

First-Year Beekeeping: A Seasonal Guide for North Mississippi



Congratulations! You have adopted thousands of tiny pollinators and honey-makers into your life. If you're like many beginner beekeepers, you are probably staring at your new hives, scratching your head, and wondering, "So ... what do I do now?"

The first year of beekeeping is the hardest, but there are some basic practices you can follow that will help make it easier. This publication breaks down first-year beekeeping month by month to help you prepare, monitor, and grow your bees successfully in north Mississippi.

We will assume you acquired your new hives in the spring, perhaps March or April, at the start of the main foraging season in Mississippi. So let's begin by addressing spring colony growth.

Spring Buildup

March

Historically, March is a cool, rainy month in north Mississippi. There are several days and nights that dip below freezing in spite of the eager leafing and blooming of herbaceous plants. Honey bees have broken their winter cluster and are beginning to take regular foraging flights to replace their resources.

The process of "brooding up" begins as soon as the maple, willow, and redbud trees start to bloom, which may have happened in February if you live in an urban area or USDA zone 7b or greater. These trees, along with ground covers like spring beauty and henbit, are abundant sources of pollen—the necessary nutritive stimulus for a queen bee to begin egg-laying.

On days when the ambient temperature exceeds 55°F, forager bees will be collecting pollen from as many different species of plants as they can in order to provide a complete diet of essential amino acids for their hungry larval sisters. If you do not wish to disturb the process of brood rearing by opening the hive to inspect, you can monitor the foragers at the hive entrance during the warmest hour of a sunny day.

Bees should be crowding the landing board, and the majority of returning foragers should have heavy loads of pollen adorning their hind legs. This is a good indication

that they are finding sufficient protein for their brood. If you are not seeing a lot of pollen coming in, it is time to open your hive and inspect the brood chamber for the presence of a solid brood pattern and sufficient food stores.

April

This month marks the beginning of peak foraging season in the Southeast, as well as the onset of swarm season. **Make sure your bees have enough room to grow!** If you overwintered your bees in one deep box, add another deep on top of it. If you overwintered in two deeps, discourage swarms by reversing the top and bottom brood boxes to put the empty combs above the capped honey.

Bees tend to store honey above the brood nest, and if there is not space to move "up" after they have moved "out," they will think they have outgrown their enclosure and begin making queen cells in preparation for swarming. If reversal is not done before these swarm cells appear, then it likely will not work.

After giving them ample space in early April, your colonies should be at least double in size by the end of the month; if not, you may need to replace your queen—especially if you do not know the age of the queen you started with. Most queen producers will begin grafting in early April, so do not delay in putting in your order.

If you are confused as to what kind of queen to purchase (there are many races and hybrids to choose from), look for "varroa-resistant stock" in the description. This is an indication the queen has hygienic traits that will produce a colony with enhanced varroa mite resistance.

May

Flowering is heavy and your bees are in reproductive high gear, but you may notice a few problems in your colonies now. Drones are running rampant, which means varroa mites are probably also rampant. Varroa mites pass on viral pathogens to bee brood by feeding directly on them, and symptoms start showing up around this time if you have a heavy mite infestation.

The most common presentations of viral disease are deformed wings in newly emerged bees, "shotgun" or

spotty brood patterns, and hairless, shiny black workers. The first condition is caused by deformed wing virus (DWW) and the second and third from parasitic mite syndrome (PMS), the result of a morbidly high infestation of varroa mites transmitting a multitude of viral pathogens to your bees (Figure 1). Most colonies cannot recover from PMS once the infection has reached the point of showing these physical symptoms.

Spring varroa monitoring is the best strategy for preventing this condition in your colonies. For instructions on how to sample colonies for varroa mites, see MSU Extension Publication 2826 *Managing Varroa Mites in Honey Bee Colonies*.

Summer Slowdown

June

There is still a lot going on in June, bee- and flower-wise, and you may notice the honey supers are filling up fast. Early June is a good time to extract your spring crop of honey and make sure your colonies are not honey-bound or otherwise running out of space.

