

Feed the calf of the best imported stock on record at starvation rates, from the time it is dropped until it comes in and the milk and butter record will fall down to one-fourth of what it would have been, had the calf been generously fed. The enlargement of the milk veins and blood-vessels is the work of time. One generation, or two or three will not suffice to the most perfect development.

Feeding judiciously and generously, not allowing growth to cease from want of food, must be persistent, generation after generation, to secure the highest results.

But do not press this matter of high feeding too far, or a weak progeny, or frequent abortion will be the result. Vitality, in man or beast, is greatly weakened and may be destroyed by an early and persistent stimulating diet. There is a golden mean to be observed, so as to maintain virility, and make good milking at the same time. Feed generously, especially the first year of the animal's growth. With this simple thought carried out, and the use of blooded bulls, the value of the poorest stock in the country would rapidly and astonishingly increase.—Ex.



## APIARY.

### OFFICERS OF THE ONTARIO BEE-KEEPERS' ASSOCIATION.

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By paying the sum of one dollar (\$1) any one may become a member of 'The Ontario Beekeepers' Association, and receive the CANADIAN FARMER one year. Those already members are requested to renew their subscriptions, the same to be sent to

R. G. HOLTERMAN,  
Sec. Treas. of the Association.

### WINTERING BEES.

The following is the Prize Essay, written by Mr. H. Couss of Beeton, which took our \$10 prize, and to which reference was made in a previous issue:

The preparations for wintering should be commenced about the first of September, when it is both necessary and desirable that all weak colonies should be doubled up and strengthened, care being taken that all are supplied with good laying queens of not more than three years of age—of course, younger queens, when all other points are equal, being preferable. The stocks must be kept breeding as long as possible, in order that there may be a sufficiency of young bees with which to go into winter quarters. If there is not sufficient honey in the hive to promote breeding, and the bees are not gathering, they should be fed once a day—in the evening when they are less apt to rob. To make the feed or syrup, take standard granulated sugar and water, in the proportion of two pounds of

the former, to one pound of the latter; bring to a boil, and allow to cool; then feed. Rather the best vessel, in my experience, is a common coffee pot, with a lip-spout, and the most expeditious as well as the simplest mode of feeding, is to raise the entrance end of the hive about one inch above the level; lift the cover and displace a corner of the bee-quilt, pouring in the syrup in quantities of a tea-cupful or less, according to the strength of the colony. On this point considerable care should be exercised as in the case of weak colonies, where they are unable to take up before morning the quantity given them, there is a chance that the other and stronger stocks may begin robbing. I would advance as another reason for feeding in the evening, that, should there be a chance of their gathering natural stores the following day, their hives will be clean and nothing need then prevent them from going out to work, whereas, were they fed in the morning, they would remain at work in the hive and would lose what natural stores they might otherwise have gathered. By this method the hives would of a necessity require tight bottom boards, thus preventing the feed from running out, where bottoms are not so arranged, other means would have to be adopted—such as the use of the different patent feeders, &c., which are in existence. This, however, is by far the cheapest, simplest and quickest mode of feeding, as by proper management, one person can, (with the assistance of a small boy to take off covers &c.) feed from 200 to 300 colonies per hour.

This feeding should be continued until about the first of October, but about the 15th of September, all colonies should be crowded to as small a space as possible, (by the use of the division board) so that when clustered the bees will cover from five to ten frames, according to their respective strengths, selecting always the oldest combs (as they retain the heat better) and those best filled with sealed and other honey, and also containing a good supply of pollen, which latter will generally be found at either side of the brood chamber, and more especially toward the entrance of the hive, taking care to place the combs containing the pollen in about the same position for winter, because in cold weather they are very apt to become chilled (if they have to go around the comb for food) before they can reach the cluster again.

If the bees are to be wintered in chaff or sawdust hives, the space behind the division board should be filled with sawdust chaff, dry leaves or some other absorbent material—the former is preferable as the same thickness of it as of the others will keep the bees in a much better condition, besides being more easily obtained. Before filling in space behind the division board the colony should be examined to ascertain that they are all supplied with queens, and that there is enough space in the lower part of the combs, free from honey on which to cluster as it is not desirable that they should cluster on the honey since the heat is not so easily retained as by the empty combs. At this time any unsealed honey should be extracted, it becoming sour when left standing, and being apt to cause dysentery, care being taken to avoid breaking of the capping. After this has been done and the frames replaced, fasten the division board securely; then pack and place over the top of frames, first, a bee-quilt which is free from "propolis," and then the cushion or packing to absorb the moisture. By placing bee-quilt between frames and cushion you prevent the latter from

receiving any "propolis," or from being gnawed by the bees, thus enabling you to use the same cushion for many years.

