



Beekeeping Controversies

or

Why Can't Beekeepers Agree on Everything?

**Russ Killingsworth
Beekeeping Henchman**

13 Mar 2023

If you ask 3 beekeepers 1 question, you may get ...

- **... 5 different answers**
- **Caring for bees can get complicated**
- **Not everyone agrees on the actions**
- **My purpose:**
 - **Show different perspectives**
 - **Respect your rights to decide**
 - **Not to divide us**
 - **Focus on our common goals of becoming better beekeepers**

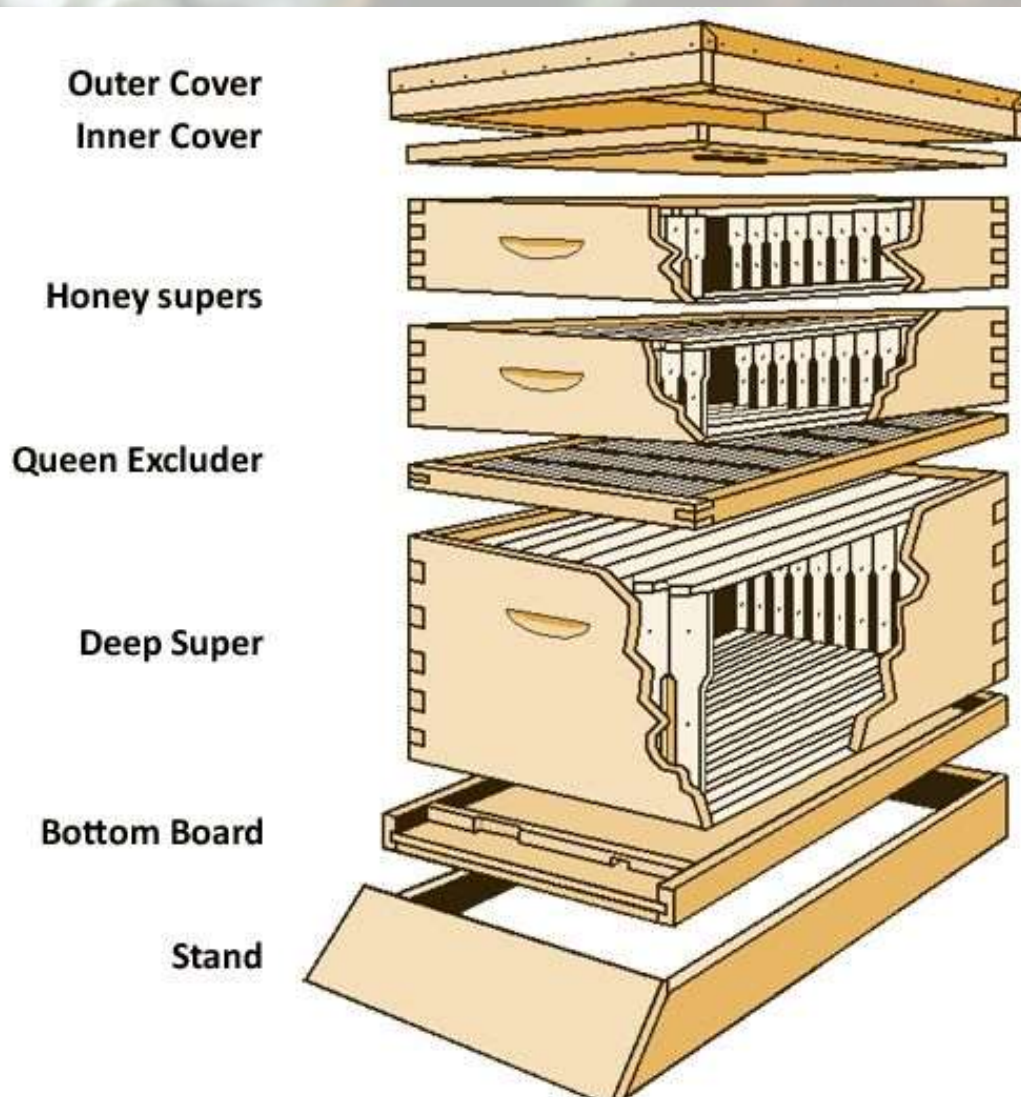
Some Controversies

- 1. Solid or Screened Bottom Boards**
- 2. Plastic Foundation or bee-built comb**
- 3. What should I wear?**
- 4. Requeen or let bees requeen**
- 5. Queen excluder**
- 6. Winter insulation**
- 7. Varroa mites**
- 8. Inspections**

1. The Right Bottom Board

- **Solid:** Bees in nature choose dark & closed

- **Screened**
 - Mites fall (~10%)
 - Beetles fall
 - Ventilation in heat
 - Close for winter



Who uses which?

2. Plastic Foundation ...



... or Bee-Built Comb

2. Plastic Foundation or Let the Bees Build Comb

Consideration	Plastic	Bee-Built Comb
• Honey production	• More honey	• It takes 7 lbs of honey to build 1 lb of wax comb
• Honey harvest	• Easy to extract	• Crush & strain • Sell honey with comb
• Cell size	• Larger, more time for mites to reproduce	• Smaller, less time for mites to reproduce
• Cleanliness, chemical residue	• Gets dirty • Replace < 5 years	• Also gets dirty • Replaced after harvest

Choice depends on your objectives

3. What Should I Wear?

- **“Real beekeepers” don’t wear gloves**
- **A few stings are good for you**
