

yield the following year. A temperature of about 40 degrees should keep potatoes from sprouting and yet keep them in good condition. Potatoes that show signs of rotting should be separated from the rest.

#### DIGGING MACHINES

A farmer who grows only an acre or two of potatoes can make a splendid digger at but slight expense. Secure an old plow that has been cast aside. Take off the mould-board and attach the two handles to a standard. Get your blacksmith to make an attachment that will go on the sole of the plow and have four prongs, extending out behind the plow and slanting upwards with an elevation at the back of about eight inches. This will make an excellent and cheap potato digger.

Where potatoes are grown more extensively a more expensive digger will give better results. A digger with a large revolving wheel behind, that I have used has given me good satisfaction. It is not wise for the average farmer to buy very large diggers as they require too much horse power and they are too complicated. Two teams of horses are required to work them properly.

#### Preparing Colonies for Winter Quarters

W. J. Hollerman, Brant Co., Ont.

The time to prepare bees for winter quarters is now at hand. Next year's honey crop depends largely upon the condition in which bees emerge from their long confinement.

Each hive must have a queen at this season of the year. If a stock of bees is queenless when put away for the winter we are certain of losing it before next year's honey season. The quickest way to make sure a hive has a queen, is to pull out one or more of the centre combs from the brood chambers, and examine them. If eggs are laid uniformly in a cluster at the bottoms of some of the cells, we may be sure a queen has been present within at least three days. If no eggs are

located in these buckwheat, goldenrod, etc., are to be found, the drones are allowed to remain much longer in the hive, than is generally the case. However, there is very little chance of suitable weather so late in the season.

#### REQUEENING THE COLONY

The beekeeper who depends largely upon his colonies for a living, either has young mated queens ready for just such an emergency, or has ordered a few from a queen-breeder, and introduces these into his hives. September is a good time of year to supply young mated queens to colonies, whether queenless or not. Queens may be obtained through referring to advertisements in any of the leading Bee Journals.

After we are assured that the hives have each a good laying queen, the next consideration, and probably one of as much importance, is to make sure that each colony has an abundance of fresh capped stores for winter consumption. Old honey should not be allowed to remain in the hives from year to year as there is a great danger, of a large percentage of pollen being in it and pollen is the chief cause of dysentery, and consequent loss of bees.

One of the worst enemies to wintering bees successfully, is honey dew. This is produced by a plant louse, which is often found upon the under side of oak leaves. When the louse has eaten its fill it squirts a drop of sweet liquid upon the leaves under it. Bees, probably attracted by the smell, gather this honey dew. Oak trees seem to be alive with bees, when much honey dew is present. Honey dew has a dark, almost sooty appearance, and when much is present most of the honey should be extracted and sugar syrup fed in place of it.

#### MAKING THE SYRUP

To make the syrup take two parts of granulated sugar to one part water, heat over a fire until the sugar is all dissolved. Then bring it to a boil. It should be kept from burning by frequent stirring. To feed the syrup, place a quilt over the tops of the combs in the brood-chambers, then place a super on top of this, and after turning one corner of the quilt back a couple of inches, set a pan of warm syrup in the super. Throw in some straw, or sticks of wood for the bees to stand on while they are taking the syrup. Cover the whole over with another cloth and then place the cover on the super. Be sure the super and brood-chamber fit tightly, as a crack large enough for the entrance of one bee may mean the loss of the entire colony through robbing.

An eight-frame colony of the Langstroth type should weigh at least 60 pounds, before being packed for the winter, whether wintered outside or in the cellar.

There are many arguments as to whether bees do better, in the cellar or packed in outer-cases. However, it is acknowledged that if they are to be packed outside in outer-cases, a thickness of from six to eight inches of forest leaves is necessary around the sides of the hive. An entrance should be kept by putting a bridge around and over the entrance, to allow a free passage of air

into the hive, and also to allow the bees to dispose of their dead as well as to take every opportunity to fly. The more flights the bees have during the winter and early spring, the less likely they are to have dysentery. It is well to have a straw mat, or a cushion packed with leaves, placed over the tops of the quilt over the combs; then the cover is put on top of this. The mat absorbs the moisture that condenses over the tops of the combs and keeps the bees dry and warm.

If possible the entrances should be turned toward the south. This is impossible when four hives are packed together, as a great many winter them. A sheltered place, where the snow does not drift in is a very suitable location for wintering.

#### WINTERING IN THE CELLAR

A clean dry cellar where the temperature varies but slightly, and where the bees will be little disturbed, and kept dark, is a very suitable place to winter bees. It is less work to simply carry the hives into the cellar, remove the combs, place a straw mat or a cushion of shavings or leaves over the tops of the combs,—not removing the quilt, then pile them one above the other, leaving the covers off. The entrances of the hives must be kept free from dead bees. This may be done by very gently taking a wire or similar tool, and running it along in the entrance thus seeing that it is free from blockage. The temperature of the cellar should be kept about 42 degrees F. if possible. No light should be allowed to get into the cellar as the bees will fly to it and become lost. When cleaning entrances or in the cellar with the colonies, a candle should be used for illuminating purposes.

#### A Promising Improvement in Mangels

H. C. Duff, O. A. C., Guelph

The results of experiments at the Ontario Agricultural College, point towards the possibility of a farmer producing his own mangel seed with profit.

In the fall of 1906, a few desirable mangels were stored away at the college and were re-planted in the spring. From seed thus obtained, plots were sown in 1907, which gave yields ranging from 29 tons to 83.6 tons an acre. The three highest yields were 53.6, 50.9 and 49.2 tons an acre. For the same year the Yellow Leviathan which has proven to be the best yielding European variety, gave a yield of 39.7 tons an acre. Such a difference is striking, and should induce farmers to experiment in this direction.

Very few roots would be required to produce the quantity of mangel-seed sown by the average grower. One plant yields, under favorable conditions of soil, temperature, etc., a large amount of seed. The soil at the college is a clay loam but, from experience in growing sugar-beet seed, we believe that light soil forces the rapid formation of seed just as the girdling of an apple tree forces the rapid formation of fruit buds.

Most of our mangel seed is brought from European countries where the winters are free from heavy frosts. In such climates the roots are left in the soil during the winter months and accordingly little labor is involved in harvesting the seed. In our severe climate, mangels grown for seed must be stored away in the fall and re-planted in the spring. The extra labor involved is likely to prevent the production of Canadian seed for commercial purposes.

While the area of the turnip crop in Ontario, is almost 15,000 acres less this year than it was in 1906, it is significant that the area of mangels has varied very little in the same period. Being immune from such pests as the turnip louse and blight, mangels are growing in popularity with every prospect of becoming our main root crop. Consequently any improvement that can be made in the yield of the crop is worthy of attention.

Photographs and articles are always welcomed for publication in these columns.



THE CANADIAN DAIRYMAN AND FARMING WORLD.

#### Morton Mains Southorpe (Imp.)

1st in Junior Yearling Class and Diploma for best Ayrshire male at Halifax, N. S., and St. John, N. B., exhibitions, 1908. Owned by G. A. Archibald, Truro, N. S.

present, but instead young grubs or capped brood are to be found, we may yet be fairly certain that the hive has a queen. In such a case she has probably stopped laying, owing to the lack of honey for brooding.

To the person who merely keeps a few colonies for his own table honey or a small quantity of marketable produce, requeening is an almost impossible proposition, for this season. If a comb of young brood and eggs is given the queenless colony, the young queen, taking three weeks to hatch from the egg stage, will arrive too late in the season to be properly mated, although in some