

The dog days of Summer are here. Hot temperatures not only drive us to our porches, but the bees to theirs as well.

This time of year usually calls for mint juleps and blackberry pie, cane pole fishing and lemonade, naps in the hammock and BBQ, but for the beekeeper, chores are still mounting. Here in the piedmont region of Georgia our honey flow ceased at the end of May. Now, we can only hope for a trickle of goldenrod and aster this Fall, unless we moved our bees north for the sourwood flow (June-July), or south for Gallberry (May-June), cotton and a variety of other agricultural crops. Usually we can count on these plants for providing decent flows, but with the horrible drought we are experiencing, only time will tell.

Hot Summer days along with dry weather are not only tough on the vegetation, they can also be especially hard on our colonies. One thing you can do to help reduce stress is provide your colonies with water, especially if the colony is not near a natural water source. Bees collect water to dilute honey. They also use water to cool the interior of the hive. One way they do this is by depositing water directly inside of the cells toward the top of the frames or cells with developing larvae. If humidity levels fall too low, developing larvae will dry out and die. They also cool the inside by fanning in different areas of the hive. This activity keeps the air

circulated and temperatures lowered. While fanning, they'll extend their proboscis with a droplet of water. The surrounding air is then cooled due to the evaporation of the water. On a Summer afternoon, check out the entrances of your colonies and you will see several bees positioned there fanning their wings as hard as they can.

If there are no natural water sources located within a mile of your apiary keep birdbaths, pans or buckets full of water at all times. Make sure to add some sort of floating device so the bees won't drown. Another idea is to use a Boardman entrance feeder filled with water. This way the bees don't have to travel far for the water. It will also help keep your bees at home as opposed to visiting your neighbor's pool, dog bowl, pond, etc. We receive several calls each Summer complaining about bees swarming around water sources and scaring the

children. After a little investigation we usually locate a beekeeper in the area and explain the crisis. Once water is provided, the problem's solved and everyone – bees and children alike – are happy.

Water may not be the only thing your colonies require this Summer. You will need to evaluate honey supplies and *Varroa* population levels plus prevent robbing. Let's start with food stores. I realize I may push this issue a bit; however starvation is something we can control. During the sweltering Summer months we sometimes forget about our colonies as other projects draw us away, but don't let this be the case. If Spring/Summer honey flows were light to medium and you don't expect another substantial flow this year or you were a wee bit greedy during honey extraction, your colonies may be in danger of starving well before the Winter winds ever blow. But no matter what

The Dog Days Of Summer

Jennifer Berry



Bearding colonies during hot Summer days.



A Boardman feeder used for water.



Our baggie feeder works like a charm.

your situation is, periodically checking food supplies should always be on your list. If colonies are short on supplies, feed a 1:1 sugar solution. An average colony in our region needs at least 35-40 lbs to survive the Winter but you must also consider those long Summer dearths. In certain parts of the country you may only experience one nectar flow, like here in Athens, yet colonies are still growing and therefore consuming stores. Feeding bees can be a chore and an expense you may not have considered. Here at the lab we use gallon zip-lock baggies filled about ½ way. We then lay the baggie on top of the upper super, slice a four-inch slit on the top, add a super, and ring the dinner bell. The air leaks out of the slit leaving the sugar syrup for the taking. The bees will crawl to the slit and collect the syrup. Over the years I have had numerous problems with division board feeders, hive top feeders and buckets, so we've opted for this method.

Another problem beekeepers overlook this time of year is robbing. Strong colonies will rob honey supplies from weaker colonies even if they have plenty of food. If you have ever experienced robbing before, you know it is not a pretty sight. Colonies are wiped out within a day or two. They just can't hold back the tens of thousands of bees forcing their way inside. But the major problem is, once robbing starts in an apiary it is almost impossible to stop. Therefore, precautionary measures should be

