



Backyard Beekeeping Highs & Lows

Gretchen & Russ Killingsworth

**Honey Bee on Indian Hawthorne
in our backyard**

Haver or Keeper?



Provide a Box
for Shelter

I have
a cat

I have
bees



Shelter, Food,
Water,
Inspect, Meds,
& Post Pics



I'm a
beekeeper



High: Getting Bees

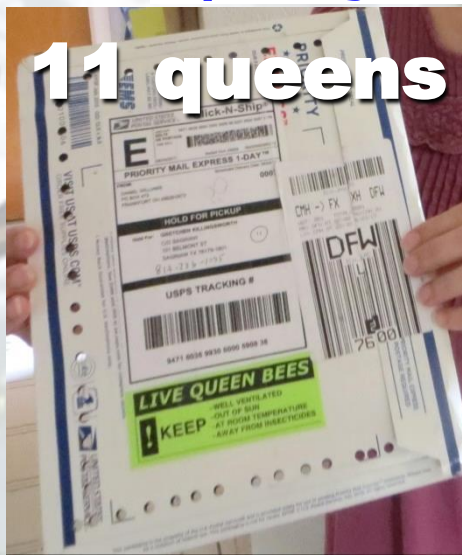
Where Have We Gotten Bees?

- **Local beekeeper**
 - Nucs (nucleus hive)
 - Queens
 - Complete hive
- **Through the mail**
 - Queens, Packages
- **Catch a swarm**
- **Rescue unwanted established hive**
- **Splits**



9 Nucs in our car

• 200 bees flying free (Everything leaks) We are fully suited



11 queens by mail



Catching a Swarm

- **Be Prepared**
 - **Clothing**
 - **Nuc box w/ frame(s)**
 - **Ladder?**
 - **Brush**
 - **Syrup spray**
- **Mist cluster with syrup**
- **Brush bees into nuc box**
- **Make sure queen is there**
- **Time for bees to gather**
- **Close up**



Swarm →

Nuc box →

Brush →

10 ft ladder →



Syrup spray →

Highs: Getting Bees

| | Nuc (Nucleus) | Swarm | Package | Established Hive |
|------------------|-----------------------------|------------------------|--------------------------------|---------------------------------|
| What's Included? | Bees, accepted Queen, Brood | Bees & Queen | Bees, Queen in cage, can syrup | Bees, Queen, Brood, Food Stores |
| Honeycomb | Yes, drawn | None | None | Yes, drawn |
| Brood | Yes, faster buildup | None | None | Yes |
| Mites, Pests | Variable, test | Variable, test | Variable, test | Variable, test |
| Feed | Feed! | Feed! | Feed! | Inspect! Feed? |
| Queen quality | Young, ask seller | > 1 year | Young, ask seller | Ask seller |
| Honey Harvest | ≥ 2 nd year | ≥ 2 nd year | ≥ 2 nd year | Possibly 1 st year |
| Survival | High success | Variable | Good success | High |
| Cost | ~\$220 | Effort | ~\$170 | ~\$350+ |
| Source | Local | Local | Can ship | Local |



- **Swarm can be captured or bees can move into a swarm-capture box**
- **Or leave a small hole in your eaves (You know that's a joke, right?)**
- **Inspect all colonies & test for mites**

I Enjoy Bees

- We sat in lawn chairs by our 1st hive, 2012



Low: Upset Neighbors

- 1st step: Panic
- 2nd step: Can I move the hive?



**North wind break,
incl skirt on shed**

**Workspace in back
& sides**

High: Our Apiary

**6 ft Fence (fly up)
Enclosed (kids, animals)**



**Langstroth
10 frame**



Entrance reducers

**Dry,
Level**



Top Bar

**Stand &
Bug barrier**

Facing south or east

Mulch, Grass deterrent

**Away from
foot traffic**

Nearby sources of water, nectar, & pollen



High: Solving Challenges

Inspections

If we don't inspect the hives, we have no challenges ...

