

The Special Secret to Successfully Overwintering Honey Bees

By Venya Gunjal, Cobb County 4-H'er

It was late December. The weather had become much cooler, and the crisp autumn air had turned into the bitter cold that winter brings. I remember that most kids were rejoicing because school would be out soon for the Holiday Break. But that wasn't my case. I was excited for a different reason: it was time to help my local honey farmer, Mr. Brian Higgins, begin preparations to overwinter the honey bees for his honey company, Hometown Honey! I know, I know. You're probably wondering '*What in the world does it mean to overwinter honey bees?*' Overwintering is a method used by bee farmers to help their honey bees survive during the winter in order to produce honey in the following year.¹ It's a really fascinating process!

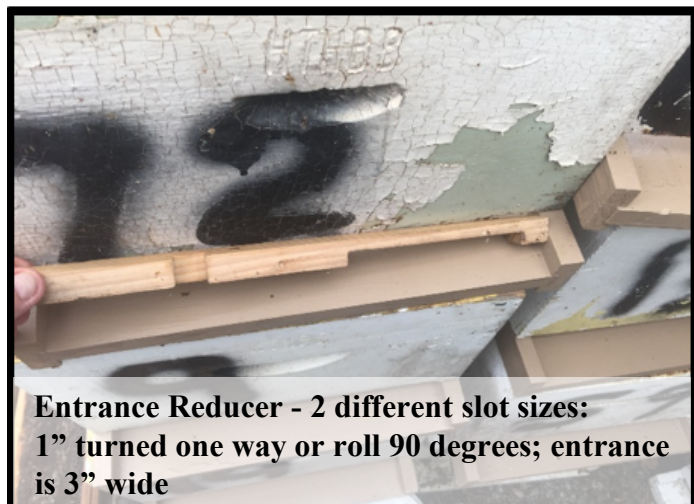
Preparations started a long way back, however, and believe it or not, the bees themselves were the ones who began the process! Over the summer, we all know that the bees were abuzz collecting pollen for honey-making. However, another key substance was collected by the bees in order to survive the winter – propolis. Propolis is used by bees to close holes in their beehives, which is why it is often called "bee glue." It's usually obtained from leaves, bark, flower buds and other parts of plants.² These are then mixed with bee saliva, wax and pollen, which are adhered to the hive holes afterwards.³ Bees collected this propolis during the summer months and began repairing their hives so that the frosty winter air wouldn't cause the bees to perish. Collecting propolis is a special skill that the bees possess, for it would be very difficult for people

like Mr. Higgins to repair each and every little hole in a beehive each year. This adaptation is just one of the many skills that bees possess in order to prepare for overwintering.

The next step was one that that Mr. Higgins did by himself in the fall, and it was important for the bees' safety. He tests the bees for mites to make sure that there wasn't an infestation when he left the bees to overwinter. Along with this, he made sure that their hives were in good shape and didn't have any unwanted critters hiding in them.

Right after school ended, I had hurried over to the honey bee farm. Mr. Higgins greeted me, and we got started right away! The first step we did was clean all the hives, because excess pollen, parasites, propolis, and waste materials got stuck on the inside of some of the hives. Since Georgian winters aren't as harsh, Mr. Higgins didn't apply any materials to the outside of the hives; instead, all the magic happened on the inside. The tools he used were entrance reducers, a super of honey supply (60 lbs.), and plastic cover for the bottom boards that are screened.

The beehive's entrance reducer was made of thin pieces of wood; other types can also made of plastic or metal. The reducer had two to three cuts (we had varying types) that the bees could use to enter and leave the hive. The main



**Entrance Reducer - 2 different slot sizes:
1" turned one way or roll 90 degrees; entrance
is 3" wide**



**Outdoor Glass Feeder – supplies honey bees
with food for the winter.**

aim of the reducer was to limit or minimize the beehive's entrance to a more regulated area.

Entrance reducers made the entrance smaller to hold in the warm air and to keep out unwanted critters (snakes or mice and other bees trying to steal honey, also known as robber bees).⁴

The super of honey was used as a supply of food for the bees, so they wouldn't starve over the winter.⁵ For the larger hives, up to 2 supers of honey were used. Mr. Higgins was sure to check if the queen was able to access the honey super. This was especially important because the whole hive was dependent on the queen bee.⁶ Bee starvation is one of the biggest causes of bees perishing during the overwintering process, so providing the adequate amount of honey to them is crucial, as Mr. Higgins was sure to let me know.

There were many bottom boards that were screened at Mr. Higgins' farm.⁷ This proved to be quite useful in the summer months, as it provided ventilation throughout the hive and gave the bees some more exposure to the outside world.⁸ However, this was very harmful for the bees in the winter, because it could allow harmful drafts to come inside the hives, which could have led to many of the bees perishing. Many types of parasites could also enter the hive easily and infect the bee population.⁹ So, Mr. Higgins and I decided to secure plastic screen covers onto the boards, which are sheets of heavy plastic that can be placed on top of a screened bottom board to prevent these problems.

Finally! We finished preparing the hives for this winter - it was challenging work but was worth it. I look back on that fun day and remember all the work we did that day, along with the jar of honey from Mr. Higgins that I had enjoyed very much. This summer, many of the bees are thriving because of our work. But how could I forget! Overwintering is teamwork – for the bees know how to do many things on their own in order to prepare themselves. I guess you could say that farmers and bees sure do make a great team!

Endnotes

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Biographical Sketch of Venya Gunjal

Venya Gunjal was born June 28, 2006. She is 12 years old and is an energetic 8th grader who attends JJ Daniell Middle school in Marietta, GA. She enjoys dancing, singing, playing her clarinet, and competing in her basketball league. She has been in 4-H for four fun years. She loves STEM and plans to go somewhere with it when she grows up. She has received several awards for both academic and extracurricular accomplishments. She lives in Kennesaw, GA (Cobb County) with her parents and younger sister.