taken earlier rather than later. Colonies should be equalized throughout an apiary. Weaker colonies are vulnerable to robbing and hence should be removed or equalized. Entrances should be reduced and all gaps, cracks, and holes taped to discourage foreign bees from entering a colony. Too many colonies at a particular site may also increase the robbing urge. 25-30 colonies are usually the maximum for a single apiary. Another important tip, if you find yourself feeding, be extremely careful not to drip sugar syrup anywhere outside a hive. Bees will quickly find it, and then mob the colony near the spill. Also, Boardman entrance feeders are not a good idea during a nectar dearth. They attract unwanted neighbors to the entrance due to the smell of sugar syrup. Feed internally with buckets, jars, division board feeders or baggies. After extraction, don't put wet supers out to be robbed in or near the apiary. Place them as far away as possible. Once the robbing frenzy is started it is impossible to stop. The bees become fixated on finding food and will strike any colony in their path. In years past we experienced robbing to such a degree we had to work each colony under large netted cages. Without the cage the colony would have been overwhelmed in minutes. Even strong colonies are at risk if you leave them open too long. The best advice to discourage robbing is: don't pack in the colonies, keep entrances reduced, don't leave honey/sugar syrup around, use inner

hive feeders, and don't leave hives open too long.

Only one more Summer chore left for now; evaluating *Varroa* mite levels. Female mites over Winter inside the cluster and survive by feeding on adult bees. However, once brood rearing commences in late Winter, early Spring, the female mite kicks into gear. It is her time to reproduce. She makes her move by entering a cell just prior to being capped and starts laying eggs; she is called the foundress mite. The first egg laid is a male which will mate with those from subsequent eggs laid, which are female. These offspring mites develop and emerge from the cell along side the worker bee. These newly emerged female mites seek out other cells in order to lay eggs of their own. Warmer temperatures, and nectar flows not only trigger swarming but drone production as well. There is nothing more appealing to a female mite than drone brood. Think of all the extra time her progeny has to complete development before the drone emerges: three extra days. That translates into a lot of extrababy mites. If the drone or worker bee emerges before the newly hatched mites reach adulthood, the mite will die. Here are some numbers you may find interesting. In worker brood, the foundress mite's first female egg (first egg is a male) has a 92% chance of reaching adulthood before the worker bee emerges. Her second female egg only has only a 38% chance of survival and her third only 13% chance. However, in drone brood, her first female egg has a 98% chance of survival, second egg a 94%, third egg an 84%, fourth egg a 76% and fifth egg a 63% chance of survival. Oh, what a difference three days can make. Hence, the foundress mite can more than likely replicate herself *by five* inside drone brood and *only once* in worker brood. Therefore, by late Spring mite populations are quickly escalating. By mid Summer, mite populations can be well into the damaging levels or above the economic threshold. That is why it is essential for beekeepers to appraise their colonies mite populations several times a year. We sometimes evaluate mite numbers once a month. Especially those colonies close to the economic threshold level.

There are several methods for sampling mites: ether roll, powdered sugar roll, alcohol samples or sticky

sheets. We choose sticky sheets because it's the easiest. Insert sticky sheets (you can make these or purchase them) for 72 hours, count the number of mites and then divide that number by three.

Leaving the sheets in for 72 hours as opposed to 24 is a preferable method because it allows for weather fluctuations which may occur and alter mite drop. Do not put any miticides on while you are sampling. This number needs to represent a natural mite drop. If you find populations above the economic threshold (60-180 mites for 24 hours in August and 1-12 mites in February) you will need to treat. This particular economic threshold was determined for the southeastern US. The economic threshold in your area may be lower or higher due to regional climate/geographical variations. James Strange and Steve Shepard determined a western economic threshold of 12 mites in February and 23 mites in August. You can also go to the National Bee Unit's internet site and enter your mite numbers in their *Varroa* calculator <http://beebase.csl.gov.uk/public/BeeDiseases/varroa-Calculator.cfm>. Due to time of year and the number of mites the program will determine if you need to treat. Be aware, their threshold levels are much more conservative than ours.

Then the question remains; what to use in order to reduce mite popula-



Evaluating mite populations several times a season, using sticky boards, is critical for colony survival.

tions? There are more options today than there used to be (which may be a good thing). The newest being essential oils which are proving well for reducing mite loads. Remember, all creatures big and small can tolerate a certain amount of infection or infestation, including honey bees. It's when that amount reaches a critical level

that we need to intervene. One more thing, never put any kind of miticide in your colony during a nectar flow. Don't want to contaminate the honey now do we.

See ya! **BC**

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