

Beekeeping Frequently Asked Questions

Metro Beekeepers Association



METROBEEKEEPERS.NET

Metro Beekeepers Association is a non-profit 501c3 in the Fort Worth area

Corrections & suggestions are welcome. [Contact us](#)

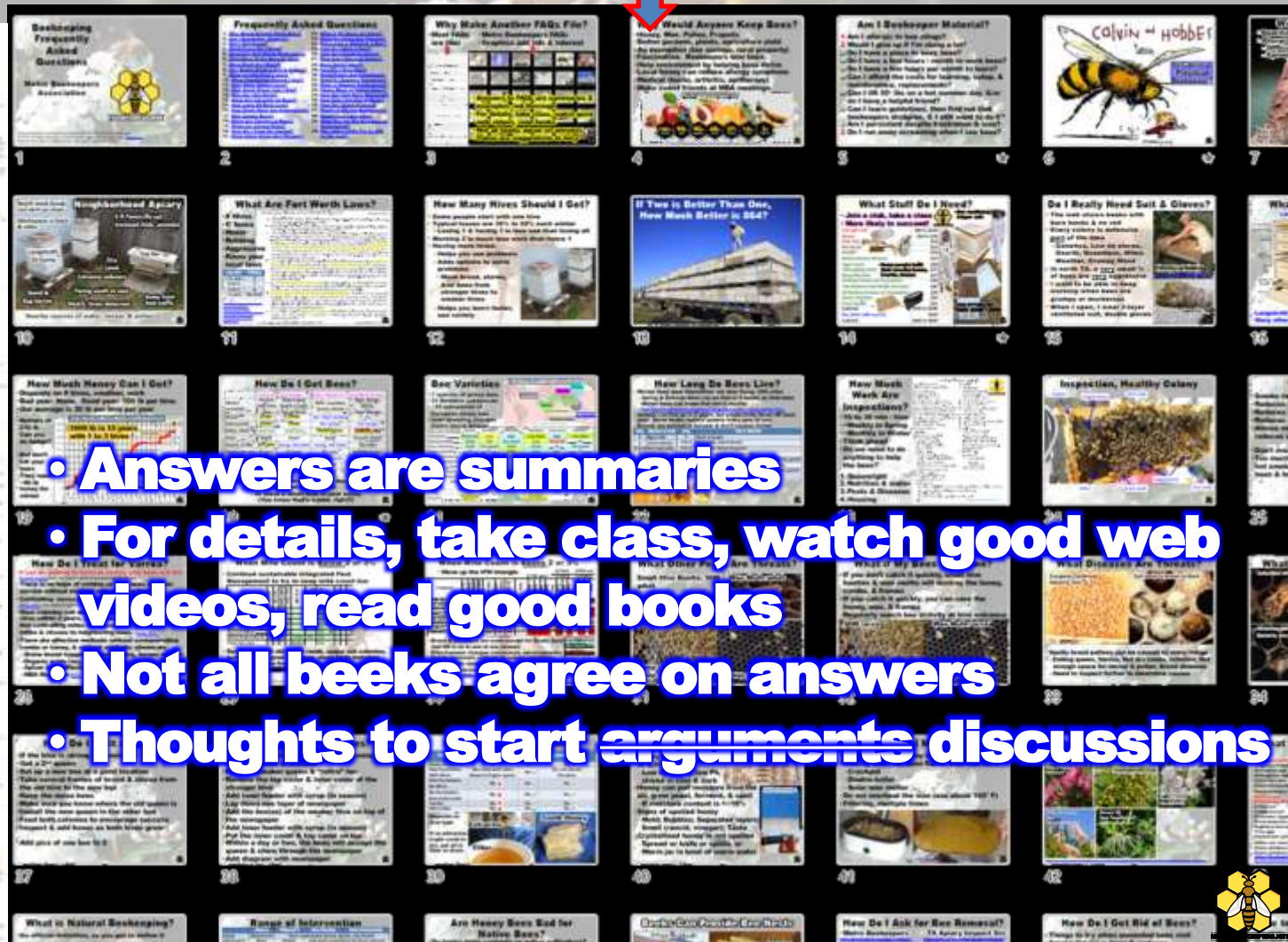
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15 Aug 2025

Why Make Another FAQs File?