... until it's time to clean the dead-out

We want to know if we should do anything to help the bees

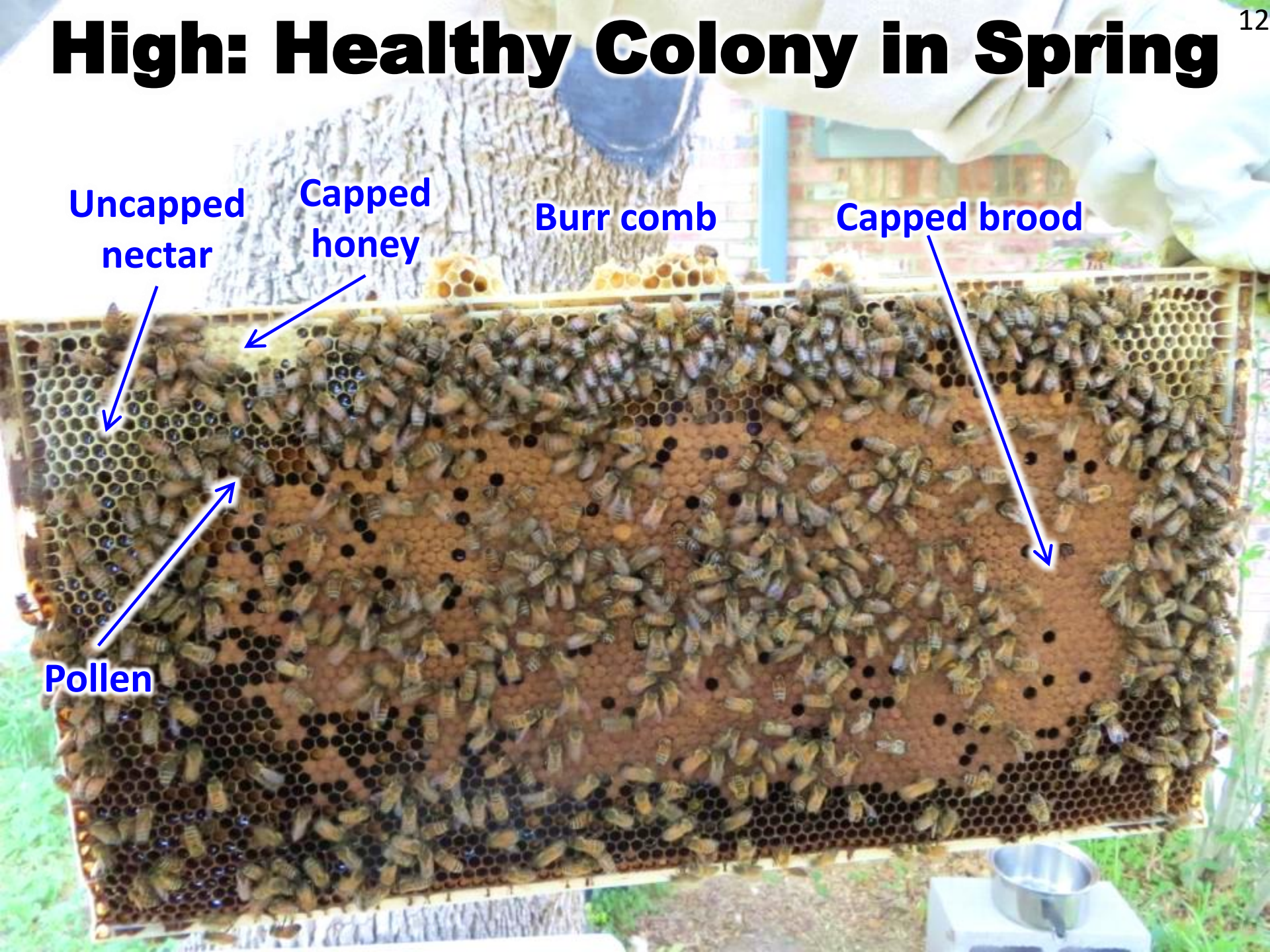
What We Look For

- 1. Queenright & # of Bees**
- 2. Nutrition & water**
- 3. Pests, Diseases**
- 4. Housing**

• **Think ahead**

- **MBA resources**
- <https://metrobeekeepers.net/this-month-in-the-hive-inspection-checklist/>

