

# Stahlman beekeeping notes for 2021

## Issue # 28 Summer bees



Temperatures during summer can be very hot – Here in Raleigh, a number of 90 °F days in a row can make it very uncomfortable to work bees.

An average day may have a low of 70 °F with a high in the 90 °F range. Rain is often late afternoon showers. Up to late June, one can find comfortable days to work bees but as we reach mid-summer, finding a comfortable day gets pretty hard especially if the hives are located in full sun.

Hives have reached maximum bee population. Working a hive in mid-summer is far different than working a hive in early spring.

A hive with a number of supers is not going to be examined easily. Early in the year beekeepers are concerned with the size of the colony, the condition of the brood and the amount of honey stores. Often problems are easier to spot: weak hives for example and solutions more defined (feeding, replacing queens, equalizing hives etc.).

Inspections are easier as well. Prior to adding honey supers, it is rather easy to examine frames of brood.

We are past the swarming season when efforts are made to prevent crowding and provide for honey storage by adding supers. Summer represents a change in colony dynamics.

Brood rearing is retarded with the reduction of available pollen and nectar!  
One may note especially the reduction in drone populations.

**The basic principles of beekeeping have not changed:**

- 1. The presence of a vigorous, productive queen.**
- 2. A population of young bees in sufficient numbers to insure the survival of the colony.**
- 3. Sufficient honey stores to provide food during non-productive periods.  
(True in the summer as well as winter season)**
- 4. Avoid disease issues – mite populations and AFB.**
- 5. Protection from extreme temperatures – hot temperatures as well as cold.**
- 6. Comb management issues – adequate space for the storage of honey and brood rearing.**
- 7. Location, location, location**

**Bee populations at this time of the year will easily cover 20 frames or more. If honey supers are removed, the bees will be more densely packed into the space within the hive.**

**Ventilation Issues:**

**During winter bees cluster very densely when the weather turns cold. During our 90°F days bees cluster on the front of the hive to open up passage ways between frames to ventilate the hive.**

**There are many differences of opinions on hive ventilation. I was told many years ago that I should use 8 penny nails between the inner cover and top super to provide a way for air to escape from a hive and provide ventilation. Some may use popsicle sticks but nothing large enough to allow robbing bees to enter the hive.**

**We do know that honey bees can exist with small entrances to hives. Current teaching is to remove entrance reducers for the summer season to allow more air circulation into the hive. In fact, this question came up this past week with a friend concerned about a hive of bees with a large population of bees using a small entrance to a hive.**

I decided to check on line some research on the ventilation of air within a hive of bees. <http://www.nceub.org.uk>

I found an interesting report filed un the Proceeding of the 2<sup>nd</sup> Conference: "People and Buildings" held at Graduate Centre, London Metropolitan University, London, U.K. called Network for Comfort and Energy Use in Buildings:

The following diagram of air movement in a hive of bees was used to illustrate a better way to ventilate buildings.

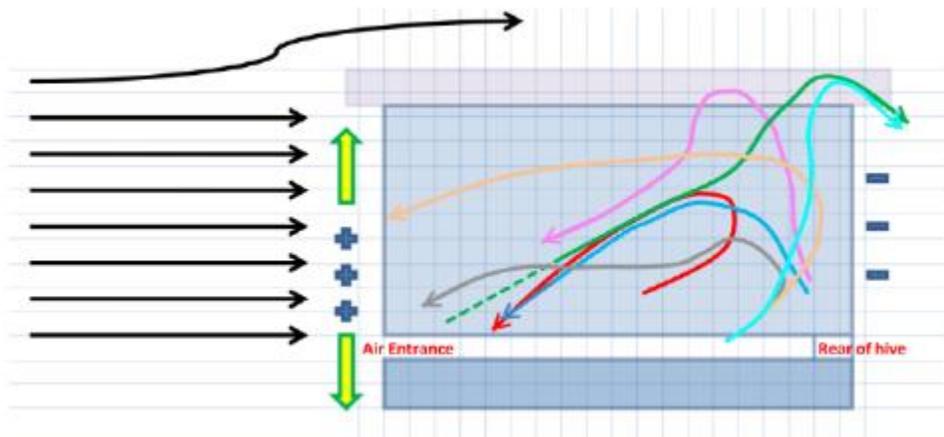


Figure 4.