- **Relieves joint pain**



Hawaiian beekeeping

<https://paradiseneectar.com/>

What Should I Wear?

- In routine inspection, hundreds of bees poured out & began stinging
- 2 beeks walked a block, stings thru suits
- Dozens of bees stayed on them for half hour
- Neighbor was stung & upset
- Beek had to leave, get better protection



Each spot is a sting after dealing w/ hot hive

What Should I Wear?

- **We don't want you to be afraid of your bees**
- **I mow 5 feet from hives, bare arms & legs**
 - **I've never been stung mowing, 10 years**
- **You want to be aware & be safe**
- **A few stings won't hurt, much, usually**
- **A few % of people are allergic**
 - **Hard to breathe**
 - **We have Epi-pens**



Normal Bee Behavior

- **Bees want to protect their brood & stores**
 - **They bump into us to tell us to leave**
 - **If we step back 10 ft, they return to hive**
- **What causes bees to be “extra defensive”?**
 - **Stressed situation**
 - **Disturbance**
 - **Low stores**
 - **Drought, WX**
 - **Predators**
 - **Queenless**
 - **Genetics**
 - **Smoke, slow, fence protects**
 - **Feed syrup, pollen**
 - **Feed syrup, pollen**
 - **Reduce entrance**
 - **Re-queen**
 - **Re-queen, move, take-down**
- **The beekeeper can address these**

What Do I Wear?

- **To open a hive, I wear protection that lets me keep working**
 - **With all hive temperaments**
- **We love 3-layer ventilated suits!**
 - **Mesh reduces heat**
 - **3 layers prevents stings**
- **I use 2 layers on hands & ankles**
 - **Overdone for normal hives**
 - **Allows me to keep working**