High: Healthy Colony in Spring



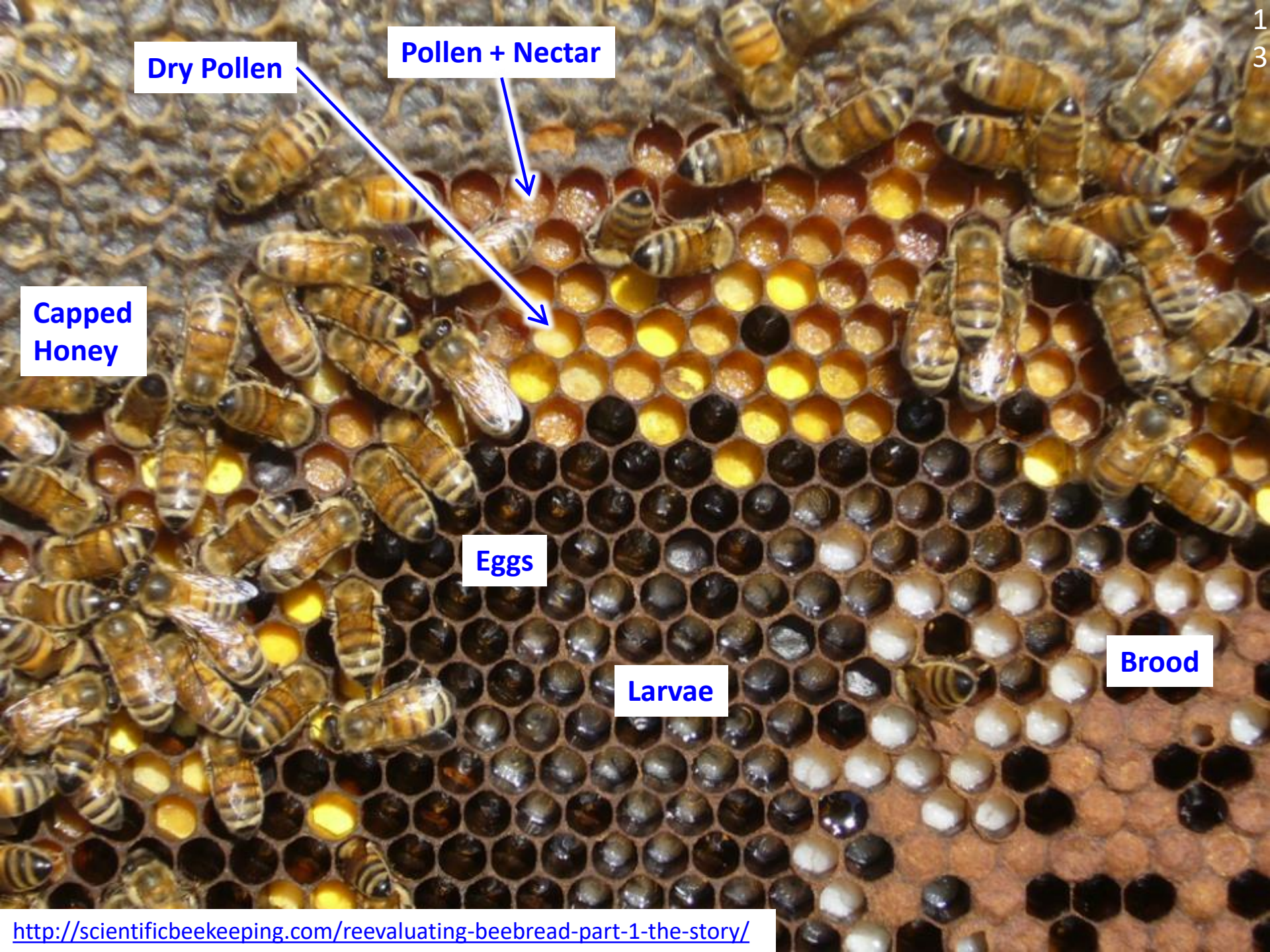
Uncapped
nectar

Capped
honey

Burr comb

Capped brood

Pollen



Dry Pollen

Pollen + Nectar

Capped
Honey

Eggs

Larvae

Brood

Inspections & Actions by Season

Queen-
right
Nutrition
Disease
Housing

| | Spring | Summer | Fall | Winter |
|------------------|---|---------------------------------------|-------------------------------|-------------------------------------|
| Temp | Eve > 50° F | Day > 95° F | Eve < 50° F | Day < 50° F |
| Blooms | Lots after mid-Feb | Sparse if dearth. Often Autumn surge. | | Low until early Feb |
| Activity | Lots | Low if dearth | Lots on warm days | None on cold days |
| Inspect | New: weekly | 1 to 4 weeks | 2 to 4 weeks | 4 to 6 weeks |
| Queen | Lots brood | Peak population | Declining brood | Little/no brood |
| Bees | 8 to 16+ frames | 6 to 16+ frames | 6 to 10+ frames | 4 to 8 frames |
| | Look for healthy brood, healthy adults, dead bees on ground | | | |
| Honey | Feed new hives for a year. > 40 lbs honey or feed syrup (or fondant if <50°F) | | | |
| Pollen | Feed pollen until bees stop taking | > 1.5 frames or feed | | Can add patties or open feed |
| Water | Ensure persistent water supply all year | | | |
| Varroa | Test 2 to 4 times / year. Treat if Mites > 3% | | | |
| SHB, Moths | Remove/add boxes consistent with enough bees to defend the space | | | |
| Boxes, Frames | Keep 50% to 70% bees/frame. High causes swarm; Low invites pests | | Remove empty. Discard old. | Store wax frames. Clean, repair. |
| Excluder | Add if desired. Stop feeding syrup before nectar flow, if plan harvest. | | Remove > harvest | No. Queen must move with cluster. |
| Entrance Reducer | Remove if excess congestion. We use all year (wooden in summer) | | Add | Yes |

- **Some beeks intervene less (don't feed, no entrance reducer)**
- **You get to choose how much you do to help them survive**



Low: Losing Hives

What Causes Bee Colonies to Die? ¹⁶

Queen Failure

Lost productivity, age
Damage by inspection
Damage in duel(s)
Mating flight fails
Other items on this pg

Diseases

Viruses via varroa
Foulbrood
Nosema
etc

Animals

Small Mammals (skunks, mice)
Large Mammals (livestock, bears,
beekeepers, people)
Birds, Wasps

Parasites & 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 are single biggest threat to bees**
- **Combined threats compound individual harmful effects**
- **Beekeepers have responsibilities to inspect the hives & care for their bees**
- **Inspect for queenright, food, pests, diseases, housing**

Colony Losses > 60% 2024-25

- **Before Varroa: 10% hive losses**
- **2025 losses 1.7M hives, \$600M**
- **Study results**
 - **High virus load in bees**
 - **Virus carrier is Varroa mite**
 - **Varroa more resistant to amitraz**
 - **Higher bee death from combined effects of virus, pesticides, poor nutrition, migratory stress**
- **Beekeeper recommendations**
 - **Test for Varroa, Treat if needed**
 - **Use natural methods: Oxalic acid, Norroa, hopguard**
 - **Less/No use of apivar (amitraz)**
 - **Rotate methods**
 - **Avoid exposure to pesticides**



• **References, Preprint: www.biorxiv.org/content/10.1101/2025.05.28.656706v1**
 – texasbeekeepers.org/usda-varroa-mite-resistance-honey-bee-collapse-2025/

<https://capitalpress.com/2025/05/30/epa-proposes-new-insecticide-for-honeybee-nemesis>

Why Do We Treat for Varroa?

