



Field Guide to Beekeeping

Honey
Hive



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Acquiring Bees and Queens

One must have bees in order to be a beekeeper. It is not always easy to find and purchase bees, especially if one is a new beekeeper and does not know how to obtain bees. Furthermore, bees can be hard to acquire given the level of beekeeper demand for bees today. I have been keeping bees only 25 years; so, I do not have a long history of following the supply and demand trend for bees. However, I feel that it is safe to say that the demand for bees has never been greater during my beekeeping tenure. In Florida, the state where I work, we have gone from about 900 registered beekeepers to over 3,500 registered beekeepers in the last eight years. All of these new beekeepers need a source from which they can acquire bees. This insatiable demand for bees seems similar almost everywhere I travel.

Along with this demand for bees has come a dwindling supply relative to the number of people wanting bees. I am not suggesting that we have fewer bees available to us. I am, instead, suggesting that the number of people wanting bees, and the number of colonies they want, is outpacing the bee suppliers' ability to produce bees and have them available when beekeepers want them. Bee availability when needed seems to be the biggest problem. Bees are easy to acquire during some parts of the year, but difficult to acquire at others. Generally speaking, the highest demand for bees occurs in late winter and through spring. Thus, you need to get on purchase lists early, usually by summer the preceding year, if you want to have your bees in time for spring use. On the other hand, bees can be quite available through summer and into early fall. There often is not a waiting list for bees that time of year,

though how the bees are "packaged" for sale (nucs, packages, full size colonies, etc.) can be limited seasonally.

Beekeepers can acquire bees in six main ways, as: (1) nucs, (2) packages, (3) full size colonies, (4) swarms/bait hives, (5) cutouts (feral colonies removed from a structure), and (6) splits from their existing colonies. Some of these ways of acquiring bees further require you to obtain queen bees separately. For example, you will need a new queen if you split your own colonies because either the parent hive or the split will be left without a queen. Thus, it is helpful to know that one can acquire queens by (1) purchasing mated queens, (2) purchasing queen cells, (3) purchasing virgin queens, (4) grafting and producing one's own queens, and (5) allowing one's colonies to requeen themselves. In this article, I will describe and review the pros/cons associated with the various ways of acquiring bees and queens.

Acquiring bees

*Terminology note: Throughout this article, I use the word "colony" to describe



Figure 1. A five frame nuc. Photo – Jamie Ellis, UF/IFAS.

the adult and immature bees collectively and "hive" to describe the physical structure (lid, hive body, bottom board, etc.) in which the colony lives.

(1) **Nucs** – Nucs (Figure 1) are small colonies, or "nucleus" colonies. Nucs accommodate full-size, Langstroth-style frames. This simply means that the frames that come out of a nuc can go into a standard Langstroth colony. Nucs generally are sold by the frame, with three and five frame nucs being the industry standard. Currently, nucs are priced around \$20 - \$30 per frame, meaning that a typical 5-frame nuc costs \$100 - \$150. You usually do not get to keep the hive components (lid, hive body, and bottom board) with the purchase of a nuc. Rather, you only purchase the frames and the accompanying bees. Consequently, you must have a full size hive body ready to accommodate your nuc upon purchase and you must return the nuc's hive components to the producer after the installation of the nuc. Of course, I am confident the nuc producer would sell you the hive as well, for an additional fee.

Nuc producers/distributors usually have nucs available during much of the production season, this being spring through fall. However, the majority of nucs are produced for a spring distribution. Nucs are in high demand throughout spring. You need to get on nuc purchase lists with your nuc producer of choice about 6-8 months before you want/need the nucs. Otherwise, you get nucs when the producer has them available, which could be much later than you want them.

The producers of nucs create the nucs as splits from their existing colonies. They usually add a queen cell to the nuc, the cell

being purchased from a queen producer or one that they produced themselves. Less often, the nuc producers will move the old queen from the parent hive into the nuc or allow the nuc to requeen itself. The latter is an acceptable practice, if monitored closely to ensure that a quality queen is produced, the former less so since you would be purchasing an older queen, possibly at the end of her productive life.

