

In some places, especially in parts of the north, the bees are sometimes unable to ripen and seal the honey gathered from aster and other late sources owing to the rapid onset of cold weather. Such unripe honey is liable to ferment, and in this condition it will quickly cause dysentery.

Dysentery and death will also rapidly follow the consumption of winter stores consisting partly of fruit juices gathered by the bees, for instance, from over-ripe raspberries, or from plums that have been punctured by birds or insects, or from blueberries that have been burst by frost. Honey-dew, the excretion of plant lice dropped on the leaves of trees and collected by the bees, is also very injurious, because it contains a large proportion of indigestible matter. Fortunately, it is produced and collected by the bees less frequently and less extensively in Canada than to the south.

The best substitute for unwholesome stores is a pure sugar syrup made by stirring two parts by measure of granulated sugar into one of boiling water and allowing it to cool. This syrup should be given about the middle of September, or in southern Ontario, early in October. This will give the bees time to cap over most of the syrup while the weather is still warm, and to consume enough to form an area of empty cells in the lower part of the middle combs for the winter cluster to occupy before cold weather. The syrup should be given in feeders placed in the hives. A 10-pound honey pail with a number of small holes punched in the lid and placed upside down over the combs makes a good feeder.

In most places the stores left in the hive after the supers have been removed in the fall are from mixed sources, and only fair in quality. They are also usually deficient in quantity. A good and widespread practice is to feed each colony with syrup enough to bring it to a sufficient weight, giving in no case less than about 15 pounds. The syrup being stored close to the cluster is consumed before the honey, and thus the accumulation of feces is delayed.

The quantity of stores to be left or provided for the winter should be estimated liberally. The quantity that a colony consumes varies considerably, and when the stores are inferior, may be more than twice as much as when they are good. Heavy consumption of stores also results from several other causes. Bees wintering outside consume more stores than in the cellar. The most common cause of the death of colonies in winter is starvation by the exhaustion of their stores. As a general statement, it may be said that at least 40 pounds of stores should be left with each colony in order to last it from the time of feeding in September until new honey is collected in the spring. Although the winter consumption may not reach 20 pounds per colony in some colonies, much or all of the surplus will be needed for feeding in the spring.

Since the ordinary factory-made single-walled 10-frame Langstroth hive of eastern white pine, with the combs, pollen, and bees, but without the cover, usually weighs, if dry, between 30 and 40 pounds, such a hive when ready for winter, should weigh between 70 and 80 pounds. In addition to the stores left in the hive, the bee-keeper will be well advised to set aside combs of honey to be given to the colonies in spring.

PROTECTION FROM COLD.

There are two ways of protecting bees during winter—out of doors in cases filled with packing material, and indoors in the cellar. Generally speaking, the packing case is preferable in southern Ontario, the Annapolis Valley, N.S., and British Columbia, in all of which places the winter is comparatively mild, and the cellar is more satisfactory in the north and on the prairies. But in many places, that is to say, in the wide belt where both methods produce about equally good results, a more