

## ***BEGINNING BEEKEEPING***

### **CLASS 7: WORKING BEES & SPRING MANAGEMENT**

---

---

---

---

---

---

---

## **BEFORE YOU START**

- ✦ How's the weather?
  - ✦ Not too windy
  - ✦ Warm - over 55
  - ✦ Sunny or at least partially sunny (helpful for reading frames)
  - ✦ Time of day so foragers are out working (10am - 2 pm optimal)
  - ✦ A weather app is really helpful (Dark Sky, Wunderground)

---

---

---

---

---

---

---

## **KNOW YOUR PLAN**

- ✦ What is the purpose of this inspection?
  - ✦ Evidence of queen
  - ✦ Brood pattern
  - ✦ Health of brood
  - ✦ All stages of brood
  - ✦ Space use
  - ✦ Food supplement
  - ✦ Evidence of pests and diseases
  - ✦ Be prepared for the unusual

---

---

---

---

---

---

---

## **BE PREPARED**

- ✦ Make sure you go in prepared:
  - ✦ Smoker ready - lit, with fuel that won't burn bees
  - ✦ Hive tool(s) ready
  - ✦ Protective gear including glasses if you need it and sweat band if over 70 degrees
  - ✦ Something to put debris in
  - ✦ Water (for you but also maybe smoker related)
  - ✦ Your cell phone

---

---

---

---

---

---

---

## MORE ABOUT SMOKER

- ✦ Use fuel that burns cool
- ✦ You can use newspaper or cardboard (egg cartons) to get it started, but not the best for the bees as a stand-alone
- ✦ Practice starting it and keeping it going before you inspect your bees
- ✦ Make sure you have a plan for how you will deal with it after you are done.

---

---

---

---

---

---

---

---

## BASICS OF INSPECTION

- ✦ Smoke entrance (puff of smoke) and maybe lift top cover and add a puff of smoke
- ✦ Stand behind or to side of hive to work — never stand in their flight path
- ✦ Make sure you know where you will put equipment - establish your work area

---

---

---

---

---

---

---

---

## BASIC INSPECTION - WORK AREA



---

---

---

---

---

---

---

---

## BASICS OF INSPECTION

- ✦ Remove outer cover and set it to the side, upside down — use as catch all for hive bodies
- ✦ Remove inner cover and prop it in front of hive so bees can walk up and go in front door (don't block entrance)

---

---

---

---

---

---

---

---

## INNER COVER



---

---

---

---

---

---

---

---

## PREPARE TO INSPECT

- ✦ If checking for space during a big nectar flow (spring/fall — tulip poplar in spring/asters & goldenrod in fall), you can start at the top hive body
- ✦ If checking for brood/queen health, start in a brood box — which means removing the top supers
- ✦ Stack removed boxes on upturned outer cover staggering so they don't stick together
- ✦ You might consider using inner cover to protect the bees in the stack

---

---

---

---

---

---

---

---

## BASICS OF INSPECTION - FRAMES

- ✦ Use puffs of smoke to move bees around so you don't squish them, but also don't over smoke them.
- ✦ To make room, remove one of the frames furthest away from the cluster - this is most often one of the end ones. As you become more experienced, you will be able to make room and remove frames without first removing a frame to make space. You can prop the frame up against the hive.
- ✦ Move as slowly and smoothly as you possible can.
- ✦ It's best to inspect frames over the open hive body in case you dislodge the queen.

---

---

---

---

---

---

---

---

## BASICS OF INSPECTION - FRAMES

- ✦ Cells are tipped up slightly to keep nectar, etc. from drizzling out. So you may need to tip the frame to be able to see inside the cell.
- ✦ Try to get the sun behind you so it's shining over your shoulder into the cells. This helps see better.
- ✦ Don't forget that magnifying glasses are good for all ages!

---

---

---

---

---

---

---

---

## BASICS OF INSPECTION - FRAMES

- ✦ When you start, you may want to look at each frame in the box. Just try to do it quickly. We don't want to expose the bees too long. Goal is about 15 minutes except in special cases.
- ✦ Is it a brood frame, pollen, nectar/honey?

---

---

---

---

---

---

---

---

## BASIC INSPECTIONS - FRAMES

- ✦ If it's a brood frame, are you seeing capped brood or open brood?
- ✦ Is capped brood pretty solid or does it look like scattershot? Remember that hygienic bees will remove unhealthy brood so you may have a few open spots. If there are a lot, something is going on.
- ✦ Are you seeing uncapped brood and what stage are they? Egg/small larva/bigger larva?