The advantages of starting with nucs is that nucs are functioning colonies. They have a queen, brood, honey, pollen, and wax comb. They come ready to work. They do not have to take time to establish, as they already are established. Furthermore, they come with frames and pulled combs. That is hard to beat. Think of nucs as “starter colonies,” waiting for the opportunity to expand their colony and become productive. If timed correctly, a new nuc can be hived and make a surplus crop of honey for the beekeeper during the first season. Incidentally, this is why they are in such high demand in early spring. Beekeepers are trying to get them hived and established before the main nectar flow. Many commercial beekeepers increase their hive numbers by purchasing and hiving nucs. Nucs are one of my preferred ways of starting hives.

There are some potential downsides to starting with nucs. First, many nuc producers see selling nucs as a way to get rid of the old combs in their production hives. This helps them because they constantly are circulating new combs into their production hives. However, it could be a potential problem for the consumer because there could be pesticide residues in the combs and/or pest and pathogens that accompany the hive equipment. I often say that starting with nucs is a good way to start with another beekeeper’s problems. Nucs are a great way to start a hive. However, it behooves the consumer to (1) inspect the nucs before purchasing them, (2) ask the nuc producer about the history of treatments and pests/pathogens in his or her colonies, and (3) discuss the source of the queen in the hive. The latter is especially important given that there often is little-to-no selection of queens that end up heading nucs.

(2) **Packages** – As the name implies, packages (Figure 2) are small cages containing bees, a feeder can, and a separate small cage containing a queen. The queen is kept in a separate cage because she is unrelated to the bees in the package and will

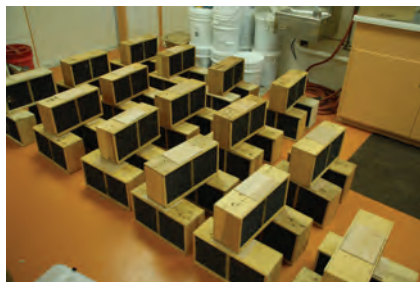


Figure 2. Packages of honey bees waiting to be installed. Photo – UF/IFAS.

need to be introduced to the bees slowly and methodically. The standard package contains about 3 lbs of bees. I have seen 2 and 4 lb packages, but they are not as popular at 3 lb packages. No, the package producer does NOT weigh the package to ensure that you are getting the weight of bees you purchased. It is more of an estimation. You get what you get. These days, the going rate for a 3lb package of bees is about \$70 - \$120, depending on what part of the country you are purchasing them in. You often can negotiate a reduced rate if you order packages in bulk. You also can order queenless packages at a reduced rate, usually about \$20 to \$30 less than the price of a queenright package.

Package producers shake bees into the packages, the bees originating from strong production colonies. The queens typically are produced, usually via the grafting method, in a separate branch of the producer’s business and are allowed to mate in small mating nucs. Some package producers do not produce queens themselves but rather purchase them from queen producers.

There is a high demand for packages throughout spring, mainly because beekeepers want to hive the packages and get them productive the first season. Consequently, you should get on a package list with your producer of choice at least 6-8 months before you want the packages. I emphasize that you need to do this if you want your packages when you want them, especially if you want them in early spring. If you are a bit more flexible, you often can get packages in late spring/early summer “on demand.” A point worth considering: people want packages in early spring because the packages will not have to be fed as they establish. They can use the incoming nectar and pollen to grow the colony.

Most packages are produced in southern states, this because southern package producers can make the packages earlier in the year than can producers in northern states. I note this because southern producers usually quit shipping packages in early-to-mid summer since the packages risk overheating during transport. You will need to plan accordingly.

Packages are great ways to start colonies. In essence, a package is similar to a swarm. They are a hive-less cluster of bees. The good thing about most packages, being like swarms, is that they exhibit explosive growth and productivity. They are programmed to go from nothing to a fully developed colony with enough honey to survive winter in a very short period of time. Thus, they often are a good investment. A well-managed package can grow as quickly as a nuc, but without all of the potential baggage that comes with purchasing combs that may/may not have pesticide residues, pathogens or pests. Furthermore, they tend to be significantly cheaper than nucs. All beekeepers should purchase and hive at least one package in their lifetime. It is a great experience.

Of course, there are a few negatives associated with acquiring bees as packages.