- **Varroa kills honey bee colonies**
 - **If you do nothing to manage varroa, your bees will die** [Danielle Downy](#), [projectapism.org](#), [honeybeehealthcoalition.org](#)
 - **Most colonies will die from varroa & varroa-carried virus within 2 years, unless beekeepers reduce mites. Not controlling mites is inexcusable, & spreads mites & viruses to neighboring bees.** [Randy Oliver](#)
 - **Controlling Varroa mites is part of being a responsible beekeeper.** [Mark Dykes](#), TX Apiary Inspector
- **Good news: There are effective varroa control methods without harsh synthetic chemicals**
- **Some people say leave it to the bees to evolve**
 - **There is no hope of bees who can survive without treating until we stop treating.** [Michael Bush](#), [Natural Beekeeper](#)
- **Not all beekeepers agree on mite management**
- **You choose your approach with your bees**

Range of Intervention

| | Nature | Natural | Bee-friendly | Max Productivity |
|-----------------|--|---|---------------------------------------|--|
| Home | Hollow tree | Man-made boxes (wood, plastic, styrofoam) | | |
| Add Supers | None | Maybe | Add when population & stores warrant | |
| Comb | Bee-built | | Bee-built or plastic | Plastic |
| Inspect | None | None or Minimal | Find problems in time to help | Fewer inspections |
| Feed | None | | Syrup &/or pollen as needed | Syrup & pollen |
| Vitamins, etc | None | | Maybe | Usually |
| Medicines | None | | Organic acids, as needed | Synthetic chemicals |
| Harvest | No | Maybe | Usually | Usually |
| Migratory | No | | Maybe | Pollination, honey → \$ |
| Effects on Bees | More pests, disease, starvation, suffering, losses | | Increase survival. Ease suffering. | More bee colonies. Adds stress to bees? |

- **Bee-friendly beekeepers give bees more attention & care**
- **Commercial beekeepers have bee livestock**
- **There are not distinct lines between types of beekeepers, but a range of options. Each person chooses their approach.**

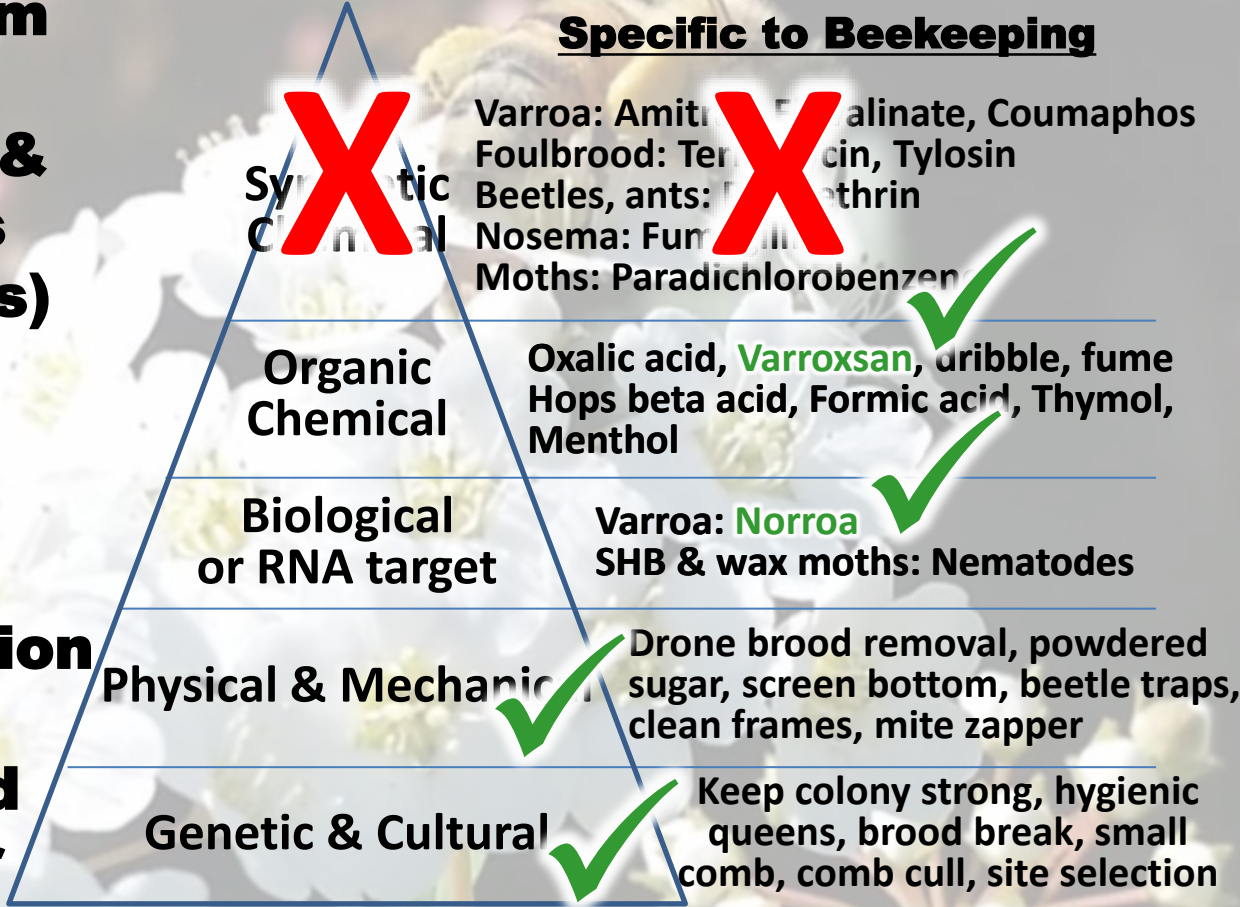
Integrated Pest Management

Objectives:

- Solve pest problem
- Reduce risks to people, property, & environment (less harmful chemicals)
- Long-term sustainable
- Reduce costs

