

Stahlman Beekeeping Notes for 2022

Raising Queens



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We have reached a time in the year when weather conditions make it possible to raise a queen or many queens. This is usually a very interesting topic for all beekeepers. It is much easier to raise queens when bees are foraging. Later in the year conditions are not as favorable.

Why is May a good time to raise queens?

- I realize queens can be raised earlier and later in the year. If you examine a hive of bees this month, you will see an abundance of drones in your hives.
- Weather conditions are less variable and chilled brood in mating nucs is not usually a problem.
- Mother Queens (the queen that produces the worker eggs that are destined to produce daughter virgin queens) can be better evaluated by selecting the best breeding stock!

Although one can raise queens without any knowledge of the biology involved in breeding and raising queens, it gives the person raising queens a distinct advantage over one who does not!

The material I will be providing over the next few issues will be enough for a many readers to raise some queens. But I would like all to know there are some excellent books that will add so much more to the knowledge of raising queen bees.

My suggested list of books: For the hobby beekeeper

[Bee Sex Essentials](#) by Larry Connor available on Amazon.

Larry is a popular speaker at bee conferences and has written a number of books using the term Essentials in the titles. His experience in rearing queens puts him in a special class of easy to read and understand authors. He was involved in working with two lines of queens that I used in my beekeeping experience (Midnight and Starline). They were outstanding queens and quite frankly they set a standard for my idea of what a queen should be. Unfortunately, those lines are no longer available.

For the serious beekeeper – Books like these are quite costly if you can find them.

- **Breeding Techniques and Selection for Breeding of the Honeybee** by Friedrich Ruttner. This book is rare: published by The British Isles Bee Breeders Association - translated from German in 1988. I could not find any copies for sale in an on-line search but I did find a pdf copy at bibba.com as a pdf file free. [Breeding Techniques And Selection For Breeding Of The Honeybee-1.pdf \(bibba.com\)](http://bibba.com/Breeding-Techniques-And-Selection-For-Breeding-Of-The-Honeybee-1.pdf)
- **Queen Rearing and Bee Breeding** by Harry H. Laidlaw Jr. and Robert E. Page Jr. published by Wicwas Press is available on Amazon paperback at \$50.00.

I was asked at a recent bee meeting about artificial insemination “What is needed and how much does it cost? Let me say this, “It is costly but the ability learned to work with microscopes, insemination devices, harvest seamen, and produce both drone and queen selected stock makes the investment in equipment worthwhile!” It is not for everyone!

Most of us are interested in raising good queens. Many raising and selling queens today have the advantage of selecting from local stock well suited to the region in which they live and work. Look out for the term “Survivor Queens!” This term is used by many selling queens. What does survivor queen really mean? In my book “almost nothing!” All queens raised and sold come from a queen that is a survivor queen. Selection of queen stock is an important topic in its own right.

Anyone one wanting to raise queens will most likely have to work with bees they have on hand. It is important to raise queens from the best hive one has. Not all hives are equal and selecting from the best is the best advice I can give!

First, I would like to share some information about honeybee eggs.

The natural mating of queen bees takes place in the air in what is referred to as a drone congregation area. A virgin queen mates with multiple drones. Larry Connor’s book *Bee Sex Essentials* says, “After mating with up to 45 drones (average of 13.2) in one or more mating flights...!” Semen from that many drones spread out over a season means there is little chance that eggs laid by that queen would be full sisters. Thus, the colony’s worker bees all have the same mother, but the worker bees will have a number of different fathers.

Hybrid vigor is advantageous to a colony of bees. However, the consistency of virgin queens produced from an open mated queen will vary. Some very good genetics from an A.I. (artificially inseminated) queen can disappear over time when open mated daughters are used as mother queens in queen production.

And that is where drones come into the picture. It is important to think of the drone as an equal partner to the queen. Drones have no father! They are spreading the genetic characteristic of their mother to the next generation of bees when they mate. This is why it is important to saturate a drone mating area with selected drone mother hives.

There is so much more to this story and the more advanced queen breeding books will help one to sort out the systems used by queen breeders. On that thought I would like to share a statement made to me by Susan Cobey when she was at The Ohio State University many years ago, “There are queen producers and there are queen breeders! They are different!”