It's a personal choice



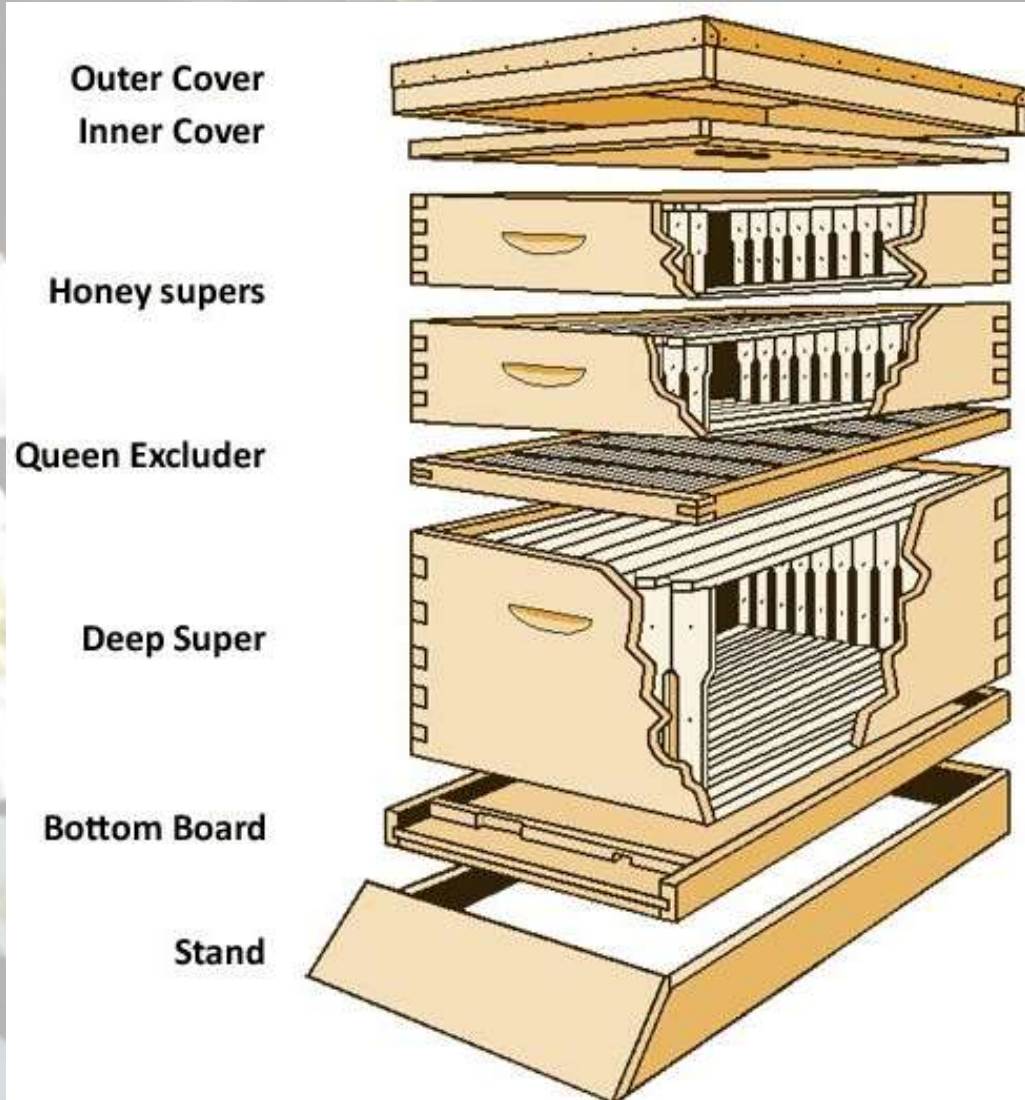
4. Should I Re-queen?

Option	Pros	Cons
• Let hive re-queen	• Natural	<ul style="list-style-type: none"> • Potential for undesirable genetics • Might not succeed
• Re-queen when queen is weak or gone	• Lower cost & work	<ul style="list-style-type: none"> • Might not be able to get queen when needed • Might not be able to combine colonies
• Re-queen yearly	• More honey, likely	• More cost & work
• Re-queen if aggressive	• Ft Worth requires action: re-queen, move	• Or move hive away from people

Depends on beekeeper's objectives

5. Queen Excluder

- **Queen can't move thru the excluder, so no eggs above**
- **Worker bees go up to store or retrieve honey & pollen**
- **Pro: keeps supers for honey & pollen**
- **Con: Many bees won't go thru it**
- **Remove excluder after harvest**
- **Never use in winter, queen can't move up with cluster**