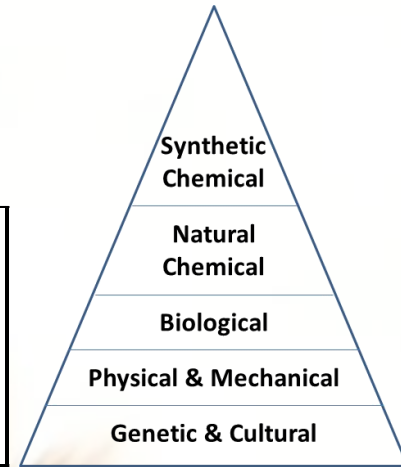
Principles:

- Minimal intervention
- Start at bottom & move up if needed
- Monitor & test for effectiveness
- Adapt & adjust



Rotate Methods to Reduce Resistance

When Mite Count is Below 3%



Integrated Pest Management

| Key |
|--------------------------|
| H = Highly Effective |
| M = Moderately Effective |
| L = Least Effective |

- **Start low on the triangle & keep mite count low**

| Treatment | Ess Oil | Org Acid | Synth Chem | Non-Chem | Mite kill | Improved Losses | Residues | Population | | | |
|---------------------|---------|----------|------------|----------|-----------|-----------------|----------|------------|------|------|------|
| | | | | | | | | Incr | Peak | Decr | Dorm |
| Drone brood removal | | | | Y | | 10% | No | H | L | L | |
| Brood interruption | | | | Y | | | No | | | | H |
| Divide 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 | | | |

- **Sanitation: cull old brood comb, space out colonies, sunny area w good drainage, clean tools between colonies, freeze frames to kill pests & eggs**
- **Combine methods for best results**

When Mite Count is Above 3%

Info compiled from honeybeehealthcoalition.org/Varroa/ 2021

• Move to stronger method

| Treatment | Org Acid | Ess Oil | Synth Chem | Mite kill | Losses | Improved | Residues | Temp, °F | | | | | No Brood | | | | With Brood | | | | | | | |
|--------------------------------|----------|---------|------------|-----------|--------|----------|----------|----------|--|------|------|------|-----------|------|------|------|------------|------|------|------|------|------|------|------|
| | | | | | | | | | With supers | | | | No supers | | | | No supers | | | | | | | |
| | | | | | | | | | Incr | Peak | Decr | Dorm | Incr | Peak | Decr | Dorm | Incr | Peak | Decr | Dorm | Incr | Peak | Decr | Dorm |
| Varroxsan oxalic strips | Y | | | 90% | 39% | No | Any | Any | Can use any time, with & without supers | | | | | | | | | | | | | | | |
| Vadescana (norroa) | | | rna | 95% | 41% | No | Any | Any | 2* more effective than Amitraz at 18 wks | | | | | | | | | | | | | | | |
| Oxalic dribble | Y | | | 90% | 39% | No | Any | Any | | | | | Y | M | M | Y | Y | M | M | Y | | | | |
| Oxalic acid fume (dangers) | Y | | | 90% | 39% | No | Any | Any | | | | | Y | | Y | H | Y | Y | Y | H | | | | |
| Hops beta acid (Hopguard 2) | Y | | | 85% | 0% | No | >50° | >50° | M | M | H | H | M | M | H | H | M | M | H | H | | | | |
| Formic acid (MAQS, Formic Pro) | Y | | | 80% | 24% | No | 50°-85° | 50°-85° | H | H | H | M | H | H | H | M | H | H | H | M | | | | |
| Thymol (Apiguard, Apilife var) | | Y | | 83% | 30% | Some | 59°-105° | 59°-105° | | | | | H | H | H | M | H | H | H | M | | | | |
| Amitraz (Apivar, Taktic) | | | Y | 95% | 41% | Yes | Any | Any | | | | | H | H | H | | H | H | H | | | | | |
| Fluvalinate, Coumaphos | | | Y | n/a | 7% | Yes | | | | | | | Y | | L | | Y | | L | | | | | |

- **Honey Bee Health Coalition shows effectiveness & limits**
 - I made summary table of online tool, bottom 7 rows
 - Red shade means don't use
 - We shaded the bottom 2 rows, don't use, my opinion
- **Varroxsan & Norroa are too new to be in HBHC study**
 - More effective & easier to use. I added them at top.
 - Can use any time of year, with brood & with honey
- **Rotate treatment methods to reduce resistance risk**

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

Varroxxsan: Natural Mite Treatment²³

- **Varroxxsan is slow-release oxalic acid**
- **Natural organic acid**
- **Effective. Easy to use. Apply strip 6-8 wks.**
- **Any temperature (more effective > 60° F)**
- **Ok with honey supers, with a box between**
- **No oxalic acid found in honey, even at 1.5 times the dose**



- **Many natural bees use oxalic dribble or fumes, multiple times**
- **Varroxxsan is much more convenient**
- **Oxalic fume can harm people's lungs**

Norroa

- **Norroa makes mites sterile & slows mite population**
- **Keeps mites below 3% threshold for 4.5 months**
- **No negative impact on bees or honey**
- **Tested over 10 years**
- **Based on RNAi**
- **2 * better than chem treatment**
- **Pouch on top of frames or bottom board**
- **Leave 1/2-inch space above**