---

---

---

---

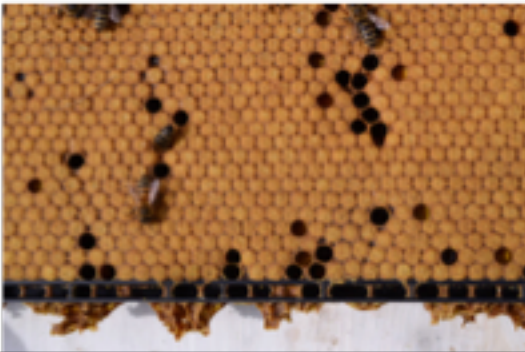
---

---

---

---

## HYGIENIC BEES



---

---

---

---

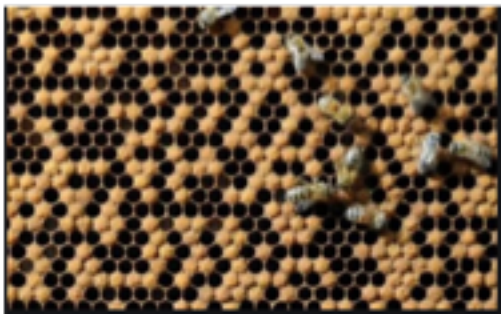
---

---

---

---

## BROOD PROBLEM



---

---

---

---

---

---

---

---

## OPEN BROOD



---

---

---

---

---

---

---

---

## BASIC INSPECTION - FRAMES

- ✦ Do you see the queen? If she's marked, it's easier to see her.
- ✦ If there are a lot of bees on the frame, you can give them a little puff of smoke to move them off, brush them off, or gently move them out of the way by blowing gently on them or using your hive tool.
- ✦ During swarm season, be careful about shaking bees off frames. We don't want to give a potential queen a brain injury!

---

---

---

---

---

---

---

---

## QUEEN ON FRAME



---

---

---

---

---

---

---

---

## QUEEN CELL



---

---

---

---

---

---

---

---

## BASIC INSPECTION - FRAMES

- ✦ When was the last time you were in this hive? Important to know as you look at brood.
- ✦ If you see evidence of the queen since you were in last and everything else looks and smells okay, you can move on.
- ✦ Remember that healthy larvae are pearly white.



---

---

---

---

---

---

---

---

## BASIC INSPECTION - FRAMES

- ✦ Put frames back into their original position unless you are doing something like checker boarding or replacing frames.
- ✦ Marking tops of frames to track wax age can be helpful for this.

---

---

---

---

---

---

---

---

## MARKING FRAMES



---

---

---

---

---

---

---

---

## BASIC INSPECTION

- ✦ Use a little smoke to move bees out of the way as you put the hive back together
- ✦ We all squish some bees but fewer are better for the hive
- ✦ You may want to scrape some extra propolis and burr comb off as you go. It's good to have a container to put it in. Don't leave it in your bee yard or it will attract predators (maybe).

---

---

---

---

---

---

---

---

## BURR COMB



---

---

---

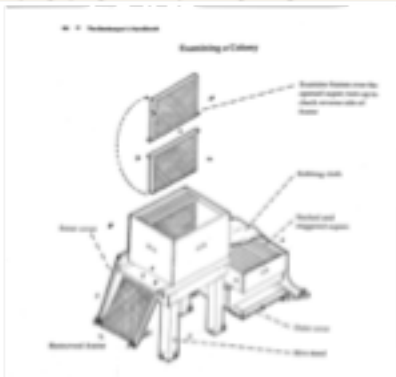
---

---

---

---

## BASICS OF INSPECTION



---

---

---

---

---

---

---

## DEMO



---

---

---

---

---

---

---

## EARLY SPRING MANAGEMENT

- ✦ Order nucs, packages, and queens in January for spring
- ✦ Our early spring begins in mid-January to February
- ✦ Queens often start to lay in mid-January
- ✦ Sufficient food stores become really critical at this time because brood requires lots of food
- ✦ Check hive weight by lifting back of hive from bottom to see how heavy it feels (it's helpful to have late fall comparison)

---

---

---

---

---

---

---

### EARLY SPRING MANAGEMENT

- ✦ Bees move up during the winter, so most of remaining food should be up with the bees.
- ✦ If you add sugar candy or fondant, a quick peek can give you an idea of what's going on. Check weather first!
- ✦ Now is a good time to add a pollen patty - just in case.
- ✦ Don't feed liquid unless temps are going above 55 degrees.

---

---

---

---

---

---

---

### EARLY SPRING MANAGEMENT

- ✦ Open midday to allow bees time to recluster before temps drop again at night.
- ✦ If you have extra honey that you know is safe for your bees, you can quickly add one or two next to the cluster. You might scratch a few places to open the honey before putting it in to help the bees access it easier.
- ✦ You need to get in and out quickly.

