

STAHLMAN BEEKEEPING

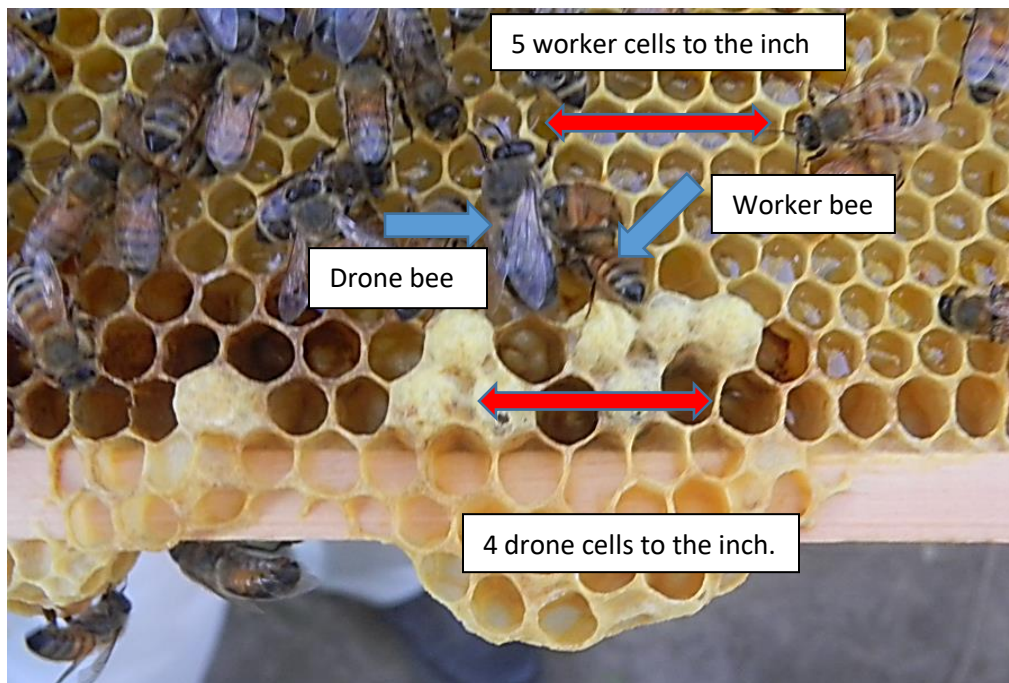
NOTES FOR 2023

Issue # 27 July 22, 2023 The Drone is Essential to a Colonies Survival



I am not sure if you have noticed but one will find fewer drones in your hive at this time of year.

They play an important role in a colonies future. They can also indicate the health of a colony. Varroa mites prefer to reproduce in drone cells. I will get to that later.



Drone cells are usually located along the outer edge of worker comb. The cells are larger than worker cells. I have used this photo to illustrate the difference. The red arrows are the same size and represent a distance of one inch. The photo has been enlarged just a bit.

The presence of drones in a hive of bees can indicate a number of things!

IMPORTANT POINTS

Bee Sex Essentials



Lawrence John Connor

On these hot days, one could find a good bee book to read.

Just a suggestion:

Bee Sex Essentials
By Lawrence John Connor

Even if you are not interested in raising a few queen bees, this book will be full of information about Queen bees and Drones. The Preface to the book is written by Dr. David Tarpy, North Carolina State University which shares the historical role that at one time people considered - the drone as the leader of the hive.

I am suggesting books I have read and often refer to for reference material. A beekeeping library is essential for a beekeeper to stay current with what is happening.

By the way, Drones can not sting – they have no stinger and can be safely handled without fear of being stung. I have had fun using drones when making bee presentations – I ask for volunteers to hold a bee.

A bit of unique information about drones:

- They do not have a father but they do have a grandfather. For some this is hard to grasp.
- In 1845 a man by the name of Dzierzon recognized that drones were the product of virgin birth. It is called [Partenogenesis] reproduction without fertilization.
- Quote from Bee Sex Essentials “Sex is the work of the drone and if for some unforeseen reason all drones failed to perform their duties, bees would cease to exist.”
- Just emerged drones must mature about two weeks before taking mating flights.
- It is well known that mating takes place outside the hive in what are called mating congregation areas.
- Drones have been clocked as flying speeds as fast as 16.1 km.p.h. This is converted to 10.0040762 miles per hour.
- Mating takes place between 20 and 100 feet in the air.
- Virgin queen bees can and often mate with multiple drones. Thus, the hive will contain a number of half-sisters. These bees all have the same mother, but different fathers.
- In fertilizing the queen, the drone’s genitalia ruptures from the abdominal area and results in the drone falling and dying to the ground. (Hultgren, 1985 p. 269 Gleanings in Bee Culture).
- 1927 A technique was developed to artificially inseminate virgin queens. This has resulted in the development of many lines of honey bees no longer identified as pure races of Italian, Caucasian or Carniolan bees.
- Drones are sometimes referred to as flying gametes. They are haploids. They carry the 16 chromosomes of their mother.

Another item I have seen: Many years ago, Joe Latshaw invited me to his home to observe drones with colored eyes. Up to that time I had never notice any drone with colored eyes.