6. Winter Insulation

- **We've heard in bee club mtgs:**
 - **Make sure colony is strong (combine weak)**
 - **Build-up good stores before winter**
 - **Close screened bottom boards**
 - **Nothing can be done during the cold**
- **What we do in long cold spells, in addition:**
 - **Add wind breaks**
 - **Insulate hive boxes**
 - **Ventilation (entrance, top)**
- **Remove insulation for hot days**
 - **It can reach 95°F in Jan & Feb**



6.5. What Snack Should I Bring to MBA Meetings?

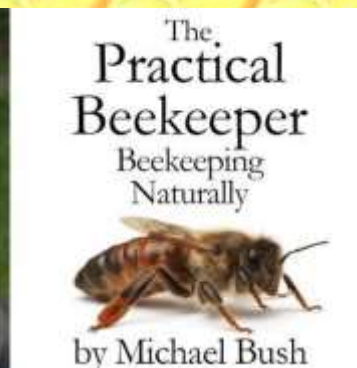
Option	Pros	Cons
• Desserts	<ul style="list-style-type: none"> • Are you kidding? • Tastes good! Popular! 	<ul style="list-style-type: none"> • Are you kidding? • Hint: no cons
• Side Dish	<ul style="list-style-type: none"> • Nice addition • Extra ticket for door prize drawing 	<ul style="list-style-type: none"> • It isn't dessert
• Main Course	<ul style="list-style-type: none"> • Healthier than dessert 	<ul style="list-style-type: none"> • Not as healthy as veggies

- **Did we really need this list?**
- **All snacks get you extra ticket for door prize**

We Respect Your Right to Decide

7. Varroa Treatment

- **“If you do nothing to manage varroa mites, your bees will die.”** Danielle Downy, Exec Director of Project APIS m (www.projectapis.org)
- **“There is no hope of coming up with bees who can survive without treating until we stop treating.”**
- **“Treating breeds super-mites & weak bees.”** Michael Bush



www.honeybeehealthcoalition.org/varroa

<https://www.youtube.com/watch?v=p4titRjZuOQ>

<http://bushfarms.com/beesfoursimplesteps.htm#notreatments>

<https://www.youtube.com/watch?v=5DFKqgWuCBA>

Mite Testing?

- **Before varroa (1986), losses 10% to 15% / yr**
- **Now 30% to 50% of colonies are lost / year**
- **Fewer feral colonies**
- **Mites feed on bees & spread viruses**
- **40% of hobby beekeepers don't test for mites**
- **If your pet was suffering from a problem that could be treated, would you want to know?**



