

APIARY.

September Work in the Apiary.

When the wind is blowing over the oat stubble and Jack Frost is causing the pumpkin and other tender vines to wilt, these and other gentle reminders of winter should cause the beekeeper to recollect that his bees will need food and protection to carry them safely through the long winter months, till the time comes that they can again gather their own living.

While some delay feeding till quite late in the fall, in my mind there is no question but that all stores should be in the hive not later than Oct. 15th, preferably before that date. As soon as the supers are taken off, an examination should be made of each colony, to ascertain just how much each lacks to safely winter on. As all queenless colonies should have been attended to ere this, there will be no need of unduly disturbing the brood chamber. Colonies that have been run for comb honey, generally have sufficient honey in the brood chamber to winter on, as also will be the case with a number of colonies run for extracted honey, provided the hives are as large as the 10-frame Quinby. In my limited experience with the 8-frame L. hive, I have found that almost always they require to have their winter stores supplied them. If the bees are in single-walled hives, the surest way to ascertain how much each one needs is to place the hives on the scales. However, the experienced apiarist can generally tell, by looking at the combs or lifting the hives, just about how much they will require for their needs. Be sure to err on the safe side, and rather give them a little more than a little less than they actually require. Never mind if there should happen to be a lot of unused stores in some of the hives in the spring; it is good "stock-in-trade," and can be used to advantage later on in the season by being converted into bees to gather the expected flow of honey. Twenty-five pounds of sealed stores is generally said to be sufficient to winter a colony on. While that amount may be all right for cellar wintering, experience has taught me that for wintering outdoors it is not enough sometimes, so I now see that each colony has from thirty to forty pounds, often a little more. If sealed combs have been set aside in the honey harvest, it will be a very easy matter to feed the bees. However, that method seems to be quite an expensive way, when good honey is worth what it is to-day, and when we consider that good sugar syrup (excellent for wintering) can be provided for at less than half the cost of honey.

In preparing the sugar syrup, I simply empty a 100-lb sack of granulated sugar into a large tank, then pour about 60 lbs. of boiling water on it, and stir till all is dissolved. Some add a small quantity of honey to the syrup; others put in a little tartaric acid; the object in both cases being to prevent granulation. While honey or the tartaric acid certainly do no harm (probably they do some good), yet I have never found it necessary to use anything but the pure syrup, and at different times fed colonies their entire winter stores of the same, and had them to invariably come through in good condition.

A very important item in connection with giving the bees their winter stores, is to give it to them quickly when once you start. Don't extend the feeding over a week or longer, as this will stimulate the queen to lay and a lot of the syrup will be consumed in raising brood, which is undesirable at this time of the year. An average colony will carry down at least 15 lbs. during a night, so all any swarm will need can be given to them in at least two different feedings.

Of all the different feeders on the market, the "Miller" is undoubtedly the best for fall feeding, as it will hold a large quantity at once. However, a large dish placed over the brood chamber, inside of the super (same, having combs removed), will answer the purpose just as well. Straw, grass or small sticks should be thrown on top of the syrup, for a float for the bees; and, of course, an opening will have to be made through the quilt or board, for the bees to get through.

Be sure and attend to this matter of feeding in time, as many colonies are lost each winter by having unsealed fermented stores in the hives, which condition is generally brought about by late feeding, as the bees have no chance to seal the stores before cold weather sets in.

York Co., Ont.

J. L. BYER.

It is worthy of note that in the experiments carried out during the past few years in connection with the Agricultural Department of the Durham College of Science, at Newcastle-on-Tyne, better crops of turnips have been grown by suitable mixtures of artificial manures than by 12 tons of farmyard manure. In the wet season of 1900 the artificials gave the best results on eight farms out of ten, while in the dry season of 1901 the artificials gave the best results on seven out of the eleven farms in which the experiments were conducted.

GARDEN AND ORCHARD.

Cold Storage of Fruit.