This is not a harmful condition for a hive of bees. Many genes are recessive and they are expressed only when both parents have the recessive gene. Breeders of honeybees are dealing with all kinds of expressions and patterns of inheritance.



Since then I have only observed one case of a hive of drones with white eyes.

Joe shared with me that these drones are valuable when used as markers in breeding queens.

They are blind. They are visible mutations of a recessive gene.

Since drones develop from unfertilized eggs, they have only one set of chromosomes. According to material I found on the internet - color variations vary from light

yellow to dark red. Once they fly, it's obvious that they are sightless, flying wildly in circles, they rarely return to the hive. For white eye drones to exist both the queen and the drone she mated with must carry the white eye recessive gene.

A hive with colored eye drones is rare and if one does observe drones like this, the worker bees and the queen will continue to do what honeybees do. This mutation does not affect the worker bees or the queen in the hive.

The queen could be useful to queen breeders looking for genetic markers in their breeding program.

Bee literature teaches us that honeybee development time is:

- Worker bees from egg to emerging from a cell is 21 days.
- Drone bees from egg to emerging from a cell is 24 days.

Varroa mite select drone brood to reproduce over worker brood. For this reason, it is possible to put frames with drone foundation into a hive to be used as a non chemical control for Varroa Mites.



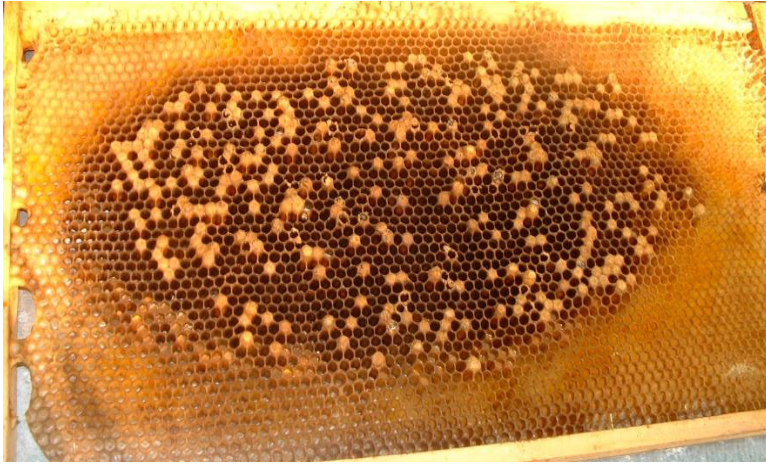
This plastic green foundation is sold by a number of bee equipment suppliers.

It can be reused to trap Varroa mites reproducing in drone cells. A certain amount of bees wax can be recovered from this frame, drone pupa/larva could be ideal fish bait and a friend of mine puts it out in his chicken yard. Believe me -- the chickens will devour the larvae and mites.

Other thoughts – especially to mid summer management:

- It is harder to get virgin queens mated during the late summer beekeeping season. Because drone populations are reduced, it is important to make sure drones are present to mate with virgin queens. If raising any number of queens to be mated, one might increase the number of hives near the mating yards.

- One issue beekeepers need to be aware of – drones can be present in large numbers due to a drone laying queen or egg laying worker bees. This is a bad situation.



A hive with a brood pattern such as this has a serious problem. These dome shaped cells will produce only drone bees.

If seen in a hive, it will be almost impossible to requeen the hive. In fact, the hive will

have a small population of older bees and drones. It is not worth the effort to requeen.

What can be done about a hive with brood frames like this?

I would suspect they are Varroa mite infested and I would not combine this hive with other hives. It would be a good idea to save the frames and comb – they can still be valuable assets if placed in a freezer for a short period and then stored. They will be targets for wax moth and possibly small hive beetles. One solution if cold storage is not possible – after freezing and killing all brood and possible Varroa mites, place these frames above the strongest hive you own. Strong hives of bees will protect the comb from wax moth and small hive beetles.

You may ask about the bees now homeless. As a former commercial beekeeper, I will share a solution you may not like – kill them. They will return to the hive location and it is a good idea to kill them before they drift to other hives. They can easily be killed without using chemicals – a soap and water solution sprayed on them will kill without contaminating the equipment.

Something to ponder – think about!

Finally, When I hear a beekeeper complain about “the amount of honey” drones eat, and how to get rid of them I might share the thought – just because they seem to be lazy and do nothing such as gather nectar, etc. why kill the goose that lays the golden egg? Without drones there would be no new bees to replace those that die.

Humans seek utopian ideas for a perfect society -- Honey bees have an almost utopian approach to life. They raise drones when they are needed. They reduce drone populations as needed. And finally, when they are not needed, they don't feed them and force them from the hive.

Humans have created Utopian Societies. For example, a group of radical Pietist Christians decided that women spent too much time giving birth and care to children. Their labor was needed in the fields and other physical labor required for the society to survive.

Sleeping quarters were built to house men and women separately. Childbirth was not encouraged. They created what was called the “Zoar Society.” They settled in Ohio and the village of Zoar exist today as a historical community. It was a communal society – all property was communally owned. Eventually, the society disbanded in the 1880’s. Why? The population grew old and the few remaining members could not take care of the land they owned. Lack of children to build a new population to replace the old led to the failure of the society.

Check out their story – see the link below.

From: [Zoar, Ohio - Wikipedia](#)