First, their limited availability “on demand” can be somewhat irritating. Furthermore, most package producers sell Italian-derived honey bees only. If you do not use Italian bees, or some derivation thereof, then starting with packages may not be a good option for you. One way around this is to purchase a queenless package and a queen of your choice separately. You can combine them when you hive them. Another disadvantage, if it is a disadvantage, is that packages only come with bees. You will have to have pulled comb available or otherwise hive them on foundation. If you do this in spring, there should be enough incoming resources to grow the colony on nature’s dime. If you hive packages in late spring/summer, you will have to feed them to get them stable. Finally, the process of hiving a package comes with its own complications, if not done right. Packages seem to need a lot of attention initially, just to ensure everything is progressing normally.

(3) **Full size colonies** – Perhaps the quickest way to acquire a colony of bees is to purchase a full-size colony of bees (Figure 3). These colonies are considerably further along developmentally than are packages and nucs; after all, they are the ultimate end goal of packages and nucs. Many beekeepers are willing to sell whole hives and some consider this their primary business. Those in the business of selling hives often produce these for-sale units much the same way they would nucs. The colonies in these hives usually are less than six months old, have a fairly new queen, and contain a mixture of newly pulled combs (combs put into the hive as foundation less than 4-6 weeks prior to the hives going on the market) and mature combs from the colonies the beekeepers split to make the new colonies.



Figure 3. A single deep, full size colony. This is the most popular size of colony to sell. Photo – Jamie Ellis, UF/IFAS.

In my experience, full size colonies are sold usually in single deep hive bodies. The cost for these is about \$200 - \$300 per colony and price cuts usually accompany bulk purchases. This price tag may be hefty, but it actually is likely the cheapest way to acquire bees. One also can buy full size colonies in other configurations, though they are harder to find and the price will change correspondingly. For example, it is more difficult to find full size colonies in eight-frame equipment, in hives composed solely of medium supers, top bar hives, etc. These colony con-

figurations are available; you will just have search for them. As you might imagine, the demand for full size colonies is greatest in early spring. Thus, you will have to get on a purchase list if you want colonies at that time. As an added hint, a lot of beekeepers leaving California in March are ready to sell colonies since they have finished using them for pollinating almonds. This is a good time to purchase full size colonies, especially if you are trying to grow your operation significantly.

The pros/cons associated with purchasing full size colonies are similar to those with purchasing nucs. A full size colony gives you the added benefit that they are productive immediately upon purchase. For example, they are ready to be used to pollinate crops, to produce a crop of honey, etc. Thus, they are a good way to jump straight into beekeeping or forgo the growth period associated with colonies acquired as packages, nucs, swarms, etc. Also, full size colonies usually are sold with the equipment they are inhabiting. You purchase the lids, hive bodies, and bottom boards along with the frames and bees. This can be good and bad, depending on how you view it. On the one hand, these colonies arrive with “no assembly required.” They are ready to go. On the other hand, the equipment sometimes is poor quality, something the producer is trying to cull from his/her operation, and could carry pathogens. You should inspect the colonies before purchase.

(4) Swarm/bait hives – Some beekeepers acquire more bees by capturing or removing swarms. In the former scenario (capturing or baiting swarms), the beekeeper can establish bait hives or swarm traps around their apiaries, the apiaries of other beekeepers, or wherever they feel they are most likely to encounter swarms of bees. The bait hives literally can be empty hives (usually a bottom board, an empty deep hive body, and a lid) mounted in the air on trees or other tall structures. The bait hives also may be more of the swarm trap variety (Figure 4). Swarm traps are manufactured and sold for the purpose of, well, trapping swarms. They look like flower pots made of a processed wood/paper material. Like bait hives, swarm traps can be mounted in the air, being affixed to a tall structure. Bait hives and swarm traps work on the same principle: In any environment, there are swarms looking for a place to establish nests. The bait hives and swarm



Figure 4. A swarm trap mounted about 20 feet from the ground, in a tree. Photo - UF/IFAS.

traps provide that suitable nesting location to the cavity-seeking swarm.

Some beekeepers offer a swarm removal service to the general public. This can provide the beekeeper with a steady supply of swarms during swarm season. The interesting thing about acquiring bees this way is that the individual with the swarm “problem” often *pays* the beekeeper to remove the swarm. What a deal!

