Hive Inspections: When Things Go Wrong

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When Things Go Right

Colony is queen-right



"Using Local Queens"

When Things Go Right

- No obvious symptoms of disease
- Beautiful brood pattern
- Pollen stores
- Nectar stores



When Things Go Right

Bees forage for
 nectar, pollen,
 water and resins.



Photo Credit: Jean Miller (unless otherwise noted)



Photo Credits: Jean Miller

Even swarms indicate "Things are Going Right"

When Things Go Wrong

Like ??!



Photo credit: Karen Sabath Unusual number of dead bees/brood outside of hive.

Photo credit: Bee Informed Partnership



Too many pests – small hive beetles, wax moths, yellow jackets, ants, and WORST of all Varroa mites!

Colony sounds very LOUD upon opening. Bees are < aggressive.



Photo credit: Karen Sabath Brood doesn't look "right".

Or....no live bees in hive. 😣

Steps in an Inspection

- 1. First, **observe from** the **outside** of the hive.
- 2. Then **look inside** the hive to unlock the story.
- 3. **Delve deeper** in the hive and test for problems.
- 4. **Record** what you saw during or shortly after inspections.



Make it a goal to do the first three steps within a 15 minute inspection. Hard at first. Becomes easier with experience.

When Things Go Wrong – Outside the Hive – Some Obvious (Predator) Ones!



Photo credit: Kimberly Carpenter



Bear:

- Consumes brood (& honey).Can kill a colony.
- * Prevention Electric fence.

Raccoon:

- Remove top covers. Lift frames out and eat brood and honey. Do not smash supers like bears.
- Preventions Low electric fence, strap hives, put heavy item on top (brick, rock,...)

Skunk:

- Scratch marks at ground in front of hive or at entrance.
- Spit out bee exoskeletons.
- Preventions Elevate hive or fence it.

When Things Go Wrong – Outside the Hive



Fecal Matter:

- * A little is ok. Too much (as shown) means something is wrong.
- * Can be a symptom of disease.



Dead Bees/Brood:

- ✤ A little is ok.
- * Causes can include -
 - Disease (often twitching/crawling) Robbing
 - Pesticide poisoning

When Things Go Wrong – Outside the Hive

What is the level of activity? * Is it appropriate for the time of year/day?

- What does the activity at the entrance look like?
 - Is it 'normal' or 'frenzied' or below expectations?
 - Do you see pollen on returning foragers?



Jean's tip she "learned the hard way" – Don't paint bottom boards yellow. Makes it harder to see pollen on incoming bees.

OK Things to See Outside of Hive



Orientation Flights:

New forager bees "float" outside hive to orient themselves with hives location.

Bearding:

Too hot (add ventilation) Too crowded (add room or split) Treatment (i.e. Formic Pro) just applied.

Swarming:

Thousands of bees come out of hive and, in a group, fly not very far away to bivouac until scout bees find a permanent home.

Washboarding:

Reason is unclear.



Video Credit: Emma Kate Mullen (Cornell University)



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- Robbers (other honey bees or yellow jackets):
- Attack weaker hives
- Can be more common during a dearth.
- Signs:
- * Frenzied activity.
- * Wrestling/stinging.
- Robbers enter any opening including cracks.
- * Waxcappings/dead bees at entrance.
- Honey colored footprints.



Wax cappings ripped open by robbers.

Deal with IMMEDIATELY!

- * Robbing can kill weak colonies.
- Robbers can bring pathogens/parasites back to home colonies.

Solutions:

- Reducing the entrance to ~1/2"(screen, wood, robbing screen)
- 2. Light colored wet sheet over it (1-2 days)
- 3. Move colony at least 2 miles away



Photo credits: Cornell Master Beekeeper Course, "The Art and Science of Beekeeping", "Safety and Biosecurity in the Bee Yard", "Robbing"

Outside to Inside – Gage Temperament of Bees If more aggressive than prior inspection, why?

1. Colony stress:

- Predator
- Poor weatherconditions forinspection
- Queenless

3. Genetics

2. Beekeeper Error:

- Moving too fast
- * Taking too long
- Clumsy with frames.
 (Make it a goal to not use gloves, if possible.)
- Using too much or too little smoke
- Do not wear dark colors or red.
- Do not eat a banana prior to inspecting hives.



Outside to Inside

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Photo credit: Joe Deluca (Honey Bee Suite)

Burr Comb -*Nuisance*

Maintain bee space of 3/8"

Cross Comb (deep amount of comb between frames) -*Problem*

- Level hives
- Maintain bee space of 3/8"



Burr

Comb

First Look Inside

- Evaluating resources
- Brood pattern observation
- Evaluating space needs
- How does this compare to expectations?