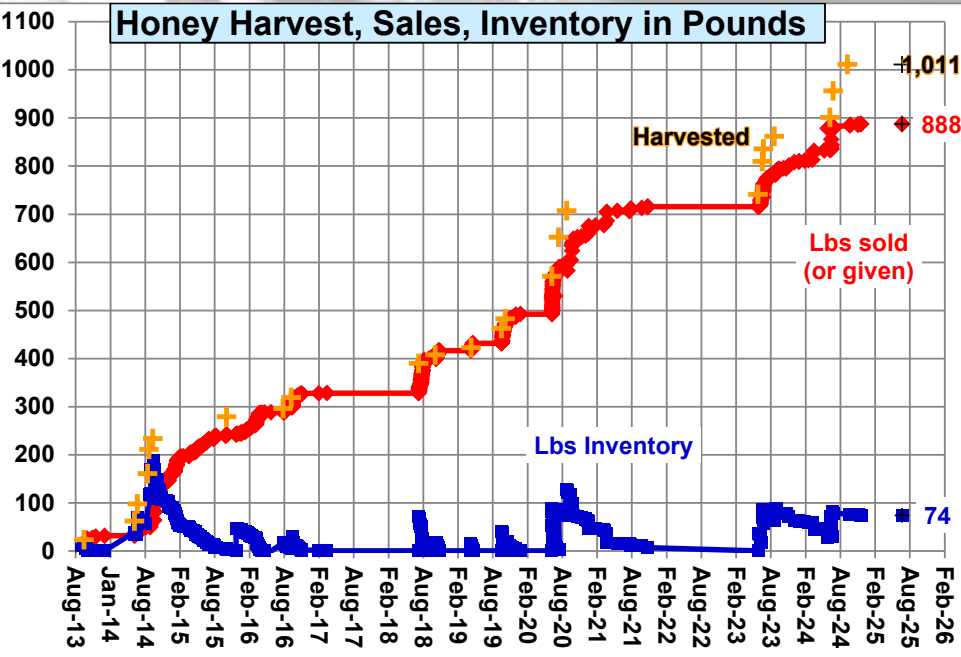
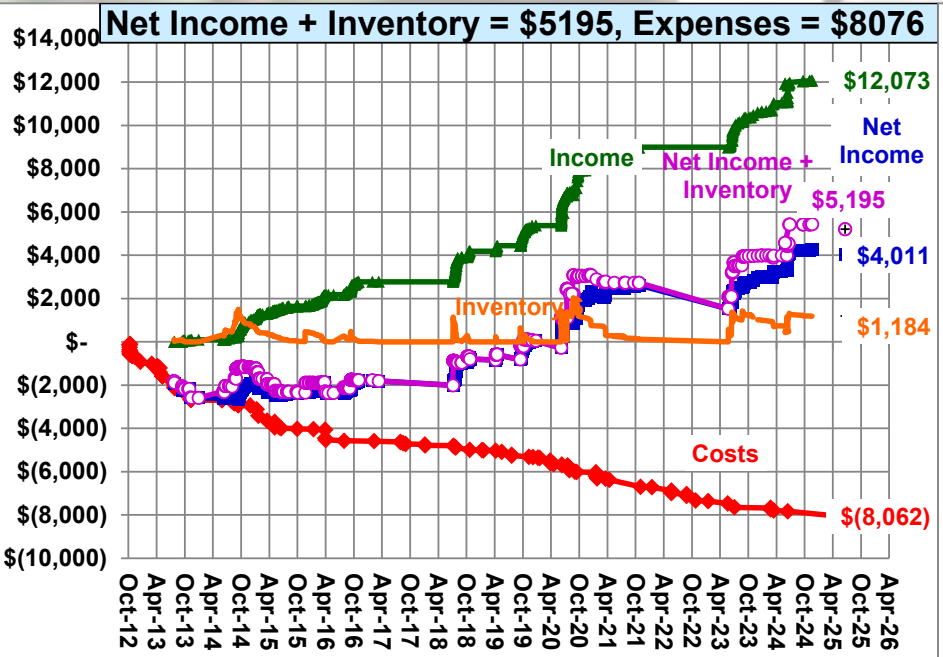
High: Honey

Harvesting



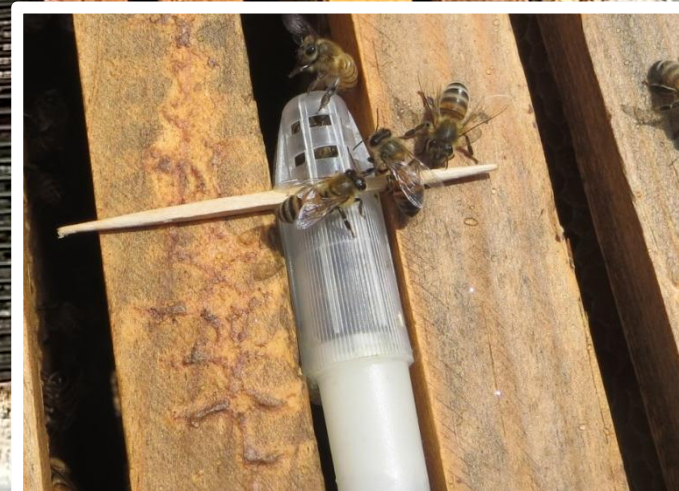
High: Crossing Zero, Going Up

- We've harvested over 1,000 lbs of honey
- Spent \$8k & received \$12k, so net +\$4k
 - And we gave away a lot of honey to family & close personal friends, which is a high
- It was nice to cross zero from negative to +



Low: No Queen

- **No brood, found during inspection**
- **1st step: Panic**
- **2nd step: Confirm there is no queen, or is she just taking a seasonal break?**
- **3rd: Where can we get a queen?**
- **Get queen**
- **Introduce queen**
- **Happy bees**





**Low:
Stings, Heat, & Spiders,
Oh My!**

What Could Go Wrong?

