AGRICULTURAL

MU Guide

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Seasonal Apiary Management for Missouri

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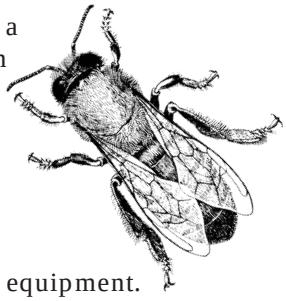
This guide provides a yearly management program to maintain beehives for satisfactory honey production.



Winter

December and January

1. Repair, paint and clean equipment.
2. Remove and render any foundation in poor condition.
3. Inspect apiary for animal or weather damage.
4. Feed bees sugar water and pollen substitute, if necessary. Colonies that have less than 15 pounds of capped honey (six frames in shallow super or three-deep super frames) need supplements.

February

1. Open colonies on a warm day. Check for diseases, and see if the queen is actively laying eggs.
2. Feed bees, if necessary (see December and January). You may wish to feed sugar water to stimulate an increase in the bee population. Feed preventative antibiotics.
3. Unite weak colonies. Select the best queen of two colonies. Kill the less desirable queen, and lay one sheet of newspaper over the desirable brood nest. Slit the paper in several places. Set the queenless brood nest on the top of the desired brood nest. The two colonies will merge. One strong colony is more productive than two weak ones (see Figure 1). This procedure should be done in the fall, if possible.

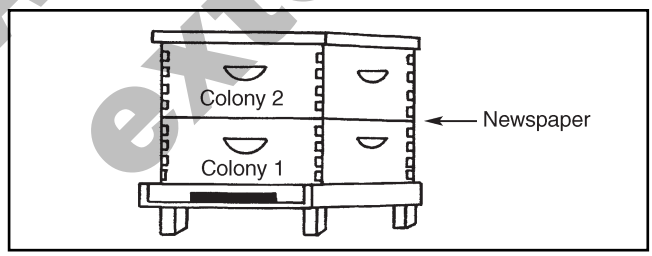


Figure 1. Unite weak colonies.

4. Survey for Varroa mites using one of the following methods:
   - Remove capped brood (drones if available), and inspect for mites.
   - Use an ether roll (place 200 bees in a glass jar with a 2-second blast of starter fluid and roll it); mites stick to the side of the jar.
   - Place a screen over sticky white cardboard on the bottom board; mites adhere to the board. A poster board with vegetable cooking spray also works.
   - Dr. Eric Ericson has developed a technique for identifying mite excreta. (Mite excreta: A new diagnostic for Varroasis; *Bee Science*, 1994, Vol. 3, No. 2, pp. 76–78)
   - Shake 200 bees in a jar that is half full of detergent and water. Then count the mites dislodged by pouring the solution through a screen that is large enough to catch the bees but will pass mites onto a second white cloth filter.
   - To prevent robbing, place a moist white cotton cloth over open colonies. Keep entrance reducers in until the population increases and a honeyflow is near.

Spring

March (see Table 1 for flowering periods)

1. Reverse the brood chambers if most of the brood is in the upper chamber (see Figure 2). You may reverse during early March in southeast Missouri, but not until late March or early April in north Missouri or elevations above 1,200 feet.
2. In about two weeks, when the upper chamber is filled with brood, reverse the chambers again. Reversing the chambers every two weeks during the season helps prevent swarming.
3. In Missouri, replace queens at least every other year during March or April. Before placing a new queen in the colony, remove the old queen and all swarm cells. Place the new queen over two frames of brood. Recheck the colony in two weeks to see if eggs are present and if the new queen has been accepted. When you order queens, make sure they are marked so you can locate and identify them easily. Clipping can aid in preventing swarms but may increase supersedure.

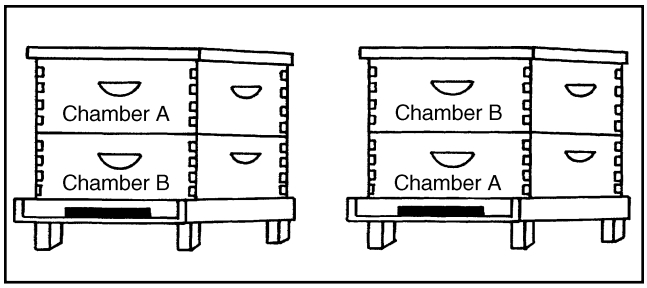


Figure 2. Reverse brood chambers.