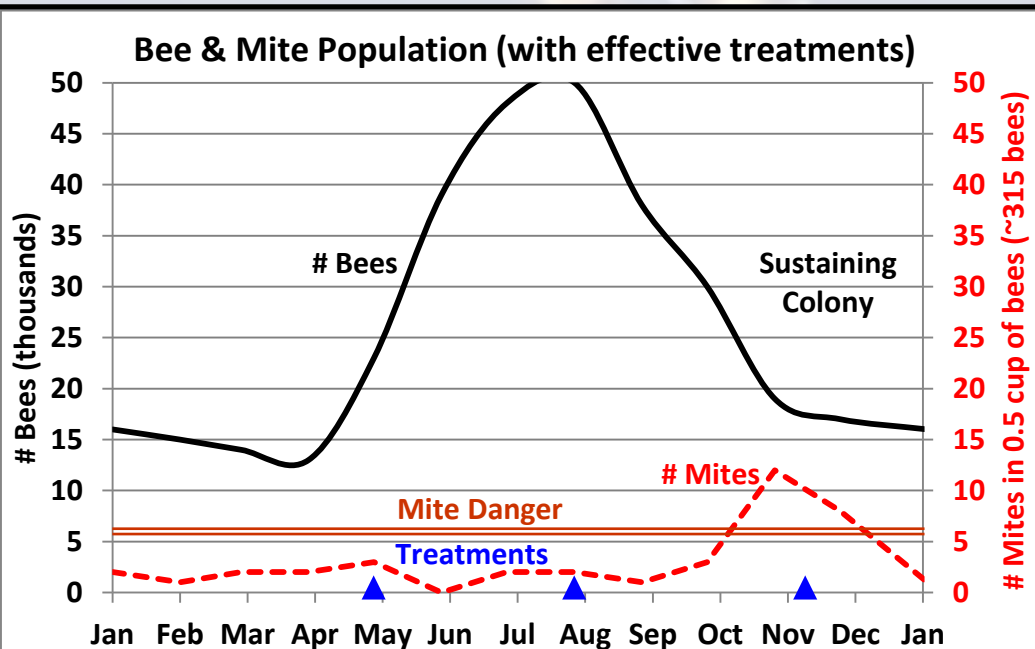
Randy Oliver, ScientificBeekeeping.com



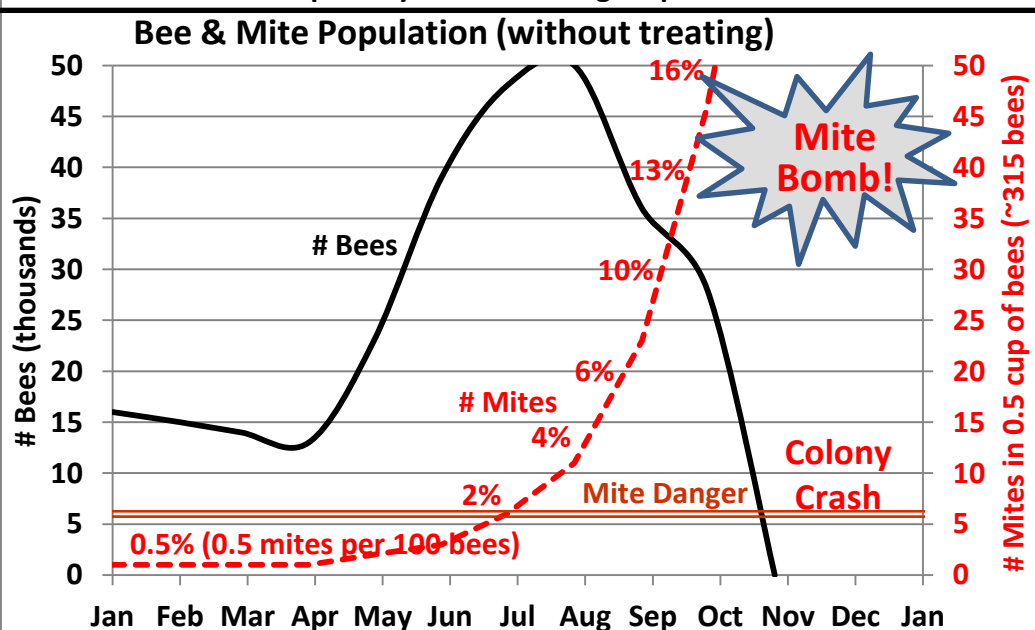
- **I kept bees treatment-free before varroa**
- **I support breeding bees to resist varroa**
- **Most lines of honey bees will die from varroa/virus within 2 years, unless beekeepers reduce the mite population**
- **I adamantly do not recommend “treatment-free” beekeeping for beginners**
- **Not controlling mites is inexcusable, & spreads mites & viruses to neighboring bees & pollinators**
- **PLEASE MANAGE MITE LEVELS IN YOUR HIVES AND DO NOT ALLOW COLONIES TO COLLAPSE FROM VARROA**
- **There are several easy & effective natural treatments that will not contaminate your combs or honey, as well as drone brood trapping & queen caging**

