

THE FARM

Field Root Culture

By SIMPSON RENNIE.

In this country, where dairying, stock raising and feeding are carried on extensively, the root crop is of great importance. To be successful in its production there are certain details to be observed. In the first place, a field from which a crop of clover has been taken is the best for roots of any kind, especially if it has been manured and plowed the previous fall. After a clover sod the weeds will not be troublesome, and the land will be much looser than it would be after grain. For mangel wurzels or sugar beets, the land should be plowed a second time in the fall. If this is done, would not plow in the spring, especially if it was clay, but would work the soil deep and mellow with cultivator and harrows. Never attempt to work clay land for roots when it is so wet that the soil will pack. Light land may be manured and plowed in the spring, but in no case should spring plowing for roots be deep. After the land is well worked with the cultivator, harrowed and rolled, drill or mark the land off 28 or 30 inches apart, but the drills should be shallow. Some root growers sow on the flat, but this is a mistake. When sown on the flat or level, the scuffling can not be done so soon and the thinning is rather more tedious. When the drills are made, sow at the rate of about four pounds of seed to the acre, according to the condition of the soil. After sowing and when the land is dry enough, or so that it will not bake with the sun, roll the drills lengthwise with the ordinary land roller. This must be done if a full stand of plants is to be obtained, as to assure full germination of the seeds the soil must be pressed down firm over them. As soon as weeds begin to show start the scuffler between the rows, for there is no time when weeds are so easily killed as they are in the early stages of their growth, and at the same time the early stirring assists in warming the soil and invigorates the plants; when mangels or beets have started to put on the first few leaves it is time to begin thinning. Where the soil is rich, mangels can be thinned out to about 20 inches apart, and for sugar beets 18 inches, although on poor soil they may be left rather closer. After the thinning is finished the land should be well worked between the rows, and this working should be increased in depth as the season advances, until there are several inches of loose soil. This deep stirring will conserve moisture in dry weather when most required and at the same time allow a free circulation of air down to the roots of the plants. Where land is in fair condition when roots are put in, there is no necessity for cultivating deep in the early stages of the plants' growth, for usually at that season there is sufficient moisture in the soil to supply their wants. I find few scufflers suitable for the proper stirring of the soil. For this purpose long slender steel teeth are required to go down deep and at the same time leave the surface of the ground between the rows smooth and level, as though it was harrowed. The proper time to do this scuffling is after each heavy rain. Do not go on the land immediately the rain ceases; wait until the surface has dried sufficiently, so that it will work fine; but do not delay until it becomes so dry that it will break up lumpy. In scuffling deep, late in the season, be careful not to disturb or loosen the growing roots, but rather narrow in the scuffler, keep-

ing a good depth. This store of loose soil will change the entire condition of the subsoil, and any variety of roots will do much better than under shallow or ordinary cultivation.

The preparation of the soil as above outlined for mangels and sugar beets can be recommended for Swede turnips, but the time of sowing should be about the 12th June, according to location. Make the drills shallow and about 28 or 30 inches wide, sow 2 pounds of seed to the acre, and thin to about 18 inches. On poor soil they may be left rather closer. Turnips require good cultivation between the rows, but as they are shallower feeders it need not be so deep as for mangels or sugar beets.

Commercial Fertilizer Test

I am sending you a photo of a field upon which I experimented with fertilizers, namely, one-third acre treated with 150 lbs. phosphoric acid, one-third acre with nitrate of potash and phosphoric acid mixed half and half. Both these plots had 60 lbs. of nitrate of soda applied after the grain commenced to come up. The field was worked in the same way and sowed at the same time, no extra work being put on plots. The results were most marked, as can be seen in photo, which was taken just before cutting. The plots treated ripened fully one week earlier. I staked off three 1/3-acre plots; 1st plot yielded at the rate of 80 bushels per acre; 2nd plot at the rate of 60 bushels, and the 3rd

on lands which although properly tilled failed to yield proper returns. Some remarkable changes are on record in that country. To some extent the same need exists in parts of old Ontario, which has now gone through 70 or 80 years of continual cropping, until it refuses longer to respond. Would it not be a real help if some one could tell the owner just what his soil now lacks. With few exceptions our only recourse in the past has been barnyard manure, but in some cases this cannot be furnished and besides it may be a single ingredient is lacking which could be much more easily supplied in some other way. The one place to which we naturally turn for such assistance is the agricultural college. The writer knows so-called good soil, well drained and well tilled, yet which, while it produces straw in abundance fails in a proper yield of grain. It probably lacks some ingredient which might be artificially supplied. As the country becomes older more of this will appear, and it would without doubt, add to the popularity of the college if assistance could be given along this line.

In this connection we cheerfully and gladly commend the recent action by which the farmer needing direction in drainage can receive it free of cost on application to the proper officers of that institution. All such forms of assistance become a service not to an individual merely, but to the people generally. The indirect advantages of such work can never be accurately measured, but they are always considerable. Can the college announce help for those who need it in this direction also?



Field showing effect of fertilizer as described

plot, no fertilizer applied, 30 bushels. It was a clay soil. This experiment showed me that the yield had sufficient potash, but was lacking in phosphoric acid. I believe that if farmers would test their land in this way they would then be in a position to know just what their different fields lacked. If our soils need phosphoric acid we will not get plump, heavy grain. No doubt, where clover has been grown in rotation for several years the soil is rich enough in nitrogen, but it may lack in phosphoric acid to assist in making a stiff straw and heavy grain. Most clay soils have enough potash in them, but sandy soils are short of it, as a rule. I might just add that the straw on the plot that yielded 80 bushels per acre stood up strong, while in other parts of same field, with same kind of grain, it lodged badly.

JNO. CLARK.

Brant Co., Ont.

Field Crop Competition

The Ontario Department of Agriculture, through the Superintendent of Agricultural Societies, has announced a field crop competition in agricultural societies, which, if properly taken hold on, will do much to increase the value of farm crops in the province. \$1000 has been appropriated for prizes in these competitions, \$100 to each of the first ten societies filing application with the Department and agreeing to the terms of the competition. Each society shall decide upon one or two crops for competition that are of the most importance to the farmers of the district. Every field entered for competition must consist of not less than five acres. The following crops are suggested: Spring wheat, white oats, barley, dent corn, flint corn, alsike clover, red clover and potatoes. Only members of the societies shall compete and shall be allowed to enter in the competition of only one society and make only one entry in each competition. Where societies limit their competition to one kind of crop, the Department will advance \$70 to be distributed as follows: 1st, \$25; 2nd, \$20; 3rd, \$15; 4th, \$10. Where societies have competition in two kinds of crops, the prizes shall in each case be: 1st, \$30; 2nd, \$15; 3rd, \$10; 4th, \$5.

A Growing Need for Testing Soils

Hon. Mr. Dryden, who is at present engaged in London, England, in completing the report of the committee enquiring into the Department of Agriculture in Ireland, in a former letter to this paper spoke of help given to many workers of the soil in that country by officers of the Department of Agriculture testing, by examination, the soil