4. Destroy any swarm cells in the hive. Swarm cells are queen cells and must be destroyed every week to prevent swarms.

5. Inspect for diseases, and feed preventative antibiotics. Terramycin powder mixed with powdered sugar and fed once a week for three weeks will prevent foul brood. Extender patties made of 50 percent powdered sugar and 50 percent vegetable shortening mixed with terramycin keep bees medicated for three weeks and help reduce tracheal mites. Fumadil "B" fed three times (once a week) with 1 quart of sugar water or once with a gallon prevents nosema disease.

6. Feed colonies as necessary.

7. Prepare shallow supers for use during the honeyflow. Replace damaged foundations, and clean the frames. Keep supers fumigated with paradichlorobenzene crystals until 24 hours before they are placed on the colony. Air supers for 24 hours before use.

8. Survey for Varroa mites using one of the following techniques:

- brood inspection
- ether roll
- screen over sticky board on the bottom board
- detect mite excreta
- detergent and water shake

When brood is present, only 10 percent of mites are on adult bees. Multiply the number of mites found by 10 to estimate what is actually present. When using ether roll or wash techniques, multiply by 500 when brood is present. If no brood is present, count the number of mites found. If you find fewer than 100 mites, monitor the colony monthly and plan a fall treatment. If you find 100 to 1,000 mites, treat as soon as possible after the honey is removed or before a honeyflow starts. If you find more than 1,000 mites, remove supers and treat for mites immediately. Reinfestation is likely.

9. One method of treating for Varroa mites is to use a frame of drone brood to trap the mites. This frame can be removed when capped and frozen to kill mites. Return it to the colony and repeat the process as long as you find mites.

10. Treat colonies with Apistan or Checkmite strips for Varroa mites. Use two strips per brood chamber. Leave strips in for at least 21 days and no more than 45 days. Use strips immediately after opening, and use strips only one time. Store strips in a dry, cool, dark place (refrigerator) inside an airtight plastic bag up to six months. Use formic acid gel packs for conrol of tracheal mites andVarroa mites. Alternate mite control materials to prevent resistance.

April

1. Feed colonies as needed. A strong colony consumes lots of honey and may starve before the honeyflow. Feeding stimulates population growth for maximum honey production.

2. Check brood chamber for disease and swarm cells. Destroy all swarm cells, and recheck for swarm cells every week. Colonies will swarm if you permit queen cells to be capped.

3. Install package bees. A package will do well on new foundation and will get off to a better start with drawn comb and two frames of brood.

4. Add new foundation (one or two frames) to the upper hive body in each hive, which discourages swarming.

5. Add a new queen if needed. (Some apiarists prefer to re-queen in the fall.) Mark all queens, and clip wings if desired. Use tracheal mite-resistant queens.

6. Add a super of drawn comb to relieve crowding. Also add honey storage supers as needed.

7. Divide colonies if you want to increase the size of your apiary. Colonies that have a strong swarm tendency are good candidates for division.

8. Remove entrance reducers from all old colonies after April 15. A new package should have the entrance reducer in place until June.

9. Remove the most undesirable comb from each brood chamber and replace with foundation.

10. Remove Apistan strips.

11. Move colonies into orchards for pollination. Strap or staple hives together. Screen the entrance shut at night. Use a screen top for ventilation. Move colonies at least three miles to a new location.

May-June

1. Add new supers as needed (see Figure 3). If the super on top of the brood chamber is half full, add a new one. Place the additional super directly over the brood chamber. Full supers can be stored on top of the chamber so the bees can guard them until it is time to extract the honey. Keep empty storage space on the bees from now until fall.

2. Check for swarm cells every week. Remove all swarm cells.

3. Place empty frames in the center of the super for faster filling.

Summer

June

1. Combine swarms with weak colonies.

2. Check twice for swarm cells and disease.

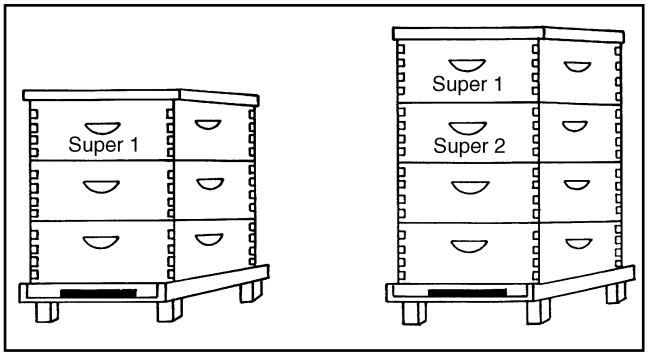


Figure 3. Add new supers as needed.