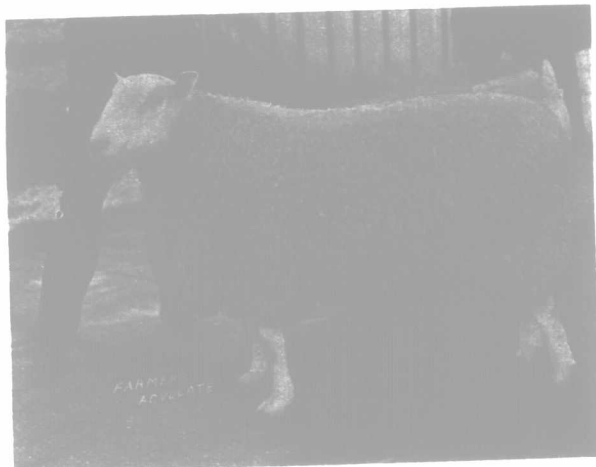
The latest bulletin to be issued from the Ontario Agricultural College is No. 123, by Profs. Reynolds and Hutt, giving the results of a series of experiments which were conducted in the autumn of 1891 to determine the keeping quality of apples and pears in cold storage. Three conditions were chosen: i. e., different temperatures; different sizes of fruit; and different styles of packing.

One variety of pears, the Duchess, and one of apples, the Fameuse, or Snow, were used in the test. Only first-class specimens were chosen, and all were packed in the orchards, according to directions from the Department of Physics, and immediately shipped to the cold-storage warehouses in Toronto and St. Catharines.

The pears arrived at the cold-storage warehouse about Oct. 1st, and the apples about Nov. 18th. Owing to some blunder at the Toronto warehouse the section of pears that was being held at the low temperature was shipped out before being examined. For the pears, therefore, we have only one temperature to report upon.

THE EXPERIMENT WITH PEARS.—The plan in detail was as follows: The fruit was packed in two similar sections, one section to be held at a temperature of 31°, and the other at a temperature of 38°. Each section was re-divided into two subsections identical in style of packing, the one containing large pairs, the other medium-sized pears. In each of these subsections there were five boxes of pears, packed as follows:

- With pears only, no packing or wrapping.
- With excelsior (a sort of shredded wood) at bottom and top of pears in the box.



YEARLING LEICESTER RAM.

Canadian-bred, winner of first and head of first-prize pen, Toronto Industrial, 1902; first and champion at Western Fair, London, 1902; also first at Chicago International, December, 1901.

PROPERTY OF J. M. GARDHOUSE, HIGHFIELD, ONT.

C. With pears wrapped singly in tissue paper, and packed in layers, and excelsior above and below and between the layers.

D. Same as C, with oil-paper instead of tissue paper.

E. Same as D, with heavy wrapping paper between box and fruit, making the box air-tight.

The Snow apples were packed after the following styles:

A. In an ordinary packing case, containing one-third of a barrel, without wrapping or filling.

B. In the case, unwrapped, with excelsior top and bottom.

C. In the case, wrapped in tissue paper, with excelsior top and bottom and between the layers.

D. Wrapped in oil-paper, otherwise same as C.

E. In a barrel in the ordinary way.

This made four boxes and one barrel in the section; and the section was duplicated, one being held at 38° and the other at 31°.

The results are summarized as follows:

1. Apples and pears keep best when wrapped singly in paper, and packed in a shallow box not larger than a bushel. They ship best when, in addition, they are packed in layers with excelsior between.

2. Apples keep better at a temperature of 31° than at a higher temperature. Our experiments do not show what is the best temperature for pears.

3. Cold storage cannot make bad fruit good; neither can it keep bad fruit from becoming worse. Only good specimens will keep for any length of time in cold storage, or will pay for storage.

4. For long storage, it pays to select the best fruit and to pack it in the best manner known. The extra labor and the cost of material are more than repaid in the greater quantity and better quality of fruit left at the end of storage period.