As mentioned earlier, if a colony senses it is outgrowing its nest environment, worker bees will start building swarm queen cells. You can usually find these peanut-shaped cells along the bottom edge of a brood comb, and there are typically only one to three at a time.

Remove the swarm cells before they are capped and give your bees another box of drawn comb. This is usually enough to prevent them from “throwing a swarm,” which is a natural means of colony dispersal that tends to begin after colony buildup in April.

In most of Mississippi, swarming peaks in May but continues through midsummer. It is advisable to prevent a colony from throwing a summer swarm, as this will negatively affect your fall honey crop.



Figure 1. Parasitic mite syndrome (PMS) causes “snotty brood” and a poor brood pattern.

July

The dog days of summer are setting in, which means long periods of heat and no rain. Weather patterns vary from year to year, but in general, colony reproduction slows at this time, sometimes resulting in what is called a “brood break.” You should no longer see drones in your hives during this period of little to no colony growth, but you may see an increase in small hive beetle adults (Figure 2).

Stay vigilant during this latent period, removing any empty boxes that bees are not filling with honey. For tips on preventing or managing small hive beetles in your colony, see Extension Publication 2825 *Small Hive Beetle*.

August

In the northern part of the state, small hive beetles reach their peak numbers in honey bee colonies in August. The summer brood break gives beetles a chance to overpower the colony, which is now smaller and has fewer defenders. Check your brood box for hive beetle larvae, as this is typically where beetle reproduction occurs during the summer.

August is also a good time to sample your colonies for varroa mites, as most of the mites in your colony are phoretic (hitchhiking on adult bees) at this time. It is much easier to both sample and treat phoretic mites than mites that are in capped brood.

It is of utmost importance that your winter bees are healthy and disease-free so they can endure the 3-plus months ahead of them, so if you choose to monitor and treat varroa only once a year, this is the time to do it. For instructions on how to sample and treat for varroa mites, see Extension Publication 2826 *Managing Varroa Mites in Honey Bee Colonies*.



Figure 2. Small hive beetle adults run rampant in a weak hive.

Autumn Flow

September

This is the season for preparing the workforce of bees for next spring's honey crop. The autumn nectar flow is on, and queen bees are back in brood production mode.

In Mississippi, the most abundant wildflowers producing nectar and pollen for honey bees are goldenrod (*Eupatorium* spp.), asters, and groundsel trees (Figure 3). You may notice a sharp, acrid smell wafting from your hives during this time. This smell is from the ripening of aster and goldenrod honey, not to be confused with the citrus or fruity odor of a hive that has been slimed out by small hive beetle larvae.

If there is a heavy fall flow in your area, be sure your bees have enough space to grow or they will attempt to swarm again. Swarming at this time of year often results in weak parent colonies and desperate swarms that build comb on exposed surfaces.

October

Your bees are still hard at work rearing next year's bees, and they may require some syrup if you harvested the fall honey crop. Make a thick syrup from 2 pounds of sugar and 15 fluid ounces of water (for larger quantities, 16.6 pounds of sugar and 1 gallon of water). Administer the syrup using a top feeder or perforated zipper-seal bags laid across the top bars of your uppermost box.

The first killing frost happens this month, and bees will start consuming their stored honey. If you do not want to supplement with sugar syrup, make sure each colony has 50 to 60 pounds of honey in the top box and four honey frames in the brood box. This is enough food to sustain them through the winter, but you will need to check them again at the beginning of the next year.

It is also best to concentrate your bees into one or two deep boxes. This will make it easier for bees to

thermoregulate since they will have less air space to keep warm.

You may be tempted to seal your hives up tightly with entrance reducers and solid bottom boards, but hives need air circulation all year. Mississippi is very humid in the winter, and if hives do not have proper air movement, condensation will form on the underside of the cover and drip down on the cluster, chilling the bees. This is a deadly situation for bees that can be avoided by using an inner cover during winter months only. Screened bottom boards coupled with entrance reducers are perfect for winterizing Mississippi colonies.

Be sure your bees are protected from direct wind, and set them as close to the ground as possible to prepare for the freezing temperatures to come.

