

FNE07-619: A method for Overwintering and Propagating Honeybees in the Northeast

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Goal

To provide a managed environment for the purpose of overwintering honeybees in New England. The nationwide reduction in bee colonies result in potential difficulties obtaining stock replenishment in New England when trying to combat natural winter losses, mites and disease. The project plan calls for a number of colonies to be prepared as nucleus colonies and housed in the managed environment where they can be fed and monitored during the winter months. Allowing winter feeding suggests that the colony may start to grow earlier than if completely exposed to the natural climate. Such early growth would allow colony "splits" to take pace in early spring, not only contributing to local stocks but also decreasing the need for out-of-area replenishment. It is also envisaged that providing such an environment will encourage regional hardiness, so producing good local queens, adapted to the area.

Description

The managed environment simply consists of a greenhouse modified to allow positioning of beehives internally, in such a way that their entrances are facing out of the greenhouse side, and they can be opened from inside the greenhouse to allow feeding without bees escaping. Bees usually fly during winter when temperatures rise above 42 degrees, and this is facilitated by a 2" tube attached between the front of the hive and the wall of the greenhouse, or by some other method that allows the bees to fly, exist the greenhouse, and return to their home. No attempt was made to install artificial light or heat; it was deemed not necessary. We are not attempting to provide an unrealistic environment, merely one where bitter wind, frost and snow are not factors in preventing feeding.

Implementation

2009 was not a good year to start this. Late winter, spring and summer were very wet, significantly reducing pollen and nectar availability and leaving many colonies very short on winter food. Simply managing existing colonies was a struggle and it became an additional challenge in the context of our experiment.

Nevertheless, in November 2009 we completed modifications to a selected greenhouse to adapt it for overwintering colonies. We also prototyped hive entrance attachments of two different styles. The styles were basically the same, being an adapter attached to the front of the hive, an entrance extension attached to the greenhouse wall, and a pipe connecting the two. The different styles showed changes in the pipe diameter, how the modified entrance was attached to the hive and different attempts at feeding flexibility within the greenhouse.

In December we installed 80% of the targeted colonies and began a feeding program consisting of appropriate overwintering sugars and proteins. The feeds were able to be placed on top of the hive, under the lid, and above 1/8th hardware cloth inner covering.

Monitoring and feeding continued until spring when the colonies were relocated to outyards.

Results summary

The results from the original five hives are as follows:

- 20% hives died in late January. Reason not established. Head count was small and this may have been a factor
- 40% colonies are strong and each ready to be split, increasing the colonies by 20%
- 40% colonies are OK, but somewhat low in head count.

In summary, over this one wintering period we achieved a 0% net stability; losing and gaining colonies at the same rate. With a normal New England overwintering loss of between 25%-50% this result is promising.

Our expectation is that by reviewing effectiveness of feed, greenhouse/hive adaptation and colony selection, we will at least be able to achieve predictable nett gain stability with the possibility of increase in real terms.