It is important that you get on as many swarm call lists as possible if you want to grow your operation by removing swarms for others. For example, most county extension agents, pest control operators, and local/regional beekeeper clubs get yearly swarm calls and will refer the callers to local beekeepers. Therefore, the interested swarm removers should notify their county agent, local pest control operators, and local/regional beekeeper clubs of their interest in providing this service for the public.

The upside of acquiring bees this way is that the bees do not cost money, well, in the direct sense. There is a cost associated with the work required to capture the swarm. The equipment needed to do this is mostly what a beekeeper would have already, but there are a few specialty items needed, especially if using swarm traps. Furthermore, it costs time and labor to get the bees. This, hopefully, is pretty minimal given that you are capturing a swarm. That said, swarms have a way of landing in hard-to-reach places. It may turn out to be more work than it is worth.

Otherwise, the pros/cons of acquiring bees through swarms are much like those associated with hiving packages. The swarm should exhibit explosive growth, but may have to be fed if not acquired immediately before major nectar flows. For better or worse, the genetic stock you inherit is what it is. This can be a problem if you provide swarm collection services in areas where African bees are present. Of course, you can requeen a swarm to get around this problem. I suppose an additional drawback of using swarms to increase your colony numbers is that they are available only seasonally. The main swarm season for much of the U.S. is spring. Thus, it is hard to grow your operation on swarms in summer and early fall when fewer swarms are available for harvest. Finally, feral swarms can originate from colonies whose pests and pathogens are not managed. So, capturing swarms is a good way to introduce pest/pathogen problems into your apiary if not done with care.

(5) Cutouts – Though the name for this may differ regionally, a “cutout” is the removal of a nesting feral colony from a natural or manmade structure (Figure 5). In essence, a colony of bees has taken up residence somewhere where someone does not want them to be. Thus, the beekeeper provides a colony removal service for the individual and gets a free colony in the process. The person requesting the service typically is charged a removal fee by the beekeeper.

In my opinion, this is the most labor-intensive way of acquiring new bees. Remov-



Figure 5. A wild honey bee colony is being removed from a wall in a house in South Africa. Photo – Anthony Vaudo, UF/IFAS.

ing nesting colonies from structures is hard work. The work involves locating the colony, gaining entrance into the nest, removing the bees/combs, trying to get the bees established in a new hive and relocating the newly acquired hive. Of course, you cannot forget the work associated with cleaning up the work site, repairing the structure from which the colony was removed (if necessary), cleaning your equipment, etc. Furthermore, the beekeeper does not always find the queen so it sometimes is necessary to purchase a queen for the hive. Despite these drawbacks, many people find colony removal personally rewarding and profitable. Most people providing this service charge a base fee to remove the colony of \$400+ per colony.

The advantages/disadvantages of acquiring colonies this way are similar to those associated with capturing swarms. Though this can be a profitable and fulfilling way of acquiring bees, the service should be provided only by skilled, trained, and practiced beekeepers. You also should consider carrying at least \$1 million of liability insurance. Things can go wrong when removing bees on behalf of others. Finally, you need to check your state’s pest control laws as many states would consider offering this service an act of pest control. Therefore, you would not be able to remove colonies without a pest control license. Though feral colonies are present around the year, they tend to be noticed most in spring and early summer, when hive activity is greatest. Thus, the work can tend toward seasonal in nature.

(6) Splitting colonies – A final, common way to acquire more colonies is to split those you already have (Figure 6). I have a



Figure 6. Making a nuc split from a full size colony. Photo – Jamie Ellis, UF/IFAS.

saying about this that I use quite a lot: “Bees make bees.” If you have bees, you can make more bees.

The advantages of splitting one’s own colonies are numerous. The bees are cheap (they are free!), though there other expenses involved. The bees are available on demand, except during winter months when the hives otherwise are dormant. Consequently, you do not have to worry about the availability of bees when you want them since the bees are available when the colonies are strong enough to split. Additionally, you know the management history of the bees, given that you performed the management.

As for other methods of acquiring bees, there are some drawbacks of splitting one’s own colonies. First, the colonies from which the splits are taken experience a temporary setback. Depending on the time of year the split is performed, this can hurt the productivity of split colonies. Second, splits require the same attention that nucs do, given that a split, essentially, is a nuc made from your own colony. Third, you will have to address the queen situation of the split since it will be queenless upon creation. Are you going to allow it to requeen itself, have a purchased queen ready to insert, etc.? These drawbacks aside, making splits is rewarding and something almost every beekeeper eventually finds himself/herself doing.

