



STAHLMAN BEEKEEPING NOTES

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Published by Dana Stahlman Raleigh, North Carolina Email: stahlmanapiaries@aol.com
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Why are so many new beekeepers quitting after a year or two keeping bees? Find comments I make at the end of this article.

I have delayed taking honey from my hives this week due to wet and humid conditions. One item a person keeping bees might own is a refractometer to measure the moisture content in honey.



Anyone selling honey should know the moisture content of the honey they sell.

Honey has any number of properties. One of these is called hygroscopicity. This big word means honey can remove moisture from the air. Another word used to describe a property of honey is fermentation. Fermentation is the transformation of the sugars in honey to alcohol and carbon dioxide by yeast activity. This is caused because yeast is able to grow in lower sugar concentration in honey. The most recent information I have is from the 2018 edition of The Hive and the Honey Bee published by Dadant page 691. Under the topic of Fermentation it is reported that 17-18% moisture can result in fermentation of honey. The information I had in the past was moisture levels should never be above 18.6%.

Fermenting honey has an unpleasant taste. It may leak from jars because carbon dioxide gas is released in the fermentation process. One can use this property of honey to make meade, often called a honey wine.

Management of honey supers require planning and avoiding making mistakes. Three common mistakes are:

- Harvesting honey on high moisture days.
- Honey left in open containers.
- Extracting raw uncapped honey.

Commercial beekeepers have equipment to dry honey being processed. It starts with honey supers being placed in a hot room. Often dehumidifiers are used as well.

Heating honey to remove moisture can have some very bad results. If honey is heated, enzymes in honey deteriorate rapidly. That brings up another long word hydroxymethylfurfural (HMF). What this means is honey has lost some of its antibacterial properties especially invertase which degrades quickly when heated above 104° F. (from page 691 *The Hive and the Honey Bee* 2018 ed.) HMF is used as an indicator of long term storage and heat exposure in honey. Don't buy the statement that honey never changes. Heat and aging change honey flavor and darkens honey color. I have had samples of good light amber clover honey aged over 40 years changed to a dark brown color. Each year that honey is stored lessens it's value. Just ask anyone buying honey if they want honey produced 5 years ago. Will they pay current prices for old honey? Honey is not like aged wine.

Some tips on handling honey supers:

- Shallow and medium honey supers are easier to handle.
- Honey should be extracted (if liquid honey is wanted) as quickly as possible.
- Honey such as comb honey should be stored at temperatures around 40°F to prevent HMF from building up and avoid wax moth and small hive beetle damage to comb.
- All stored honey should be kept in sealed containers such as jars, buckets or barrels.
- Avoid putting honey in iron, lead lined, or other metals known to contaminate its contents. When it comes to metal, stainless steel is preferred.
- Honey supers with frames of comb need to be stored dry (all honey removed) to avoid insect damage. Wax moth and small hive beetles will be drawn to the pollen and honey stored in frames. Brood comb is especially attractive to pests.
- Ants, cockroaches, mice, small hive beetles, and wax moth all seek shelter in supers. If cold storage is not available, supers may be treated with a fumigant such as paradichlorobenzene. Supers need to be stacked tightly and covered. Use according to manufacturer's instructions. Place fumigants at the top of the stack because they settle down as they are heavier than air.
- Or supers can be placed back on the hives so bees can clean them up and super can then be stored when weather conditions get colder. Strong hives of bees are the best defense against any of these pests.
- Supers can also be protected from wax moth by exposing them to air and light.
- Nematodes are also available as a treatment for small hive beetle problems.

Just keep in mind that when the honey harvest is over honey bees pass thru another state of change. Rather than gathering nectar and pollen, they become defenders of their accumulated food stores. Soon no drone brood will be seen, and if a colony is really stressed by the beekeeper

removing too much honey; the queen may stop laying eggs – resulting in population problems that may carry over to winter.

Another solution to over crowding in late summer is late summer splits. With bee populations at the maximum levels and the honey crop removed from hives, foraging bees will hang out on the front of a hive. All these bees will require food. Beekeepers often find the bees starving after the honey crop has been removed because the honey left in the hive will be used to support the bee population and in the case of the Italian race of bees use the honey for brood production rather than save it for winter survival. Without a fall honey flow those hives will require feeding.

We see all kinds of examples:

I do not advise beekeepers to extract honey outdoors or spill honey or sugar syrup near the bee yard. Hungry bees are driven to fight for the little they can get. Under stress, honey bees will do some crazy things. Food is the foundation for the entire wintering season and bees in a starving hive will do almost anything to survive.



Robbing starts with hummingbird feeders, and picnic areas. Finally it extends to weak hives.

A sloppy beekeeper spilling honey or sugar syrup anywhere near a bee hive may start a feeding frenzy. In fact, it doesn't have to be your beeyard, it could be where you extract honey.

The bees in this picture are attacking a wheelbarrow loaded with two supers of honey. It could have been prevented. But

as you can see, the bees entered the boxes, started mobbing the frames, and like an out-of-control crowd, made it difficult to save the little honey left on those frames.

To determine when the robbing stage is reached, place a paper plate with a spoon full of honey in a location not far from bee hives. When the bees are busy gathering nectar, they will fly over and past the plate of honey. However, when the honey flow has ended, bees in large numbers will show up to get some of that honey. They will continue until the honey is gone.

It is not a good idea to try to inspect a hive with a large bee beard hanging on the face of the hive or when they are in robbing mode. And that brings up one additional tip:

Don't spend very much time with an open hive when you are doing inspections, especially during late summer. I hope the above picture gives you an idea of what bees do when they find an open hive.

The following story seems to be repeated year after year with beekeepers being frustrated and confused. Many beekeepers start beekeeping with two hives. They know bees can be split to make more hives. Why are students not told that one needs to go slow when starting to keep bees. They know that bees can produce new queens from eggs. Somewhere the message is lost on how many bees it takes to create a new colony. Nucs are being thought of as great investments because they develop faster than package bees. That is true. But they are not full sized colonies and one should not try to make increases with them until after a honey flow when they are strong.

It is a fact one hive with 60,000 bees will produce more honey than two hives of 30,000 bees each.

Think about this for a second:

#1 To raise an emergency queen by splitting a hive may not be successful when the bees moved with frames containing eggs do not have enough bees to keep the brood area at 92°F. Often queens produced this way are poorly fed even if they are raised successfully.

#2 Brood production is important for the growth of a colony of bees.

#3 Splits need food and entrance reducers. They are targets for robbing bees.

#4 Splits can be made when the honey flow is over – usually by late June or July. Splits made early in the bee season need 6 to 8 weeks to build up and often do not produce a honey crop unless the beekeeper is using mated queens rather than depending on the bees to raise a new queen.

One new session should be added to bee schools agendas (Why beekeepers fail!) It is not all about varroa mites. If you would like to respond with why you think new beekeepers fail, share your thoughts with me.