If the bees are to be packed in clamps they should be moved each day that they have been flying, from six to twelve inches until you have them in the place designed for them, which place should be sheltered from the north and west winds. Place the hives about six or eight inches apart, with the entrances facing south and so—the former preferred. Then they should be raised up a foot from the ground to allow space for packing beneath, leaving the entrance of hive about one inch below the level to allow any water which might perchance have found its way into the hive, to escape. A channel should be formed the same height and breadth as entrance to hive, and long enough to appear through the packing in front, thus allowing the bees a passage from the outside. Before forming channel the hives should be examined and prepared in the same manner as are the sawdust or chaff hives, also packing behind the division-board and using fresh quilt. A boxing should then be constructed, sufficiently large to allow a space for packing of about twelve inches at backs of hive and ends of clamp, and 6 inches in the front. Some have wintered successfully with less. Proceed with the packing towards evening when the bees are not flying, as if done while they are they will experience more difficulty in finding entrance, whereas when flying out after packing is completed, they will mark the location and have no trouble on their return. The channels must be securely fastened so they will not be easily displaced by the settling of packing or any other reason. When filling tramp in the packing until the top of the hive is reached; then remove the lid and cover the frames with sawdust to a depth of one foot. Cover the whole securely so that neither rain nor snow may penetrate. They will then require no attention until the first fine day during the approach of spring, while the bees are out for a fly, when the hive should be examined—the object being to see that they have sufficient food; if not they should be given a frame of sealed honey, or a cake of sugar or candy, placed over the frames, as at this time it would be too early to feed liquids. The candy is made by same process as syrup, with the exception that the amount of water is diminished. In some cases bees have been fed during the entire winter on this candy and have thrived well; when placed on frames in the fall it is made in cakes six or eight inches square, and about two inches thick, while for spring feeding it need only be about one inch in thickness.

When bees are to be wintered in the bee house they should be prepared in the same process as in out-door wintering, and at about the same time, using the same precautions; they will not then require any more care until the time for removal to their winter quarters, which is generally from the first to the middle of November—in other words just before winter sets in. If, after they have had a good fly, and return with empty stomachs, the following day is cool, and if you are of the opinion that fine weather is past, they should then be housed. First close the entrance by adjusting blocks and slides for that purpose; then remove the cover and place on top of bee-quilt a cushion which may be made to cover the entire top of hive, and about four inches deep of dry sawdust packing. You will then carry hives in carefully, so that the bees

may not be jarred or the comb misplaced. Should your bee-house not be supplied with shelves, place a platform all around the inside wall of the house at a height of six inches from the floor, and the width of the hives. On this place a row of hives extending all around, and having their entrances toward the centre of the room. A space of two inches may be left between hives. On the top of the first row place narrow strips at either end of hives, and on these place another row of hives; so arranged that the centre of hives in the second row will be immediately over space between hives in the first row. Then place strips on top of second tier, and so arranging, continue until all your stocks are in position. Always place at the bottom the strongest colonies, and continue upward in proportion to strength as the weaker ones will be kept a little warmer by this means. The top rows should not be placed at less than a distance of six inches from the ceiling, and if crowded for room a couple of rows might be placed in centre of building, which should be double-walled, with a space of at least eighteen inches, well packed with dry sawdust with the same thickness overhead. A pipe, at least six inches square inside, should pass from centre of ceiling of house upward through the roof, full length of pipe being about ten feet. The foundation must be frost-proof, and there should be an underground ventilator of about the same size as the upper one, running from centre of floor, and having its outward mouth from 100 to 200 feet from building, at a depth to which frost could not penetrate. This would serve as a drain if necessary, and will allow all gases to escape from the bee-house, also acting as a ventilator. By this means the temperature inside is not so liable to sudden changes. It should be kept between forty and forty-five degrees during the entire winter, with as little variation as possible. Should it fall, the upper ventilator should be closed for a short time. This may be effected by means of a slide, either at the ceiling or in the garret.

In case the temperature is above the regulation, which often occurs near spring, the doors should be opened at nights; or ice should be placed in a position near the ceiling, with a vessel below to catch the drip, so that a moisture may not be created. Entrances must all be removed after bees have been placed in winter quarters, and bees must be kept quite and unexposed to the light. Excitement, light and uneven temperature will cause them to gorge themselves with honey, after which, being unable to have a cleansing flight, they may become affected with dysentery, which will soon be made manifest, by their soiling the entrance of hive. Immediately this is noticeable, they should be given a fly (when temperature is not below 45°) excepting in cases where hives have been given a flight before the spring, it is now necessary to have them placed on their old stands, as after having remained in winter quarters for four or five months they will have forgotten their former localities. In setting the bees out in spring, some promising fine day should be chosen, when temperature is above 45° in the shade. Place them out in the forenoon so that they may have a good flight—leads to be placed on at once. Every entrance should be closed before commencing to carry out the bees, and may be slightly opened after being placed on the stand. When inside wintering is adopted a lamp might be introduced with which to examine hives, and care should be taken to scrape the dead bees &c.