Acquiring queens

(1) Purchase mated queens – Probably the simplest, most straight-forward way of acquiring new queens is to purchase them directly from a queen breeder (Figure 7). Purchased this way, queens usually cost \$20 - \$30 per queen, with discounts available for queens purchased in bulk.

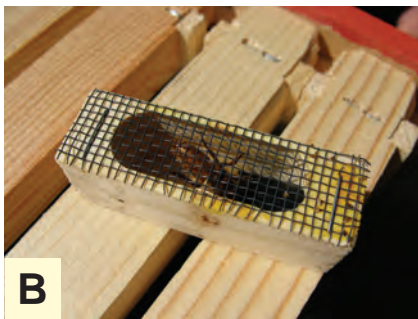


Figure 7. A mature, mated queen (a) and a typical cage in which purchased queens are shipped (b). Photo a – Jamie Ellis; photo b – UF/IFAS.

Queen breeders produce queens from breeder queens. In essence, queen breeders select the best queens (the breeder queens) from among all of the queens in all of their colonies. They, then, produce offspring queens from these superior breeder queens. I cannot begin to describe the process by which queen breeders select their breeder queens. Some queen breeders approach this process meticulously, with study, data collection, and thought. Queens produced this way are hard to beat. On the other hand, other queen breeders produce queens from whatever they have, thus producing a product that you could have achieved by chance by allowing your colonies to requeen themselves. It really pays to do your homework on queen breeders and the queens they produce. I find that asking beekeepers about their source of queen bees and their general satisfaction with the product is a good way to identify queen breeders with whom you should do business.

Why purchase queens from queen breeders? Generally speaking, queen breeders work hard to ensure they produce queens of sufficient quality to sell to the consumer. With proper selection, the queens usually are better than what a beekeeper could produce themselves. Moreover, purchased queens are mated and have begun laying. Consequently, the queens are ready to lead your colonies. Furthermore, the queen breeder has taken steps to ensure that the queen is young and vigorous. Additionally, you can purchase queens of any breed and queens that are locally adapted to the environment in which you keep your bees. Finally, most queen breeders will clip and mark the queens prior to selling them, for a small fee of course. I recommend that new beekeepers take advantage of this service.

Drawbacks of purchasing queens from breeders include variable seasonal availability of queens (which is low in spring when the demand is greatest), the amount of time it can take to receive a queen when one is needed “now,” and the fact that sometimes the queen is no better than what you could produce on your own, thus leading you to question why you are spending your money on the queen. There can be additional problems if the queen is dead when she arrives, she dies upon introduction into the colony, or if she quickly turns into a drone layer. You usually can get a replacement queen from the queen breeder if the queen is dead upon arrival. In this case, you will need a third party witness to verify that the queen was dead upon arrival. So, it usually is best to inspect the queen in the presence of a post office employee once the queen arrives. You lost your money if the queen dies upon introduction to the colony or if she did not mate well.

(2) Purchasing queen cells – Many of the same queen breeders who sell mated queens also sell ripe queen cells (Figure 8). These tend to be considerably cheaper than mated queens. They can be \$5 - \$10 per queen cell. These are produced the same way that mated queens are produced. The cells are simply an earlier step in the process



Figure 8. Mature queen cell that can be placed into queenless colonies. (ABJ file photo)

of producing mated queens.

The obvious advantage to purchasing queen cells is that you reap most of the benefits associated with getting queens from queen breeders, but at a greatly reduced price. The downside is that you have to put the cell in a queenless colony and allow the virgin queen to emerge, mate, and begin producing offspring. This process can take four to five weeks, if you can get the cells when you need them. Another drawback is that you lose the advantage of the relatively controlled mating that occurs at the breeder’s operation. When you purchase cells, the resulting virgin queens mate with the drones available in your area. These drones are not produced under the close eye of a breeder; thus, you stand to lose a little quality in the resulting queen.

(3) Purchasing virgin queens – In essence, the virgin queen is the step between a fully mated queen (option 1 for acquiring queens) and a ripe queen cell (option 2 for acquiring queens). Therefore, they are produced the same way as are queen cells and fully mated queens and they have the same pros/cons, especially those associated with acquiring queens by means of purchasing queen cells. Ultimately, the virgin queen must be introduced into a colony as if she were a mated queen, allowed to mate, etc. Virgin queens typically cost less than fully mated queens, but they are a riskier purchase. Furthermore, it takes some time before the virgin is producing offspring of her own.