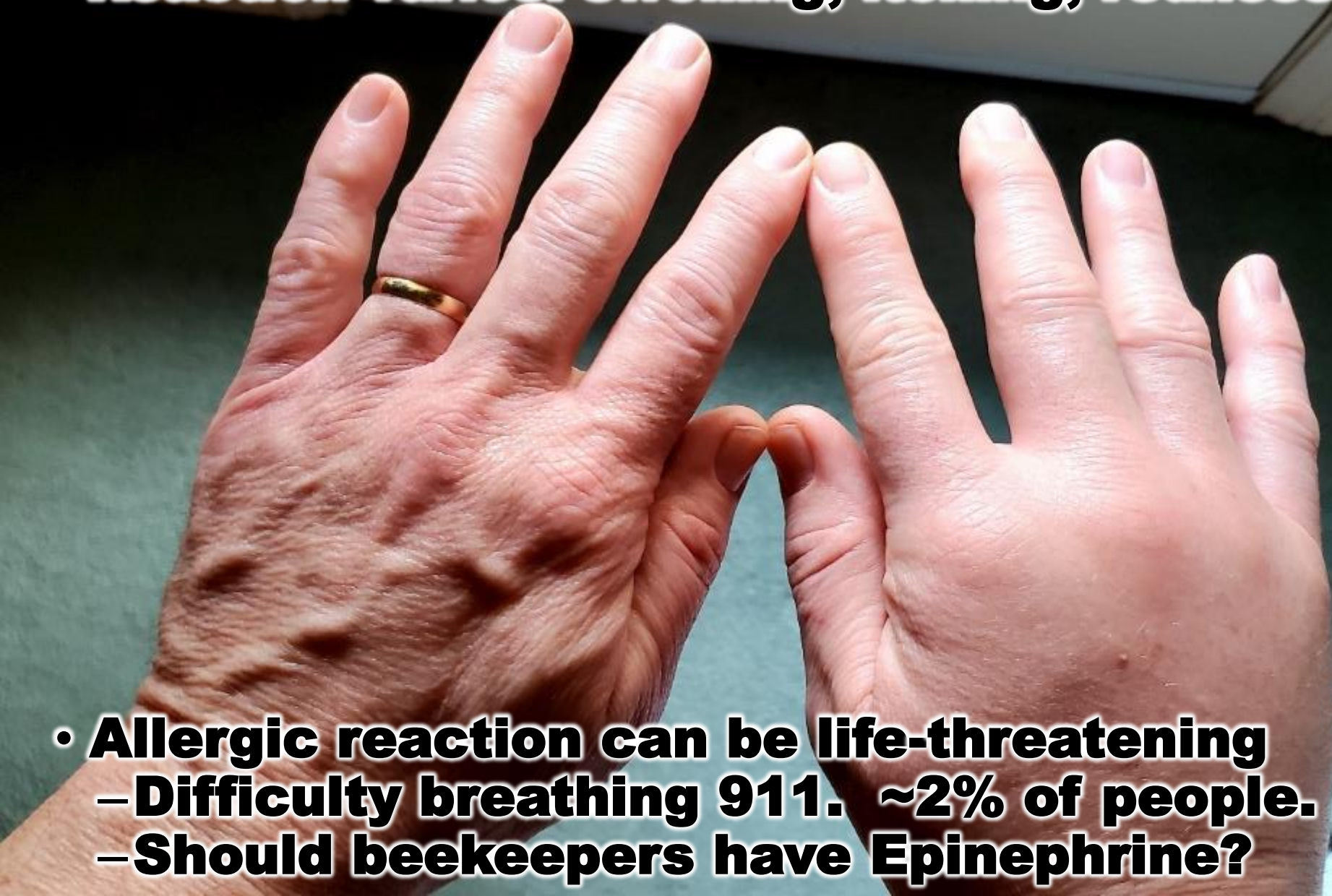
| Danger | For Adventure | For Less Interesting Stories |
|---------------------------------|---|---|
| Sting, Allergic Reaction | <ul style="list-style-type: none"> • Thump hive, annoy bees • Wear sweet perfume • Expose lots of bare skin • Swat the bees | <ul style="list-style-type: none"> • Work with a friend • Wear protective equip, able to call 911 • If trouble breathing, Call 911, Epi-shot? • Don't swat bees |
| Heat Exhaustion | <ul style="list-style-type: none"> • Work long time in heat • Don't drink water • Don't take breaks • Work alone | <ul style="list-style-type: none"> • Work with a friend • Drink water, electrolytes • Take breaks |
| Fire | <ul style="list-style-type: none"> • No water or extinguishers • Drop smoker, match on tinder • Don't watch the smoker | <ul style="list-style-type: none"> • Monitor the smoker, match, flame • Have lots of water on hand |
| Muscle Strain | <ul style="list-style-type: none"> • Sit still when not beekeeping • Pick up heavy boxes alone • Bend your back, lift & twist | <ul style="list-style-type: none"> • Lift with legs, not bent back • Have helper &/or use equipment • Stay square with the load • Limit the weight |
| Falls | <ul style="list-style-type: none"> • Slick footing on ladder • Climb ladder, lean out to side • No spotter at base | <ul style="list-style-type: none"> • Solid footing • Have friend spotter at base • Center on ladder |
| Spiders | <ul style="list-style-type: none"> • Bare hand blind grab | <ul style="list-style-type: none"> • Wear good gloves & watch out |
| Priority | <ul style="list-style-type: none"> • Honey harvest is top priority | <ul style="list-style-type: none"> • Safety First |



Will I Get Stung?