---

---

---

---

---

---

---

### EARLY SPRING MANAGEMENT

- ✦ Avoid disturbing the cluster
- ✦ Primary importance is having adequate supplies of honey and pollen located above and to the sides of the cluster
  - This is important because brood rearing begins early in January and the cluster may not leave the brood area to maintain contact with its food reserves

---

---

---

---

---

---

---

### SUPPLEMENTAL FEEDING

- ✦ Once you begin feeding, you must continue until natural supplies of nectar become abundant

---

---

---

---

---

---

---



## LOST COLONIES IN WINTER

- ✦ Equipment should be removed from the apiary or sealed up as soon as possible to prevent robbing
- ✦ Remove clusters of dead bees before they mold or decompose within the combs
  - ✦ Removing every dead bee from the cells is not necessary; after they dry up, you can shake them out or leave them for the bees to remove later in the spring.
- ✦ Remaining honey may absorb moisture and ferment.
- ✦ Determine why the colonies failed to survive
  - ✦ Disease
  - ✦ Mites
  - ✦ Too small a population
  - ✦ Starvation
- ✦ See Dr. Dewey Caron's Dead Colony Forensic Handout

---

---

---

---

---

---

---

---

## SPRING MANAGEMENT

- ✦ Monitor colony stores
- ✦ Brood expansion is important
- ✦ As fresh pollen becomes available, it serves as a strong stimulus for brood rearing.
  - ✦ As a result, the size of the brood area may increase faster than stores are replenished. Colonies are then vulnerable to starvation. We lose a lot of hives in February to starvation.

---

---

---

---

---

---

---

---

## SPRING MANAGEMENT: FEBRUARY

- ✦ Our first big nectar/pollen trees are the red and silver maples. Brood expansion really takes off as these trees start to bloom.
- ✦ On first warm day (sunny, above 55 degrees), do a quick assessment of brood, food, and colony condition.

---

---

---

---

---

---

---

---

## SPRING MANAGEMENT: MARCH

- ✦ If temps are stabilizing you may choose to feed 1:2 sugar syrup to stimulate brood rearing.
- ✦ You may need to reverse hive bodies to give queen room to move up. Sometimes queens won't go back into the bottom hive body and may become honey bound as nectar flow increases.
- ✦ You need to be careful about splitting up brood when nights are still cool. Could end up with chilled brood.

---

---

---

---

---

---

---

---

## HONEY BOUND



---

---

---

---

---

---

---

---

## SPRING MANAGEMENT: LATE MARCH

- ✦ On a day when temps are above 65 degrees, you can do some spring cleaning
  - ✦ Clean up bottom board
  - ✦ If you have screened bottom board that you closed for winter, open it up
  - ✦ Switch entrance reducer to bigger opening
  - ✦ Add some fresh frames
  - ✦ Clean up burr comb and propolis

---

---

---

---

---

---

---

---

## SPRING MANAGEMENT: LATE MARCH

- ✦ Consider doing a sugar shake to check mite count
- ✦ You may need to treat early to keep ahead of mites and not interfere with nectar flow
- ✦ <http://honeybeehealthcoalition.org/varroa/>



---

---

---

---

---

---

---

---

## SPRING MANAGEMENT: NECTAR FLOW

- ✦ We generally start our big nectar flow in April with Blackberries, Wild Cherries, Black Locust, Tulip Poplar, and Black Gum. Other trees and ground plants may bloom as well.
- ✦ Over super during spring nectar flow.
- ✦ Bees need lots of space to process nectar because it's 50% water and needs to be dried out.

---

---

---

---

---

---

---

---

## SPRING MANAGEMENT: NECTAR FLOW

- \* When bees have built out 80% of the frames in the last super you added, add another with foundation. They can build out a frame in a day when nectar flow is strong. You can also add when 1/2 to 2/3 of super is being filled.
- \* You can add box on top (top supering) or in 1st position above brood (bottom supering)
- \* If you don't give them enough space, queen will not have room to lay and then another problem arises.

---

---

---

---

---

---

---

---

## SPRING MANAGEMENT: SWARMS

- \* Swarming is the natural instinctive behavior of honey bees to reproduce.
- \* However, if you're hive swarms before the big nectar flow, you will get less honey production
- \* Managing hives at this time of year is one of the trickier parts to beekeeping.