(4) Grafting and producing your own queen – There are, in essence, two ways to make your own queen. You can do it the way that queen breeders would (this option) or by allowing your queenless colony to make its own queen (option 5 described below). Producing your own queens via the grafting method is straightforward (Figure 9), though it may take some time to acquire the skills necessary to graft the queen. In the beekeeping context, the word “graft” means to use a special tool to remove a small, female larvae from a worker cell and place the larvae into an artificial queen cup. The cup

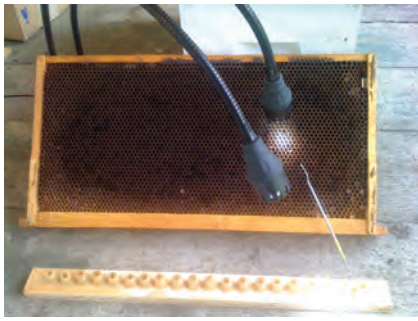


Figure 9. A frame ready for grafting. Notice the queen cups at the bottom of the picture and the grafting tool in the lower right corner. The tool is used to take young larvae from the frame and place them into the queen cups. The lights help the grafter see the young larvae. Photo – UF/IFAS.

can be made of pure beeswax or plastic. The queen cups are put into strong, queenless colonies that nurture the larvae in the cells and develop the larvae into queens. When the cells are “ripe,” i.e. capped, they can be placed each into its own queenless colony. The virgin will emerge from the cell, mate, and begin laying in the colony into which she hatched.

There are three main benefits of acquiring queens this way. First, you can produce queens and have them available when you need them. Second, you control the queen

source and can influence the makeup of the drone population with which she interacts. Third, many beekeepers find it quite rewarding to produce their own queens. Thus, there is a personal satisfaction benefit associated rearing one’s own queens.

On the other hand, grafting is a tedious, methodical process, a process that can take some time to master. Many beekeepers undertaking this for the first time find that they kill a lot of the queens they graft. Furthermore, grafting is not really feasible for the small-scale beekeeper, just due to the nature of the process. Beekeepers likely need 20+ colonies before they see a noticeable benefit associated with producing their own queens. Finally, there is specialized equipment associated producing queens this way. Consequently, there are some startup costs associated with grafting one’s own queens. These costs can be recovered in time with the savings associated with not having to purchase queens.

(5) Allowing colonies to requeen themselves – This is the easiest way to acquire new queens. It is as simple as allowing a queenless colony to requeen itself. This is the economical option; it is free in the sense that you do not have to purchase a queen. Bees are pretty good at doing this on their own. ☺

Allowing colonies to produce their own queen is not foolproof. Sometimes, colonies fail to produce a queen, for whatever reason. Furthermore, there is a risk that

the colony will produce an inferior queen. This happens most often in emergency situations, when colonies need queens immediately. The reason for this is simple. In emergency situations, colonies will go to the youngest available worker larvae and divert them toward becoming a queen. When this happens, the oldest of the larvae chosen to become queens are the ones most likely to emerge first. The older a larvae is when she is diverted to becoming a queen, the more inferior she is as a queen. In contrast, the younger a larvae is when she is diverted to becoming a queen, the better she usually is as a queen. Other benefits/drawbacks of allowing a colony to produce its own queen are similar to those associated with purchasing a virgin queen.

Conclusion

In the end, how you acquire your bees and queens is up to you. I recommend trying multiple ways to see which you prefer. It is important to know that, unless you make your own bees and/or queens, you likely will have to get on advance waiting lists in order to acquire bees and queens in other ways. This means that you must have clear goals for your beekeeping efforts in advance of queen and colony availability. With these goals known, you can plan your acquisition of bees/queens appropriately. I hope that you can use the information I have provided to assist you in your quest for more bees and the perfect queen.

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HONEY BEES 101: RESOLUTIONS FOR YOUR 2015 BEEKEEPING YEAR

BY JAMIE ELLIS

I decided to take a short break from my typical Honey Bees 101 column and, instead, give you some pointers for producing the healthiest, strongest, and most productive colonies for the 2015 season. Call these pointers “resolutions” if you will. I feel these are things that every beekeeper should do in order to protect the bees that they have and make the bees as profitable and productive as possible.

