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THE SURFACE CULTIVATION OF CORN AND ROOT LAND

Hy. Glendinning, Ontario Co., Ont.

**Thirty Years of Experience have shown that it is Not Advisable to Plow Such Land, save in Exceptional Cases.
Some Misconceptions of Different Methods Set Right**

THE discussions that have been carried on for some time in Farm and Dairy on "Deep Plowing vs. Surface Cultivation," have been of great interest to me. There appears to be a lull in the discussion just now, and as some of your correspondents asked for the experience of some of the older men upon the subject, I may be permitted to say a word in that class, as I can scarcely be called a boy any longer.

I shall endeavor to give you some of my personal experiences. Our land is a clay loam running to stiff clay with a good depth of humus on the surface. This section of the country as a whole possesses one of the deepest soils in the province. As a boy I was taught to plow deep and straight and to lay the furrow up at the proper angle; the deeper it was plowed the better. The land being new and the soil deep we grow good crops.

FIRST EXPERIENCE.

My first experience of sowing grain and grass seed on ground that had grown roots the year previous without plowing, dates back over 30 years. To some extent it happened by accident. The fall previous to this when busy plowing down the turnip tops, frost came when the field was about half plowed. It stopped the work. The field was the earliest on the farm and in the spring I was waiting anxiously for the snow to get away from the fences, so that I could get to work and plow the remainder of the field. I went out one forenoon to see in what condition the land was. I found it fine and dry except some spots where snow banks had recently melted.

In walking over the field I found the plowed and the unplowed land equally mellow. I began to ask myself the question, what will I gain by plowing this land? After some hard thinking I decided to sow the piece without plowing. I must confess that I had some misgivings in the matter. There were no disc or spring-toothed cultivators in those days, but I had a Broadcast Seeder made at Oshawa. I got it out that afternoon and used it as a cultivator, going across the plowed and unplowed land without sowing the grain. I worked up a fine tilth over the whole field and the next day sowed it to spring wheat and seeded it down with red clover and timothy. I probably never watched a crop come up and grow with greater interest than that one.

THE RESULTS.

In the early stages of growth little or no difference could be seen. At maturity one could see that the wheat on the unplowed land was a little taller and heavier. However the whole field was a fine crop. The season had been fine for wheat production; the weather had been fine but rather dry. The greatest difference could be seen when the wheat was cut. The catch of clover

or on the unplowed land was such that the reaper cut the tops off the clover plants, while that on the plowed land was not as high as the stubble.

As one swallow does not make a summer and as one experience should not determine a man for all time, I tried the next fall by plowing every alternate ridge of the land where I had grown my roots. The field was sowed to spring wheat and seeded with clover and timothy, with results similar to the year previous. Since that time I have never plowed land that has grown roots or corn before sowing, except when there was a spot of quack grass that had not been destroyed; that we plow lightly as the grass roots can be more readily worked to the surface with the spring toothed cultivator and harrows. We have quack grass, but do not think that shallow plowing is responsible for it. I purchased a farm four

Brought Big Results

Ed. Farm and Dairy, —\$5.00 spent in advertising in your valuable paper brought me sales of Holstein cattle to the value of nearly \$1,000. When I have anything more to offer, I shall be pleased to use your columns.—A. E. Hulet, Oxford Co., Ont.

years ago that had been rented continuously for over 50 years and under many tenants. This farm is badly infested with it.

MR. RENNIE'S SYSTEM.

In reading the letters of some of your correspondents it appears to me that they think that Mr. Rennie's system as taught by him consisted only of shallow plowing and ribbing. The shallow plowing and ribbing is only a part of his system. They state that they had to use the plow to break up and pulverize the soil. When the land is seeded to clover every three or four years they will find it is not necessary to plow deep or use a subsoiler of any kind to pulverize it. The clover roots go deeper into the soil than any implement has ever gone yet. In a field that has a good thick stand of clover the soil has been moved by the action of the roots to a greater depth than any plow ever penetrated. Farmers are all familiar with the action upon the soil of a crop of carrots, or sugar beets grown in drills. It has been observed then that the ground is split from one end of the field to the other by the action of the root growth. With the clover we have the same force applied evenly all over the field. This is not so visible, but is no less effective. The lateral roots are thrown out on the sides in great numbers which break up and pulverize the soil in the best possible manner. During life these roots have gone down deep into the subsoil and

have brought back the mineral elements consisting principally of lime, potash, and phosphoric acid, that was far beyond the reach of ordinary farm crops. After the death of the clover plant the spaces that those roots occupied make excellent drainage and allow the air to pass down into the soil, thus giving all of the advantages of deep mechanical cultivation without any of the disadvantages of bringing up any of the cold barren soil to the surface. This is all accomplished by calling to our aid the forces of nature, requiring less horse flesh and labor on the part of man and wear and tear upon implements.

APPLYING MANURE.

In applying manure we aim to keep it as near the surface as possible. Here it rapidly becomes available for plant food through the action of the air and the bacteria that work near the surface. This with the clover roots and stubble gives us a larger amount of humus on the surface, makes the soil warm and retentive of moisture, and is the ideal seed bed for grain or grass seed.

As to being troubled with corn roots: When we have to plow any piece of corn land as stated before for quack, that is where we have the greatest trouble with roots and rubbish. We do not find that the spring toothed cultivator brings many of them to the surface, when they are not previously plowed under.

DEEP PLOWING OF MANURE.

I well remember when we followed the deep plowing in of manure. The next year we would plow up the manure from the bottom of the furrow only partly rotted, and the portion that had decomposed was largely beyond the roots of ordinary farm crops, as the majority of our grains and grasses are surface feeders. One day in the fall some years ago a neighbor came to me and asked how it was that our teams could plow so, while he on the other side of the fence had to give up plowing stubble on account of it being so dry and hard. We went together to investigate. We found that in our soil the land had a fair amount of moisture and was turning up mellow and nice, while his was dry and hard. The reason was we kept the manure near the surface, never plowing more than four inches deep and seeding with clover, every three years. On the other hand his land had been plowed seven or eight inches deep and the manure had been put down there for 50 or more years.

While we have not plowed root or corn ground as a rule for over 30 years it is only about 15 years since we started the shallow plowing as advocated by Mr. Rennie. Some years ago I purchased a subsoiler that was drawn by four horses. This implement broke up the subsoil without bringing any of it to the surface. I soon found that the clover was much more effective than my four horses.

RIBBING IN THE FALL.

We do not always rib in the fall for the reason that we do not always have time, but I am much in favor of it. By ribbing we can get on a field in the spring several days earlier, the land does not wash and it is finely pulverized by the action