---

---

---

---

---

---

---

---

## SOME REASONS BEES SWARM

- \* Congestion in the brood area. If queen isn't finding areas to lay, that can trigger swarm prep. Reversing hive bodies can help.
- \* Poor ventilation - they can feel crowded
- \* Genetic make-up

---

---

---

---

---

---

---

---

## SWARM PREPARATION

- \* More drones - first sign of swarm prep going on
- \* Queen cells start to appear on the bottom of the frames and sides of frames
- \* There generally are quite a few queen cells made
- \* You will see larva and royal jelly in queen cells
- \* Once the queen cells are capped, it's hard to keep the hive from swarming

---

---

---

---

---

---

---

---

## SWARM PREPARATION

- ✦ The worker bees will start to feed the queen less. This will reduce her ability to lay so you will start to see less brood.
- ✦ Over time, you will not see eggs (although sometimes we still do)
- ✦ The workers are trying to get the queen down to flying weight prior to the new queens emerging

---

---

---

---

---

---

---

## SWARM TIME

- ✦ The swarming bees will engorge themselves on honey
- ✦ Prior to new queens emerging, the queen, a few drones, and about 50-60% of the bees will leave the hive
- ✦ Generally early to mid-day
- ✦ Generally landing first close to the hive

---

---

---

---

---

---

---

## SWARMS

- ✦ We have been seeing swarms for a few weeks now
- ✦ It's not uncommon to have packages and nuc swarms within a short time after we get them — you need to make sure they have space to grow
- ✦ Bees do not necessarily see frames with foundation as "space" to move into

---

---

---

---

---

---

---

## SWARMS

- ✦ Destroying queen cells will not necessarily stop the hive from swarming — and they are very good at hiding queen cells
- ✦ Sometimes removing the old queen and some workers to a new hive will convince the hive that they have swarmed, so you won't be losing bees.
- ✦ Swarm cells are good ways to raise new queens for free

---

---

---

---

---

---

---

## SWARMS

- ✦ Checking hives every week to 10 days at this time of year is helpful in managing swarms and taking advantage to swarm conditions to expand your bee yard.
- ✦ Be on the lookout for successive swarms
- ✦ Method of swarm control
  - ✦ Demaree Method
  - ✦ Clipped wings on queen
  - ✦ Sequestering Queen

---

---

---

---

---

---

---

---

## SPRING MANAGEMENT: SPLITS

- ✦ Prevent swarming by splitting them or take divisions from them in early April into May
- ✦ Splits made prior to the big nectar flow generally do well.
- ✦ There are various methods of splitting hives to make new ones

---

---

---

---

---

---

---

---

## SPRING MANAGEMENT: SPLITS

- ✦ Some methods of doing splits:
  - ✦ Walkaway split: just make sure there are eggs and sufficient nurse bees in both hives. No need to find the queen. Easy if you have 2 brood boxes on hive already. Make sure both hives have sufficient food to keep them going.
  - ✦ Create a nuc with swarm cells: pull frame with queen swarm cells and a frame with capped brood plus bees and some frames with food and put in a nuc box. Make sure the queen is not on the frames.
  - ✦ Create a nuc with frames of brood and food with purchased queen. Again, make sure the queen is not on the frames.

---

---

---

---

---

---

---

---

## ONE WAY TO KEEP QUEEN OUT OF SPLIT

- ✦ A good way to make sure you have enough nurse bees and no queen on the frames you are taking is:
  - ✦ Take an empty hive body deep enough to handle any size frame you may need
  - ✦ Get your queen excluder — you will need it.
  - ✦ As you pull frames that you want to remove for the nuc, brush all of the bees off the frame and then put in your empty hive body.
  - ✦ Once you have all of the frames you need, put the main hive back together up to the point of adding the inner cover. Put the queen excluder on and then the box with the frames you pulled.
  - ✦ Add inner cover and top cover.
  - ✦ Leave for a few hours to a day.
  - ✦ When you return, the frames will be covered with nurse bees and no queen.
  - ✦ Pull and put in your nuc box.

---

---

---

---

---

---

---

---

### SPRING MANAGEMENT: EQUALIZING COLONY STRENGTH

- ✦ Makes all colonies productive
- ✦ Serves as a form of swarm prevention
- ✦ Makes management easier during the rest of the year
- ✦ Different methods:
  - ✦ Exchange position with strong hive
  - ✦ Pull a few frames of capped brood from strong hive (varroa warning!)
  - ✦ Merge weak hives (newspaper method) — must kill one of the queens unless a hive is queenless already

---

---

---

---

---

---

---

---

### HELPFUL INFORMATION

- ✦ A beekeeping calendar for your area (we use Dr. Buddy's here)
- ✦ Some method of tracking information for your bee yard — at least major events like requeening, splits, when major flows begin, mite checks and treatments.
- ✦ Dr. Buddy's beekeeping techniques document.

---

---

---

---

---

---

---

---

### NEXT WEEK

- ✦ Summer Management
- ✦ Fall Management
- ✦ Winter Management

---

---

---

---

---

---

---

---