

turnips at any rate, the method employed being at the same time fairly expeditious.

Turnips being grown on the flat in drills, the tools required to harvest them are a sharp hoe, a fork, a potato digger and a manure spreader. The spreader has to be one of the kind the apron of which can be unwound by a hand crank supplied with the machine.

When ready to take up the turnips begin by using the hoe for topping them, just as they stand in the row. When enough have been done for the first day's work hitch on the digger, and, having set the machine to the required depth, root out about what amount will be safely housed before night. Then, with forks, go up and down the field, leaving the roots in regular rows so that they will all be exposed on the top of the ground and in the most convenient form for loading. This work should be done in the forenoon if possible, so that the roots may be exposed to the sun and wind during the noon spell, thus giving the attached soil an opportunity to dry and put it in condition to shake off in the process of loading and unloading.

Now take the beater off the manure spreader, and commence hauling to the root-house. Throw the turnips into the spreader by hand, choosing the windward side to avoid dust. In this connection the direction of the wind should be noted when starting operations in the morning, so that the benefit can be had without driving on the undug roots.

To unload, nothing is required except a strong arm to wind out the load, unless access to the root-house is inconvenient, in which case a box as long as the spreader is wide and holding about 200 pounds, should be used. This box should have handles at both ends and can be carried by two men.

My root-house is under the driveway to the barn, and to unload it is only necessary to drive on to the barn floor and lift up a trap door behind the load. Under this trap door is a removable chute with a slatted bottom. The turnips roll down almost to the back of the house, the soil falling through the slats as the roots descend.

The digger mentioned is a two-horse machine that sells for about \$18.00. This style of digger does not do particularly good work in either potatoes or turnips, but it is much better than a plow, and very much easier on men than hand pulling or digging with a fork. The large expensive four-horse diggers do capital work, but cost more money than most farmers care to spend. I have read of a common harrow being used to pull turnips, but have never tried it here, as I know it would not be the slightest use because the turnips always have a strong hold in the ground.

To harvest mangels and sugar beets, it is necessary to pull by hand, topping with a knife one inch from the neck, or twisting the tops off by hand.

I prefer to grow Swede turnips for all classes of stock, because they will stand quite a hard fall frost without injury, provided they are left in the ground to thaw out before being dug. They keep better than mangels or sugar beets, and if properly housed, will remain sound until grass comes again.

They can be fed to dairy cows in quite large quantities without tainting the milk, provided that they are pulped twelve hours before being fed, and the feeding is done immediately after milking.

Man.

A. COOPER.

## Growing, Storing and Feeding Roots

EDITOR FARMER'S ADVOCATE :

Apart from ensilage, roots are a prime necessity for economically producing milk or beef in winter, and even with ensilage I find roots, either as a supplementary or alternate feed, to be fully worth the trouble of growing and storing.

This season has been a very favorable one with me for roots, the quality being very fine, though the yield is not quite so large as some years. This is attributable to later sowing and the peculiar season; all rain coming in July, with excessive heat in June, August and September. The roots have ripened from three weeks to a month earlier too, and we were harvesting turnips at the end of September, which usually would have given us three weeks more growth.

I contrive to make roots the second crop, after an application of manure, and to have the land fall-plowed and sub-soiled. This helps the crop on my stiff, clay land, and the succeeding crop also. My seed this year was of superior quality. It germinated and came along very quickly. Of mangels I had four varieties—Garton's Yellow Intermediate, Yellow Mammoth, Red Mammoth and Intermediate. They were sown May 21st, with several varieties of



CUTTING ALFALFA ON THE FARM OF A. COOPER.

Garton's Swedes on May 24th. There is little to choose between varieties. The Superlative Swede is generally the handsomest root, and best for table use; the Monarch Swede a little the heaviest yielder.

Nothing beats the hand drill for sowing small acreage, the saving on seed and time, and the ease and certainty with which the work is done soon pays the \$10 or so the implement costs; besides it can be used to sow nearly all garden seeds, better and quicker than by hand. The very best seed should be obtained, and it should be new, as it germinates quicker, and the rows showing may then be kept clear of weeds and the plants get a show from the start.

My experience is that, outside the season, the weight of crop depends on the seasonable thinning of the plants, and the thoroughness of the cultivation given. After all weeds are killed keep on cultivating to keep the surface fine and moisture and air circulating. Mangels are rather tedious to single, owing to four or five being enclosed in the case sown, and they often come up entwined together, or so close that very careful work is necessary to separate them. Swedes may be almost entirely thinned and singled by use of the hoe, if done at the right time, and this being done, almost all subsequent work can be done with the one-horse cultivator until harvesting. How this is done will depend.