3. Add supers as needed. Keep empty storage space on the bees throughout the month.

4. Remove and extract capped honey. Return the extracted supers to the colonies for cleaning. Supers of capped honey must be stored in a 90-degree F dust-free room. Extract as soon as possible.

5. Inspect weak colonies for wax moth infestation. If wax moths are present, combine with another hive.

6. Prepare colonies for a move to summer pasture, if necessary. Use hive staples to fasten the hive boxes together. Use four staples at each corner (two on a side) to hold the hive together.

7. Place empty frames in the center of the super for faster filling.

July

1. To move a colony of bees, block the entrance the night before the move and close up all holes from which bees can escape. Move the hives to a new location as early in the morning as possible. You should move a colony at least three miles.

2. Extract honey as necessary and return extracted supers to colonies for cleaning.

3. Fumigate any supers that you leave off the colonies for a week. Use paradichlorobenzene crystals (see MU publication G 7600, *Beekeeping Tips for Beginners*) or Phostoxin. Phostoxin is extremely dangerous. A restricted-use pesticide license is required to buy the product. Always work with a partner when using Phostoxin, and wear a self-contained breathing apparatus.

4. Continue to check colonies every week for swarm cells and diseases.

August

1. Continue to check frequently for swarm cells and disease and mites. Treat with Apistan or Checkmite for Varroa if mites are present and the honeyflow is over. Leave in Apistan strips from 46 to 60 days.

2. Remove full supers, and extract honey. Return extracted supers to the colonies for cleaning.

3. Leave empty storage space on all the colonies for the fall honeyflow. Colonies will need 60 pounds of honey to overwinter.

4. Store empty supers with paradichlorobenzene fumigant.

5. Reverse hive bodies to ensure adequate winter stores (60 pounds), if necessary.

Fall

September

1. Check each colony for disease and mites every week. Begin treatment with Apistan or Checkmite by Sept. 15. Fall is the best time to use Apistan or Checkmite. Formic acid will control tracheal mites and most Varroa mites. Alternate mite control materials to prevent resistance. The number of mites can also be reduced by placing a pollen trap on the hive for a month.

2. Re-queen, if necessary, using tracheal mite-resistant queens.

3. Consolidate frames with empty storage space. Remove frames with capped honey for extraction. Leave at least 60 pounds of honey (one super) on the bees. Do not depend on a fall flow for honey production or preventing starvation. Place empty frames in the center of the super for faster filling.

4. Remove and store clean empty supers under fumigation.

5. Unite weak colonies (see Figure 1).

October and November

1. Place entrance reducers in the hives by the end of October.

2. Work poor combs to the outside for spring replacement.

3. Unite weak colonies (see Figure 1).

Missouri Apiculture Law provides for inspection of honeybees upon request. Out-of-state beekeepers are required to have inspections done before bringing honeybees or equipment into Missouri.

Contacts:

- Joe Francka, Missouri Department of Agriculture, Plant Industries Division, Box 630, Jefferson City, MO 65102
- Michael Brown, Missouri State Entomologist, (573) 751-5505

Samples of bees for diagnosis can be sent to the USDA Bioenvironmental Bee Laboratory, Building 476 BARC-E, Beltsville, MD 20705.

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Table 1. Flowering periods for Missouri honey plants.

Honey plant	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
Alfalfa		■	■	■	■					
Aster						■	■	■	■	
Basswood				■	■					
Birdsfoot trefoil			■	■	■	■	■	■	■	
Brambles				■	■					
Brassicas				■	■					
Buckthorn			■	■	■					
Clover				■	■					
Cotton						■	■	■		
Cucurbits					■	■	■			
Dandelion		■	■	■						
Elm		■	■							
Fruit trees			■	■						
Goldenrod						■	■	■	■	
Hawthorn			■	■						
Honeysuckle			■	■	■	■				
Locust				■	■					
Maple	■	■	■	■						
Milkweed				■	■	■	■			
Persimmon				■						
Poplar		■	■							
Privet				■	■					
Redbud			■							
Soybean						■	■	■		
Sumac		■	■	■	■	■				
Sunflower					■	■	■			
Tulip poplar				■	■					
Vetch				■	■					
Willow	■	■	■	■	■					

SOURCES

For many woody species:

Dirr, Michael A. 1990. Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses. Champaign, Ill.: Stipes Publishing.

Kurz, Don. Shrubs and Woody Vines of Missouri. Missouri Department of Conservation.

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