Yes.

- **Reaction varies: swelling, itching, redness**



- **Allergic reaction can be life-threatening**
 - **Difficulty breathing 911. ~2% of people.**
 - **Should beekeepers have Epinephrine?**

High: Plants in G's Yard



High: Sharing My Beekeeping Adventure

- **MBA Class**
 - 283 students
 - 7 years
- **Field trips**
- **Mentoring 6 youth**

27 May, Cindy, 8 hives



3 June, Brent, >20 hives



1 June, Gretchen, 4 hives



2026 Feb 7, Charles



Mar 14, Gary



Mar 2024



Mar 2024



May 2024



Thank you to Charles, Keith, Glen, & Gretchen!

May 2024



Mar 21, Gretchen



Apr 25, Barbara



Apr 11, Crystal



Crystal



Barbara



Gretchen



Charles & Susan



MBA Class Field Trips

8 Locations

Multiple Visits

How About Yours?

Gary



Keith



Brent



Glen



MBA Online Resources

This Month in the Hive, Inspection Checklist, Presentations

[Beekeeping FAQs](#)

[This Month in the Hive](#)

[Inspection Checklist](#)

[Overview of Beekeeping](#)

[Selling Honey in Texas](#)

[Report Poisoned Bees](#)

[Fort Worth Encourages Beekeeping](#)

[Hiring a Beekeeper](#)

[Plant of the Month Collection](#)

[How to make Fondant for Honey Bees, Terry Leggett](#)

Presentations

[Natural Beekeeping](#), Terry Leggett, Aug 2025

[Wax Processing](#), Brent Husted, Jan 2025

[Capturing Swarms](#), Terry Leggett slides June 2024

[BeeSeasons](#), Christi Baughman

[Backyard Beekeeping](#), Gretchen K

[Varroa Mite](#), How to Help Bees, Russ K

[Beekeeping Controversies](#), Russ K

[Inspections](#), Gary Dilling

[How to Kill Your Bees](#) (and how not to), Ryan Giesecke

[Beekeeping in Portugal](#), Angelo & Andrea

[MBA Class Field Trips](#), Gretchen K

metrobeekeepers.net Resources,
This Month in the Hive ... & more

FAQs, Frequently Asked Questions

1. Can I Be a Beekeeper?

- [Why Would Anyone Keep Bees?](#)
- [Am I Beekeeper Material?](#)
- [Will I Get Stung? Safety Guide?](#)
- [What Place Do I Need?](#)
- [What Are Ft Worth Beek Laws?](#)
- [How Much Does It Cost?](#)
- [Can I Hire a Beekeeper?](#)

2. Getting Started & Setting Up

- [What Stuff Do I Need?](#)
- [Do I Really Need Suit & Gloves?](#)
- [What are the Hive Types?](#)
- [What Foundation Should I Use?](#)
- [How Many Hives Should I Get?](#)
- [How Do I Get Bees?](#)

3. Plants & Other Bees

- [What are Good Plants for Bees?](#)
- [What Plants Are Poisonous?](#)
- [Honey Bees vs Native Bees?](#)

6. Harvesting

- [How Much Honey Can I Get?](#)
- [How to Harvest & Sell Honey?](#)
- [Types of Honey; Does it Spoil?](#)
- [How Do I Melt Wax?](#)
- [How Do I Store Frames?](#)

4. Working with Bees

- [Varieties of Bees & Wasps?](#)
- [How Long Do Bees Live?](#)
- [What's Involved in Inspections?](#)
- [How Can I Find the Queen?](#)
- [Why Smoke Bees?](#)
- [When to Add or Remove a Box?](#)
- [How Do I Split a Hive?](#)
- [How Do I Combine Hives?](#)
- [How Many Bees in a Hive?](#)
- [What If My Bees are Gone?](#)
- [What if I Suspect Poisoning?](#)
- [What is Natural Beekeeping?](#)
- [When Should I Re-Queen?](#)
- [How Maximize Winter Survival?](#)
- [How Do I Get Bees Removed?](#)
- [How Can I Shoo Away Bees?](#)

5. Threats to Bees

- [What Causes Colonies to Die?](#)
- [What are Varroa Mites?](#)
- [How To Test & Treat for Varroa?](#)
- [Other Pests & Diseases?](#)

7. Learning

- [What Are the Big Mistakes?](#)
- [Where Can I Learn More?](#)
- [What's Master Beekeeper?](#)

Share About Metro Beekeepers

- **Invite visitors**
- **Share MBA benefits**



- **26 speaking occasions**
 - **Schools, Youth groups, 4H, Weston Gardens, Texas Outdoor Woman Network, Tarrant County Master Gardeners, Sierra Club, Rotary clubs, other bee clubs, TCC, city animal control officers, more**

calvin and HOBBES

BY WATERSON



It's nice to be in a group of people who appreciate bees!

Highs & Lows

Highs

1. Getting Bees
2. Solving challenges
3. Honey
4. Teaching
5. Crossing zero
6. MBA
7. Plants

Lows

1. Neighbors upset
2. Losing hives
3. Varroa
4. Summer heat

The Highs Outshine the Lows!

We are Thankful for the Ride!