and enriches the soil when plowed under in the fall. It is a very economical manure.

When speaking of the preparation of soil for spring grains and wheat, I did not mention the application of manure, as it is understood that, to get good crops, any soil should be rich in humus. Generally speaking, it is impossible to get a soil too well supplied with humus.

Would like to advise every farmer to get a copy of "Warrington's Chemistry of the Farm." It is simple and to the point. I shall be glad to read others' opinions on this subject in your valuable paper.

S. M. PEARCE.

Elgin Co., Ont.

Concerning Farmers' Wages.

Editor "The Farmer's Advocate":

Having noticed in your paper, a few weeks ago, an article comparing farming and railroad wages, I thought I would give an account of my brother's earnings. He is now twenty-four years of age, and has worked at home since he left school. At eighteen years of age he began to receive wages at \$200 a year. Two years later he invested his money by making first payment on a small adjoining farm worth \$1,500. He and my father worked these two farms and another rented farm—in all, 200 acres—for four years. About \$100 a year was spent in hired help. During these four years the farm has been paid for, while similar payments were made on the home place. This place has been improved by fences, drains and buildings, so that its value is nearly doubled. My father has kept a family of six out of the place, besides making material improvements on the home farm.

Of course, this took hard work, though we work short hours, even in the busiest time. Also, my brother does not go to the city and spend a large sum on a "blow-out" every little while.

Did a railwayman ever buy a farm by six years' labor? If anyone did, I would like to hear it. I see no reason why this should not be duplicated many a time on the rich farm lands of Ontario.

N. F.

Ontario Co., Ont.

Careful Plowing and Furrowing.

Editor "The Farmer's Advocate":

Conserving moisture in dry weather with grain crops is quite a problem, where the cultivator cannot be kept going and no underdraining has been done. In most cases such land has either been seeded far too wet or too late in season for a good crop, and unless a very favorable season ensues, the crop is sure to suffer a great deal from drouth. If too late seeded, the crop is almost sure to suffer likewise, as the growth is not rank enough to protect the surface from drying out too deep, and the crop suffers from the effect. If, on the other hand, it was too wet when sown, the tramping while working on it leaves it in very bad condition to stand the drouth later on, and also in bad condition for next crop, as, if not seeded to clover, it is sure to plow very lumpy, and is hard to work.—It is needless to say anything about root or corn land, as it is generally understood that the constant use of the cultivator is the only means of retaining the moisture needed for the crop, but, with grain crops, the preparation has to be made before sowing, and the early seeding of spring crops is decidedly the best, and, everything being equal, can be counted on to give the best yield of grain. Where no underdraining is on the farm, these fields can be got dry enough considerably earlier by plowing good even ridges not too wide, about 18 feet, with plenty of water furrows well cleaned out and good ditches to carry the water away. These water furrows will fill in very easily when working the field in spring, and will not bother machinery, and they will have acted a good part through the winter and early spring. So put in plenty of them; it is time well spent. Now, with one field, at least, to be able to get an early start in the spring, try the old plan of plowing after harvest, and working it down to kill weeds, etc. No better plan is known for twitch-grass. Then, late in the fall back-furrow, as it is called, or, rather, drill the field up, same as for roots, by making a drill with every furrow. The water gets off this land very early in spring, and the frost has left the high furrow very fine and mellow, and it readily works down to a fairly level surface. This field can be sown early, and will stand a lot of drouth and not suffer, providing it has had plenty of cross furrows through the drills to carry off the surplus water, and was also cross-furrowed again after seeding. The extra work given this field will pay well, and also give a fairly clean field. It helps do away with the summer fallow, which is too expensive, necessitating two years for one crop. Life is too short for that.

The roller is a very useful implement, but should be used before sowing. If used after sowing, the harrows should follow it, so as not to leave a smooth surface. Good honest plowing, with well-shaped ridges not over 18 feet wide, with plenty of water-furrows well cleaned out, are great advantages, as the surplus water has to get off very rapidly in order to get the land in shape to make a fine seed-bed, the most essential part in retaining moisture later on for the growing crop, as the grain germinates more quickly, and the top soon helps the roots. But the surplus water has to be gotten off quickly in order to have the land work right, and it must work right when sown, or the crop will suffer if the season is dry.

JOS. DOUGLAS.

Brant Co., Ont.

Fall Plowing and a Fine Seed Bed.

Editor "The Farmer's Advocate":

I cheerfully comply with the editor's request to send in a note of observation in relation to methods of tillage and crops in the present season, which was remarkably warm and dry in our locality during May and June. At this date (June 18th), the oat field on which was grown a big crop of corn last year makes a fine showing both for straw and grain. All excepting a narrow strip on one side was plowed about six inches deep last fall. The oats on the spring-plowed part have not done nearly so well as the rest, though plowed about the same depth and all equally well worked otherwise at seeding time. It was all seeded to clover, and what has arrested my attention particularly is the fact that the catch on the strip plowed in the spring has had a hard struggle, and may yet be a failure, while, on the other portion of the field it has made a splendid start. So far as my observation goes on a clay-loam soil, good fall plowing is the best preparation for spring grain in a dry year, with the most thorough preparation the seed-bed can be given.

OBSERVER.

Middlesex Co., Ont.