November

There is not much to be done at this time if you have properly winterized your bees. In the event of a warm spell, it is a good idea to make sure your fuzzy friends have enough food, including pollen. There should be one full frame of pollen per box in a winterized colony.

Winter Wait

December

Again, this is a month of rest for the bees and the beekeeper. There is generally little activity in the hive, though the bees will take advantage of days above 40°F to make cleansing flights and void their hindguts of waste. You may see yellowish-brown splatters on the front and top of your hives as a result of these quick, expulsive trips, which will continue throughout the winter. Cleansing flights are very important for preventing *Nosema* infections of the intestinal tract, which can be fatal to winter bees.

Foragers will attempt to replenish resources during warm December days, and you may see them gathering salts and minerals from muddy pools of water.



Figure 3. Purple asters (left) and goldenrod (right) provide much of the autumn forage for bees in Mississippi.

January

Northern beekeepers have little to worry about at the beginning of the year, but we Mississippi beekeepers run into problems. There is almost always a short period of 70°F days in the middle of the month, and this warm front causes honey bees to break cluster and rapidly consume their food stores.

One of the biggest rookie mistakes is only checking the honey super you left on top of the colony in the fall and not investigating the brood box below, where the bee cluster is. While the cluster does move upward in the hive during the winter, this progression is slow. When bees temporarily break cluster, they first devour the honey stores directly around them rather than moving up into the honey super. If you do not replace the food adjacent to the cluster, the bees can starve when ambient temperatures rapidly begin to fall again.

A January inspection is just as necessary as a fall mite treatment, so be prepared to take action during the warm spell.

February

Throughout most of the state, this is when trees begin to bloom and brooding up officially starts. For those beekeepers located in the very northeast corner of Mississippi, February may be too early to see pollen foragers at the hive entrance. If you are not seeing activity from your hives, sit tight for a few more weeks.

If your bees are actively foraging, you can help them out a bit by feeding pollen supplement or pollen patties. These products are readily available from any beekeeping supply company; many co-ops and feed stores around the state carry a selection of products, as well. Premade patties are the most convenient to feed and easiest to store. Expect to pay around \$1 per pound for most brands.

Because pollen patties also encourage small hive beetle reproduction, it is best to feed only a little at a time—just enough to last 2 days. This may be half or less of a premade patty, but because winter colony size varies greatly, it is best to experiment with your own colonies to determine the correct feeding rate.

It is also wise to feed a thin sugar syrup (one part sugar to one part water) to stimulate brood rearing and wax production. The zipper-seal bag method described in the October section is perfect for this application.

There is *so much more* to know about beekeeping than is presented in this seasonal guide, but this can serve as a quick reference to help you get established. Too much information at once can be overwhelming to new beekeepers, and a lot of beekeeping is a journey of trial and error.

You will find these monthly tips as relevant in your first year as it is in your 10th year of keeping bees in north Mississippi. Do not hesitate to join a local beekeeping club or chapter, as these offer free workshops and classes, often in collaboration with the Mississippi State University Extension apiculture program.

Enjoy the journey!

Publication 3582 (POD-03-21)

By **Audrey B. Sheridan**, Research/Extension Associate, Entomology.



Copyright 2021 by Mississippi State University. All rights reserved. This publication may be copied and distributed without alteration for nonprofit educational purposes provided that credit is given to the Mississippi State University Extension Service.

Produced by Agricultural Communications.

Mississippi State University is an equal opportunity institution. Discrimination in university employment, programs, or activities based on race, color, ethnicity, sex, pregnancy, religion, national origin, disability, age, sexual orientation, gender identity, genetic information, status as a U.S. veteran, or any other status protected by applicable law is prohibited. Questions about equal opportunity programs or compliance should be directed to the Office of Compliance and Integrity, 56 Morgan Street, P.O. 6044, Mississippi State, MS 39762, (662) 325-5839.

Extension Service of Mississippi State University, cooperating with U.S. Department of Agriculture. Published in furtherance of Acts of Congress, May 8 and June 30, 1914. GARY B. JACKSON, Director