First year beekeeping – www.scientificbeekeeping.com/first-year-care-for-your-nuc/

Varroa Mite Management



- **Typical scenario with effective inspections & treatments**



- **More than 3 mites in 100 bees is a real threat to winter survival**
- **Worst case scenario**
- **Please monitor for varroa & take appropriate action**

When Mite Count is Below Threshold

- **Continue sustainable Integrated Pest Management to try to keep mite count low**

Treatment	Ess Oil	Org Acid	Synth Chem	Non-Chem	Mite kill	Improved Losses	Residues	Incr	Peak	Decr	Dorm
Drone brood removal				Y		10%	No	H	L	L	
Brood interruption				Y			No				H
Divide/split colony				Y			No	M	M	M	
Requeen hygienic				Y			No	M	M	M	
Basic Sanitation				Y			No	M		L	
Screen bottom board				Y	<10%	3%	No	L	L	L	L
Powdered sugar				Y	10-30%	?	No	L			

Key

H = Highly Effective

M = Moderately Effective

L = Least Effective

- **Combine powder sugar dust + drone brood removal**
- **Sanitation: cull old brood comb, space out colonies, sunny area w good drainage, clean tools btn colonies, freeze frames**

When Mite Count is Above Threshold

- **Move up the IPM triangle**

								No Brood				With Brood			
								With supers				No supers			
Treatment	Ess Oil	Org Acid	Synth Chem	Non-Chem	Mite kill	Improved Losses	Residues	Incr	Peak	Decr	Dorm	Incr	Peak	Decr	Dorm
Formic acid (MAQS, Formic Pro)		Y			80%	24%	No	H	H	H	M	H	H	H	M
Oxalic dribble															
Thymol (Apiguard, Apilife var)															
Amitraz (Apivar, Taktic)															
Oxalic acid fume															
Hops beta acid (Hopguard 2)															
Fluvalinate (Apistan)															
Coumaphos (Checkmite)															

- **Info compiled from HBHC document & tool**
- **Some categories are odd (increasing w/ no brood)**
- **Inconsistent: moderately effective, but don't use**
- **Powerful info about effectiveness, pros & cons**

Key
H = Highly Effective
M = Moderately Effective
L = Least Effective
HBHC Tool says Don't Use
Not Red: HBHC says Use

When Mite Count is Above Threshold

- Move up the IPM triangle

Treatment	Ess Oil	Org Acid	Synth Chem	Non-Chem	Mite kill	Improved Losses	Residues	Temp, °F	With supers				No Brood				With Brood			
									Incr	Peak	Decr	Dorm	Incr	Peak	Decr	Dorm	Incr	Peak	Decr	Dorm
Formic acid (MAQS, Formic Pro)		Y			80%	24%	No	50°-85°	H	H	H	M	H	H	H	M	H	H	H	M
Oxalic dribble		Y			90%	39%	No	Any					Y	M	M	Y	Y	M	M	Y
Thymol (Apiguard, Apilife var)	Y				83%	30%	Some	59°-105°					H	H	H	M	H	H	H	M
Amitraz (Apivar, Taktic)			Y		95%	41%	Yes	Any					H	H	H		H	H	H	
Oxalic acid fume		Y			90%	39%	No	Any					Y		Y	H	Y	Y	Y	H
Hops beta acid (Hopguard 2)		Y			85%	0%	No	>50°	M	M	H	H	M	M	H	H	M	M	H	H
Fluvalinate (Apistan)			Y		97%*	7%	Yes						Y		L		Y		L	
Coumaphos (Checkmite)			Y		92%*	6%	Yes						Y		L		Y		L	

* For non-resistant mites

- Brood & broodless are same except for Oxalic Acid (but OA is ok to use w/ no brood at any season)
- Effectiveness changes (resistance, advancements)
- Powerful info about effectiveness, pros & cons
- If ≤ 2 frames brood: Hopguard, Oxalic, or Formic
- If > 3 frames brood: Apivar or Apiguard is more effective
- Read the directions & choose your options
- Rotate treatment methods to reduce resistance