- Evaluating resources
 - Pollen & Nectar, time of year
 - Volume/type of brood





First Look Inside

Brood Pattern Observation



"Solid" brood pattern – Up to 10% not filled is ok.

"Spotty" brood pattern

First Look Inside

- **Brood Problems:**
- Perforated Caps
- Removed Brood
- Chewed down Brood
- Misshapen Brood
- Dry Brood

Signs of disease, parasites (mites), poor nutrition.



First Look Inside

Evaluate the Space
 * Honey bound?
 * Brood bound?

 Consider adding supers and frames before it's overcrowded



Deeper Look

 ※ Queenright
 ※ Laying Workers
 ※ Pests
 ※ Disease

Photo credit – Bee Informed Partnership

Deeper Look

Do you have a queen?

 Look for single eggs in cells! Much easier than looking for moving Q.

If not, is colony in the process of making a new one?

- Do you see capped or uncapped queen cells?
 (Swarm, supercedure, emergency)
- Do you see recently torn open queen cells? (Virgin queen?)





Jean's Tip – Don't see eggs, queen, or queen cells and not sure if there's a virgin queen? Add a frame of eggs/young larvae from another healthy hive. Just make sure you don't add the queen from the other hive. Don't wait more than 2 weeks to do this.

Timeline of a Colony Being Queenless

	Characteristic	Time Observed	
	Roaring bees	in the following hours/days	Laying Workers! Colony will eventually die.
	Increased defensiveness	in the following days	
	Emergency queen cells	in the following days to three weeks	
Laying Workers! Colony will eventually die.	Multiple eggs per cell	after three to four weeks	
	Bullet-shaped drone cells	after about one month	
	A high number of drones	after about two months	
	Drones that are smaller than normal	after about two months	
	Dwindling adult population	after about two months	

Chart credit: Cornell Master Beekeeper Course, "The Art and Science of Beekeeping", "Queen Management", "Signs of Queenlessnness

Deeper Look

Laying Workers Can occur 3 to 4 weeks after a hive becomes queenless.

Difficult to rectify.



Photo Credit: Bee Informed Partnership



Multiple eggs in cells.

Deeper Look... At Your Queen's Performance

- The queen is the source of the brood
 - Brood pattern,
 <u>mix of brood</u>
- Behavior can also be genetic
 - Overly aggressive hive
 - Hygienicbreeding



How to Replace the Queen

- Reputable source (preferably local)
- Find and remove the existing queen
- Introduce the new queen slowly
 - In a queen cage with candy to allow the workers to spread her new pheromone





Deeper Look Symptoms of **Diseases in Adults:** Deformed or K Wings Hairless, Shiny ★ Twitching

Typically signs of (viral) disease. Often transmitted by varroa mites. Beekeeper's nemesis!



Small Hive

Beetle

Deeper Look – Other Pests

Wax Moths



Photo Credit: Mary Kate Wheeler (Cornell University)

Photo Credit: Karen Sabath





Yellow Jackets

Strong colonies in *properly sized hives* can withstand these pests.



Deeper Look

Disease Chalkbrood * Parasitic mite syndrome # European foulbrood * American foulbrood ★ Varroa mites ★ Wax moths ★ Hive beetles....

Deeper Look



Another excellent resource – Pollinator Network @ Cornell

Finally... RECORD What You Saw





Be prepared with:

Don't Be Overwhelmed

- ✤ Tools
- Books and Journals
- Treatments/Food
- Meetings/Conferences
- And....join a beekeeping club to seek the knowledge of other successful beekeepers!

Try to get a local mentor



Savor the sweetness of beekeeping!

QUESTIONS?

Photo Credit: Jean Miller

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Photo credit : Tricia Deering

Winter/Early Spring:

• Maples (Silver, then red)

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- Winter Aconite
- Hellebores
- Snowdrops
- Crocuses (not deer resistant)

Silver

maple

Hellebores in full bloom.

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Spring/Early Summer:

- Alliums
- Hollies (American, Japanese,...)
- Boxwoods
- Lamium (Red Deadnettle)
- Ajuga (Bugleweed)
- Cherry trees (NOT double blooms)
- Crabapple trees
- Redbud trees







Photo credit Cornell University 2006

Anise hyssop

Agastache

foeniculum)

ianthe

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Summer:

- Mountain Mint
- Anise hyssop
- Catmint
- Lavender
- White Clover
- Milkweed (Common, swamp, butterfly weed)
- Linden (Basswood) and Tulip Poplar Trees

Late Summer/Early Fall

Caryopteris and Calamintha





White wood aster and Goldenrod