5. With apples and pears at least, and, it seems likely, for most kinds of fruit, the fruit should be picked and stored in advance of dead ripeness. The maturing process goes on more slowly in cold storage than on the tree or bush.

6. With the two kinds of fruit tried, apples and pears, the medium sizes of fruit keep longer than the largest, all being perfect specimens and picked at the same time. It would, therefore, be an advantage, especially with pears and peaches, to pick the larger specimens first, and leave the smaller to mature later.

7. Fruit, on being removed from cold storage, should be allowed to warm gradually, and moisture should not be allowed to deposit upon it. But if the wetting cannot be prevented, then the fruit should be spread out and dried as quickly as possible.

8. With all kinds of fruit, there is a time limit beyond which it is unprofitable to hold the fruit in cold storage, or anywhere else. That limit, for sound fruit, is dead ripeness. Duchess pears can be kept profitably until late in December; Fameuse, or Snow, apples, until March or April. The time limit has to be determined for each kind of fruit.

9. In addition to proper conditions in the storage room, the most important points in the storage of fruit are the SELECTION of sound fruit; GRADING into uniform sizes, one variety only in a case; and careful PACKING. Therefore, the results of these experiments can be made use of by the family, in preserving fresh fruit for their own use, by the fruit-grower, in securing better prices for good fruit later in the season, in the local markets; and by the shipper, in enabling him to take advantage of the higher prices offered in foreign markets.

A fuller report may be had by applying to the Department of Agriculture, Toronto, for a copy of the bulletin.

A Fruit Preserving Process Investigated.

We are under obligations to a valued reader, Mr. Jos. R. Taylor, of Westmoreland Co., N. B., for calling our attention to an advertisement, signed Francis Casey, of a process of putting up fruit, which we received in the ordinary course of business through an advertising agency and which appeared in our issues of June 2nd and 16th and July 1st last. There was nothing objectionable apparent on the surface, or it would not have been accepted, as we reject hundreds of dollars' worth of questionable advertising every month. Mr. Taylor sent the required stamps for the recipe and sample of fruit, which came to hand in due course from the California Fruit and Chemical Co., of St. Louis. The recipe was to take two ounces compound extract of salyx (which they offered at \$1.00 per 2 ozs.), 14 lbs. granulated sugar, and dissolve in 3½ gallons of hot water, and when cold pour over the fruit closely packed in the jars. It was claimed that this mixture was harmless and healthful, and would preserve the fruit for any length of time perfectly fresh. It looked all right, but the sequel tells a different story. Mr. Taylor secured samples of the extract, four ounces in all, and a part of this he wisely sent to Prof. Shutt, Chemist at the Central Experimental Farm, for analysis, whose letter to Mr. Taylor is as follows:

[COPY.]

Dear Sir,—We have carefully examined the sample accompanying your letter of 19th inst., labelled "Compound Extract of Salix," from the California Fruit and Chemical Co., St. Louis, Mo., and find it to be simply salicylic acid. All the tests made are in accord and established beyond doubt the nature of its composition.

Although there is no evidence to show that salicylic acid in the proportions used in preserving foods will act directly as a poison, there seems to be no doubt that it has an injurious effect upon many systems, and is especially dangerous to those with any disease of the kidneys.

Its use in milk is absolutely forbidden on hygienic grounds in most countries. If used in canned or bottled goods, most governments require that its presence and amount must be stated on the label.

Personally, I should advise you not to use it, for even assuming that in itself it is harmless, it is probable that it might retard digestion. I believe the consensus of opinion on the matter, formed by those best qualified to judge, is that salicylic acid cannot be considered a safe and wholesome preservative in articles of diet. Chemically-pure crystallized salicylic acid is quoted at 75 cents per pound, New York prices.

Yours faithfully,

(Sig.) FRANK T. SHUTT.

Chemist, Exptl. Farms.

Mr. Taylor advises us that he was out \$4 or \$5, and asks us to put others on their guard regarding this matter, which we gladly do.