Key
H = Highly Effective
M = Moderately Effective
L = Least Effective
HBHC Tool says Don't Use
Not Red: HBHC says Use

7.5. Honeybee or Honey Bee?

- **Dictionaries & newspapers say Honeybee**
- **Dictionaries & newspapers **are wrong****
- **Insect scientists use separate words if the common name correctly indicates the Order**
 - **A house fly is a fly. A butterfly is not a fly.**
 - **A honey bee is a bee. A honeybee is not.**
- **On the other hand, an incorrect word can become accepted when:**
 - **People use it incorrectly for a long time**
 - **A famous person uses it incorrectly**

What shall we do?

8. Inspection Checklist Handout

Bee Hive Inspection Checklist, Date & Time:

Hive # or name	
Weather (°F, clouds)	
Entrance activity, low, mod, high	
Pollen going in?	
Bees on Ground?	
Robbing?	
Hive weight (light, med, heavy)	
Equipment (stand, boxes, lids)	
Ventilation, screen bottom, shade	
Box #	
# frames bees	
# frames brood	
Brood pattern (solid, spotty)	
Larva present?	
Eggs present? 1 at bottom of cell?	
Brood caps: concave, perforated	
Jelly (dry, moderate, heavy)	
Queen swarm cells, bottom	
Queen cups	
Queen supersedure cells, sides	
# frames drone brood	
Hive Beetles	
# frames capped honey	
# frames nectar (uncapped)	
# frames pollen, # colors	
# frames empty cells	
# frames undrawn foundation	
Hive Temperament	
Excluder (remove by Sept)	
Pest or Disease signs	
Varroa test	
Comments, Actions	

Actions to consider: feed, test, treat, SHB trap, add or remove box, split, combine, report disease or poison

# Frames bees	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Good	7	8	10	14	16	16	13	10	10	11	9	8
Help Needed	4	4	6	7	8	9	8	7	8	8	7	6
Doomed	3	2	2	2	3	3	3	3	4	5	5	5

Help: test, kill varroa, re-queen, add brood, add bees, feed syrup/pollen

Doomed: test, kill varroa, combine

Frames honey: at least 10 full frames both sides by mid-Oct

Frames honey: similar to # frames of brood

Frames pollen: > 1 full frame both sides when eggs or brood present

Spotty brood caused by:

- Failing queen
- Varroa
- Hot dry conditions
- Poor nutrition (cannibalize)
- Not enough space for nectar & pollen
- Chalkbrood
- European Foulbrood

Beekeeper's Inspection Checklist

1) OUTSIDE OF HIVE

- # of bees coming & going
- Pollen going in
- Crowded entrance
- Fighting or robbing
- Weight of hive (food stores)
- Spotting (treat for nosema?)
- Dead bees on entrance or ground
- Bees on ground (mites? poison?)
- Equipment (box, stand, weathering)
- Water source (reliable, persistent)
- Neighbor issues?
- Tall grass (pest bridges)
- Sun/shade level

2) FRAME

- Temperament of bees
- # of bees on frames
- # of frames with bees
- If < 6 frames, combine?
- If full, split?
- Swarm signs
- Queen cups, open, empty
- Queen cells (larvae or closed w/ pupa, bottom of frame)
- Supersedure cells (on frame sides)
- Brood pattern appropriate
- Larvae in jelly?
- Queen sighting or signs?
- Bees with deformities?

3) FRAME

- Honey stores
- If 80% full, add super
- If low then feed
- Have 30 lbs for winter
- Pollen, Bee bread, add sub?
- Feeder status? Add?
- Pests (Small hive beetles, Wax moths, ants, etc)
- Nurse bee behavior
- Drones, drone cells
- Dirty comb (replace after ~5 years)
- Burr comb (clean?)
- Cell Level
- Eggs at bottom of cells
- Multiple eggs in cells
- Slightly convex wax cappings
- Perforations in wax cappings
- Color & cond of wax & cappings
- Mites on pupa?
- 300 Bee Level
- Mite Count
- Alcohol wash
- Sugar Roll
- Sticky board
- Is it time to treat?