So relax, it is possible to raise good queens without A.I. or keep bees on an island to excluded stock that is undesirable.

Bees have for millions of years existed without the worry of queens and drones mating. It happens! It is only in modern times that honey bees have been transported from a region of origin to a foreign location. The U.S. is a good example of the mixing of honeybee races. All honeybees in the U.S. are not native to the U.S! The race of bees in the *Apis mellifera* family can breed with each other. Thus, the bee known as the *Africanized honey bee (Apis mellifera scutellata)* can mate with other member of the bee family *Apis mellifera*.

As far as I know, it is illegal to own and raise this bee in the U.S. Some have crossed into the U.S. as feral swarms. There is some indication that some genetic material is found in the DNA of some bees tested in the wild bees in an area around Cornell University in New York. See the illustration 1.4 page 11 of *The Lives of Bees* by Thomas D. Seeley.

Thus, when raising queens it is important to avoid using queens from an aggressive hive.

Queen Rearing facts

Queens are created from a fertilized egg. It is that simple! “A fertilized egg” that develops normally to become either a worker bee or a queen.

There are some conditions that cause nurse bees to feed an egg a rich diet of royal jelly rather than the standard diet given to those destined to becoming worker bees.

These conditions occur naturally. In one, queens are raised in large numbers when a hive is about to swarm. In another situation, the bees determine for whatever reason to replace an existing queen – this is called supersedure. And then, the honey bees react to an emergency situation in which the queen’s pheromones are missing – these are called emergency queen cells.

Thus, with this background information, let’s take a look at what is involved in raising a few queens.

Non-grafting methods have been around since humans started keeping bees.

Honeybees raise queens! All we do is manage bees so they will raise queen bees.

There are many queen rearing methods used to raise queens. We have learned that the simplest methods work and by adjusting the method to fit the need and follow a few rules we can raise one to thousands of queens.

The basic rules:

- Bees will raise queens if they are queen-less or think they are queen-less.
- Bees must have eggs or young larvae to create new queens.
- Bees supplied with ample food stores can feed young larva with a better diet.
- Bees build queen cells better when foragers have a good food supply.
- Bees must be disease free.
- Developing queen larvae need ample nurse bees to attend to them and heat to keep them warm during the stages of growth.
- New queens will fight each other for survival if given the chance. The rule is one queen per colony!
- Virgin queens must fly to be mated by a drone. Thus, no drones equals no mated fertile queens.

If only one queen is wanted, a beekeeper can make a walk away split. This could be nothing more than remove a few frames with young larva and bees from a hive. These two or three frames could be placed in a small nuc. Being queen-less the bees in the nuc will begin building emergency queen cells. Over a period of 2 or 3 days the bees will build a number of queen cells around larvae in worker cells. The number of queen cells built is determined by the bee population in the nuc and the food available to build satisfactory queen cells.

Note: Without ample bees and ample food stores, queen cells may be small stubby affairs with poorly fed virgin queens emerging. These queens are not the kind of queens worth investing the time to raise.

The possibility of raising good queens is just a matter of following the rules and selecting a methods that will produce good queens.

I will share a few easy ways to create your own queen bees. Just keep in mind the rules listed above. I am avoiding the Doolittle grafting method for an obvious reason: beekeepers for the most part need specific instruction on how to graft and this is best taught with hands-on how to do instruction. If your goal is to raise a lot of queens for sale, I would suggest one find a local experienced person or class being offered to learn the process involved. Here in North Carolina, the State Beekeeping Association has such a program. Local bee clubs with a club apiary could also be encouraged to develop a class with your encouragement.

Next week I will share the methods used by C.C. Miller and Henry Alley. Both are non-grafting methods and require no grafting tools. Both use the natural comb from a colony of bees to produce queen cells. Most likely beekeepers will have all that is needed to raise a few queens. **Just remember each queen raised will need a hive of her own!**

In 2006, I wrote a queen manual for teaching queen rearing. The manual was for raising queens in Ohio. See the attachment Queen Manual.