If long keeping is not desired, and the tops are to be plowed in, or the cattle allowed to eat them off the field, a quick and expeditious way is to cut off the tops as the roots stand

in the row, and tear out the roots by running the spike harrows over the rows. Roots harvested by this method won't keep till the following July, however, and milk is apt to be tainted if cows run on the field and fill up on the tops.

I prefer a slower method, and we are now harvesting our crop this way :

Walk about three yards along the fifth row, start here to pull and pile, and from this center throw till you have cleared five rows six yards, and so on. The wagon draws up at the pile; the roots are topped and thrown into the wagon-box, which when full is drawn to the chute in cellar. The roots are unloaded into the chute with a twelve-pronged vegetable fork or scoop, which will lift thirty or forty pounds at once.

All that remains is to see that the cellar is well ventilated until freeze-up, and that the mass of roots, earth and rootlets close to the chute is broken up, and the earth, etc., removed.

Following this plan we have kept roots into May, but unfortunately have never had sufficient to carry us further. As we are in the business of producing cream, we are careful of the time and quantity of Swedes we feed, and during eighteen years have had no complaint of taint, and if all milking is done, and milk taken out of the stable before the roots or ensilage is fed, unless a very excessive quantity is given, there will be no taint.

Man.

J. H. FARTHING.

## DAIRY

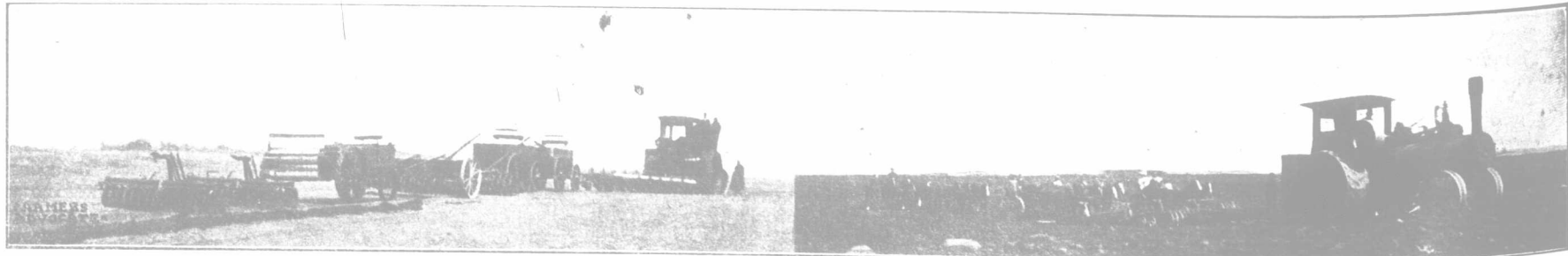
### Dairy Stock in British Columbia

At a recent meeting of the directors of the British Columbia Live Stock Association the matter of improving the dairy stock of the province was discovered. It was pointed out that dairying had made such rapid strides, and the possibilities were so great that every effort should be made to promote the industry. The association endorsed the proposition of the Dominion Department sending a shipment of dairy cattle to British Columbia, and it asked that at least three cars of stock be sent. It was decided that the cup given by the Provincial Government be held for a commercial dairy competition. This competition is to be held during the coming year, and they hope by it to encourage the keeping of better dairy stock and the practice of better dairy methods in the province. A gold medal will also be given with the cup, and a silver and bronze medal is to be given for second and third placing. More particulars regarding the competition will be given out later. The association asked that the Government appoint a creamery inspector at the earliest possible date.

### Dairy Commissioner's Report

The report of the Dominion Dairy and Cold Storage Commissioner for 1908 has been issued. The records of the cow testing work are given in some detail, and it is the intention of the commissioner to extend the scope of the work by encouraging owners of herds to keep a record of the feed consumed by the individual cows, or at least a record of the average cost of feeding the herd.

In the part which covers the cold storage work of the branch, particulars are given of the bonuses for creamery cold storages and the various iced car services arranged for with the several railway companies. The arrangement made, by the Department for the reservation of cold storage chambers on certain steamships for the carriage of



IMPLEMENTS FOR EXTENSIVE FARMING

Traction engine hauling gang plow, two wagons, pulverizing packer, seed drill, manure spreader and two disk harrows, at Highnam Farm, Saskatchewan; and some of the implements at work a short time afterwards.