Researcher looking for a better way to ventilate buildings, studied air movement in a bee hive.

### Honey bees prefer evaporative cooling

"in order to reduce high air temperatures inside the hive. They collect drops of water which are positioned in the hive, then the bees fan their wings to pass air of the drop so that the evaporation will achieve a decrease in the air temperature (Brackney 2009)."

"Areas of high pressure are indicated with "+" and of low pressure with "-".

Related to figure 4, there are two main flows inside the hive. The first (in red, blue, grey, pink, orange arrows of figure 4) enters from the bottom left (air entrance), reaches the right edge of the hive (rear of hive) and then flows upwards and curves towards the left side. The second (in green and cyan arrows of figure 4) also enters from the bottom left (air entrance), reaches the right side of the hive (rear of the hive) and flows upwards. Then, it continues rising until it reaches the covering and then it exits from the top right.

This allowed the majority of the frame area to be ventilated, but there may not be significant ventilation to the top corners of the hive."

I thought it was interesting that science was using the way a bee hive is ventilated by honey bees as a study for ventilating buildings.

**Clearly the collection of water during very hot days is important to a hive of honey bees.**

The circulation of air is provided by the wings of the honey bee. We can easily observe this by studying the entrance to a hive on a hot day.

I began to think about those screened inner covers I have for many of the hives I have. How do they reduce the air pressure within the hive? I have decided to observe the difference between hives with those screened inner covers and those with solid inner covers with the notch cut into one side of the cover. I also note that migratory covers have no ventilation slots cut into them.

One other method common for summer ventilation is an upper entrance.



How much summer ventilation a hive needs depends on many factors: local climate, the size of your colony, wind exposure, and sun exposure.

I personally like some shade for my bees. I have moved my hives into open sun next to a tree line that provides some shade in late afternoon to combat Varroa mites.

Others have noted that hives set in the sun will have less chalkbrood, small hive beetles, and Varroa mites.

Thus, I have come to the conclusion that the bee beards on my hives are the normal natural way for honey bees to help ventilate a hive during summer heat periods.

One other observation I have made this year – when I did try to provide upper entrances on my hives, it opened the door to robbing bees. As I enter my bee yards, I now look at the hives without bee beards first. It has become apparent that queen problems are not found in those colonies with bee beards.

I use entrance reducers to prevent robbing in colonies without bee beards at this time of the year. If I must feed a hive, I always make sure the entrance reducers are placed on the hive being fed. The bee beard actually provides a hive with a lot of protection against robbing.

One other side effect of bearding bees is the fact that one should not disturb them! They are older bees and possess an attitude problem.

There are some management techniques I am using to reduce hive populations during this hot summer heat. I am looking at increasing the number of hives I am managing. I like the information one can find on making increases from C.C. Miller's book, Fifty Years Among the Bees.

I quote him (page 265) "I would run out of bees entirely if I did not resort to artificial increase." **With hive losses currently around 50%, it makes sense to me to anticipate that I am going to have some hives die out over this next winter.**

And again, to quote him, "You cannot make something out of nothing, and if increase is to be made you may as well devote a certain number of colonies to that business."

Beginning on page 266 of Fifty Years Among the Bees, Miller describes how he increased 9 weak colonies to 56. He started -- selecting nine weak colonies making them stronger during the spring season and on June 12 began making increases that lasted thru September.

If one has several colonies, another method used by Miller, could result is some colonies that could build up and survive the coming winter. See page 271 in Fifty Years Among the Bees on building nucleus hives from two frames of brood and a laying queen.

Briefly, he selected two frames with brood and adhering bees. He put these into a hive and two days later gave them a laying queen. Twelve days from the time, it was started -- the two frames of brood had increased to two and half. Five days later there were three frames of brood and from that date on it walked right along to be a fair colony although it had to be fed up for winter.

It requires only a plan for increase, bee resources (frames of brood and bees), equipment, and effort to increase hive numbers. It might be a good time to think about making hive increases now!

In Issue # 29, I will be discussing how I have managed to raise a number of queens this summer in mini- Styrofoam coolers I bought at a General Dollar Store. I will not have to buy queens to start my winter increases as a result. I currently have equipment and resources for about 10 more single deep hives.