1) Make Varroa control a priority. Many beekeepers and bee scientists believe that Varroa are the number one killer of bees on the planet. They harm bees in three ways. First, they feed on bee hemolymph (blood). Second, they vector pathogens that harm bees. Third, beekeepers use chemicals to control Varroa, and many of these products have been shown to impact bees negatively in some way. As a result, every beekeeper should make it a priority to stay up-to-date on the latest Varroa control measures and do whatever it takes, within the realm of legal options, to control this devastating pest.

2) Experiment with resistant queen stocks. I find that most beekeepers have not given queens bred for resistance to various pests/pathogens a fair chance. Most beekeepers have never used resistant stock in the first place, let alone used the stock appropriately. Purchase a few queens bred for resistance to Varroa, for example, and see how they perform in your particular management paradigm.

3) Practice effective swarm control. Swarm control is not viewed as a favorable practice in some beekeeping circles and that is absolutely ok. However, swarm control is necessary if you want your colonies to be as strong and productive as possible. I consider swarm control an essential part of bee management. Think of it as the best way to keep your bees.

4) Focus on bee nutrition. It is no secret: nutrition is important to bees. I often feel that our bees do not have the available nutrition they need to thrive. We tend toward the belief that as long as something is available in the environment, the bees have everything they need. However, not all pollen and nectar are created equal. Generally speaking, nectar quality is more stable than is pollen quality. I tend to find that colonies lack in nectar quantity (not enough nectar to make into honey) and often need to be fed, while they lack in pollen quality (not a nutritious pollen) and need a better source. Learn when to feed and what to feed.

5) Ensure that your colony is headed by a good quality queen. This is not to be confused with the advice I offer in point 2 above. Instead, I am advising that beekeepers learn to recognize good queens and poor queens, and work to remedy the latter. I see many beekeepers satisfied with simply having any queen in their colony, regardless of the quality and productivity of the queen. Beekeepers should be able to identify failing queens and have the confidence to replace those queens with better quality queens.

6) Conduct an honest assessment of the quality of forage resources in the area where your bees are located. Not all apiary sites are equally good for bees. Bees perform better when they are managed in optimum environments. The best way to determine the quality of a potential apiary site is to locate a few bee colonies there and allow them to tell you how good the site is.

7) Control the pests and pathogens that are manageable. Some pests, such as Varroa and Nosema, cannot be controlled easily and predictably. However, many beekeepers spend so much time and energy addressing these problems and ignore controlling pests and pathogens that can damage colonies significantly, but are otherwise easy to control. These include European and American foulbroods, chalkbrood, tracheal mites, wax moths, and, to some extent, small hive beetles. It is important not to overlook the “minor” problems.

8) Spend time researching the latest information related to beekeeping. There is so much information related to beekeeping being generated around the clock. A lot of this information concerns new ways to treat pests/pathogen, the latest news on bee nutrition, etc. This information can be found in the national bee journals, beekeeper newsletters, the latest books, online communities, etc. In my experience, the more informed the beekeeper, the better the beekeeper. The better the beekeeper, the healthier and more productive the bees.

9) Join and actively participate in local, regional, and/or state bee clubs. This is a supplemental point to point 8. The best beekeepers work to stay informed of the latest information related to the craft. The beekeepers’ associations are the best means of networking with other beekeepers. Beekeeper associations allow you to network with other beekeepers, shape policies related to beekeeping at the local, state, and national levels, interact with the “movers and shakers” in the beekeeping industry, etc. I believe membership in beekeeper associations should be a priority for every beekeeper.

10) Do not forget the small things that [may] matter. Have you rotated your combs out of colonies in the past 10 years? Do your bees have an adequate water source nearby their hive? Do you believe your bees are exposed to pesticides outside the hive regularly? Do you live in an area where bears are present? How good is the physical hive in which the bees live (does it need to be painted or parts replaced)? Do you have too many colonies in your apiary(ies), thus leading to limited resource availability? They say the “devil is in the details.” Attention to small details such as these can make the difference between a successful beekeeping season and a catastrophic one.

Happy beekeeping in 2015!