4) BEEKEEPER

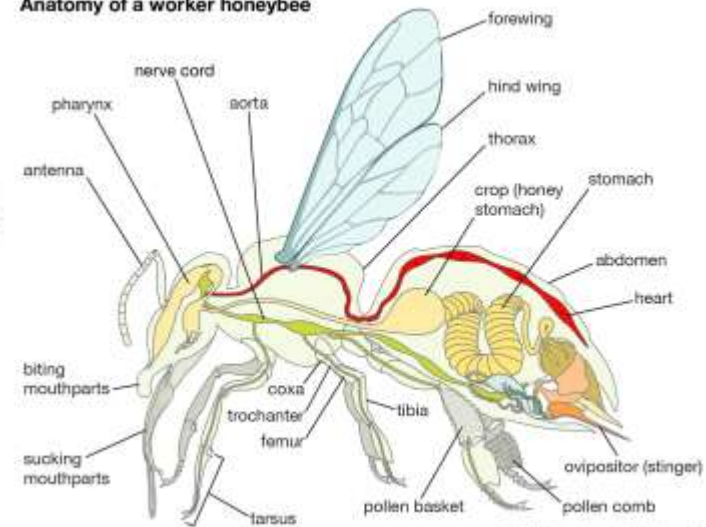
- Order ahead of time (bees, queens, equipment, jars, labels, PDB, etc)
- Equipment for supering, harvesting, wintering
- Record keeping
- Learn more (bee club, books, internet, etc.)

Why are There Controversies?

- **Wouldn't it be nice if beekeeping was simple**
- **Bees are complex & fascinating**
- **Many variables:**
 - **Genetics**
 - **Strength of colony**
 - **Nutrition**
 - **Environment**
 - **Forage, Drought**
 - **Beekeeper actions**
 - **Pests, Disease**
 - **What else?**
- **Hard to study & control for everything**
- **That's why one question gets 5 answers**



Anatomy of a worker honeybee



Threats to Bees, Warrant Inspections

26

Diseases

Viruses

Foulbrood
Nosema
etc

Animals

Small Mammals (skunks, mice)
Large Mammals (livestock, bears)
Birds
People

Parasities & Pests

Varroa Mites

Small Hive Beetle
Wax Moths
etc



Poor Nutrition

Not enough nectar & pollen
Flowerless landscapes
Mono agriculture
Herbicides

Pesticides

Neonicotinoids
Pyrethroids
Fungicides
Herbicides
etc

- **Varroa with viruses is the biggest threat to bees**
- **Combined threats compound individual harmful effects**
- **What responsibilities do Beekeepers have?**

What Should You Do?

- I'm not saying what you should do
- I'm saying what we do & why
- We recognize other approaches
- I'll keep listening & trying to learn more, & change/grow along the way
- MBA programs & speakers can help!
- We respect your right to decide for yourself
- We'd love to hear suggestions & requests

Enjoy the Adventure of Beekeeping!



Questions?

Disagreements?

Russ Killingsworth

Beekeeping Henchman

- **10 years serving Gretchen The Beekeeper**
 - **Set up hives**
 - **Capture swarms**
 - **Requeen hives**
 - **Deal with pests, aggressive hives, annoyed neighbors**
 - **Relocate hives**
 - **Mourn losses**
 - **Harvest honey, wax, & propolis**
 - **Sold honey, wax, propolis**
 - **Take lots of pictures**
 - **Made powerpoint charts**
 - **Keep track of everything**
 - **Club mtgs & conferences**
 - **Stung dozens of times**
- **Honorary beekeeper**
- **Member of MBA since 2012**