- Most FAQs are like:
- Metro Beekeepers FAQs
- Graphics add info & interest



- Answers are summaries
- For details, take class, watch good web videos, read good books
- Not all beeks agree on answers
- Thoughts to start arguments discussions



File Navigation

- **The next page lists all questions**
- **Click on the question to link to the response**
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5. Threats to Bees

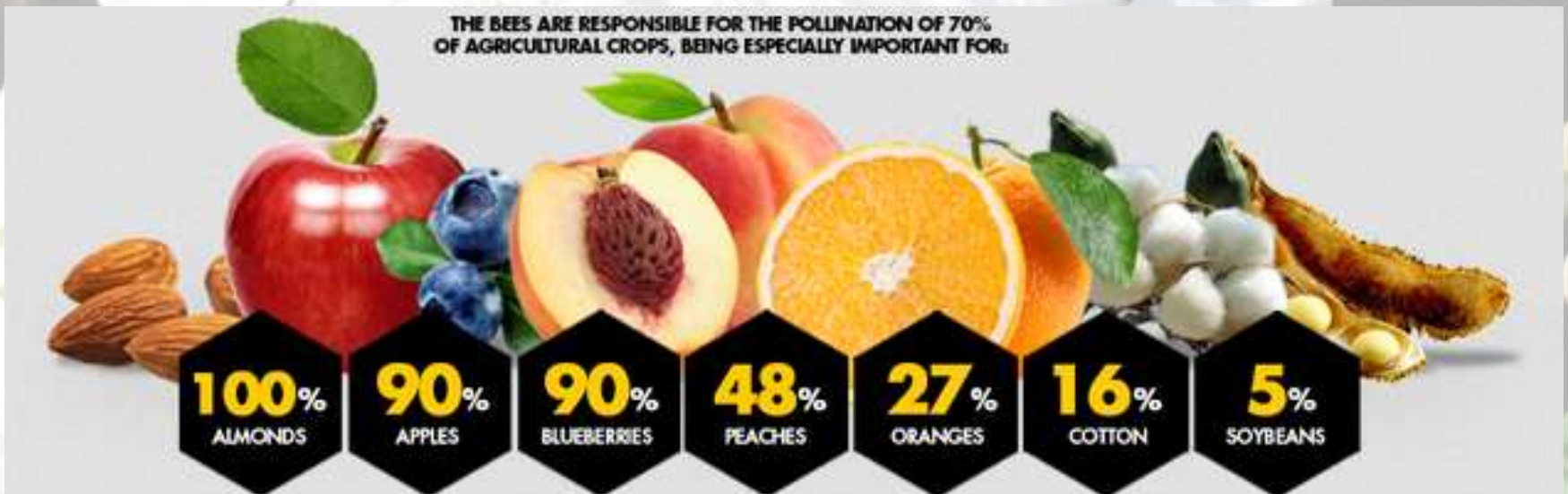
- a. [What Causes Colonies to Die?](#)
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- a. [What Are the Big Mistakes?](#)
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Why Would Anyone Keep Bees?

- 1. Honey, Wax, Pollen, Propolis**
- 2. Better gardens, plants, agriculture yield**
- 3. Ag exemption (tax savings, rural property)**
- 4. Fascination. Beekeepers love bees.**
- 5. Help environment by helping bees thrive**
- 6. Local honey can reduce allergy symptoms**
- 7. Medical (burns, arthritis, apitherapy)**
- 8. Make sweet friends at MBA meetings**



Source: United States Department of Agriculture - Roger A. Morse and Nicholas W. Calderone, Cornell University.



Am I Beekeeper Material?

- ☒ **I am allergic to bee stings**
- ☒ **I would give up if I'm stung a lot**
- ☒ **I have a place to keep bees**
- ☒ **I have a few hours / month to work bees**
- ☒ **I have a few hours per month to learn**
- ☒ **I can afford the costs for learning, setup, & maintenance, replacements**
- ☒ **I can lift 50+ lbs on a hot summer day, &/or do I have a helpful friend**
- ☒ **I can learn guidelines, then find out that beekeepers disagree, & I still want to do it**
- ☒ **I am persistent, despite frustration & loss**
- ☒ **I run away screaming when I see bees**

calvin and HOBBS

by WATERSON

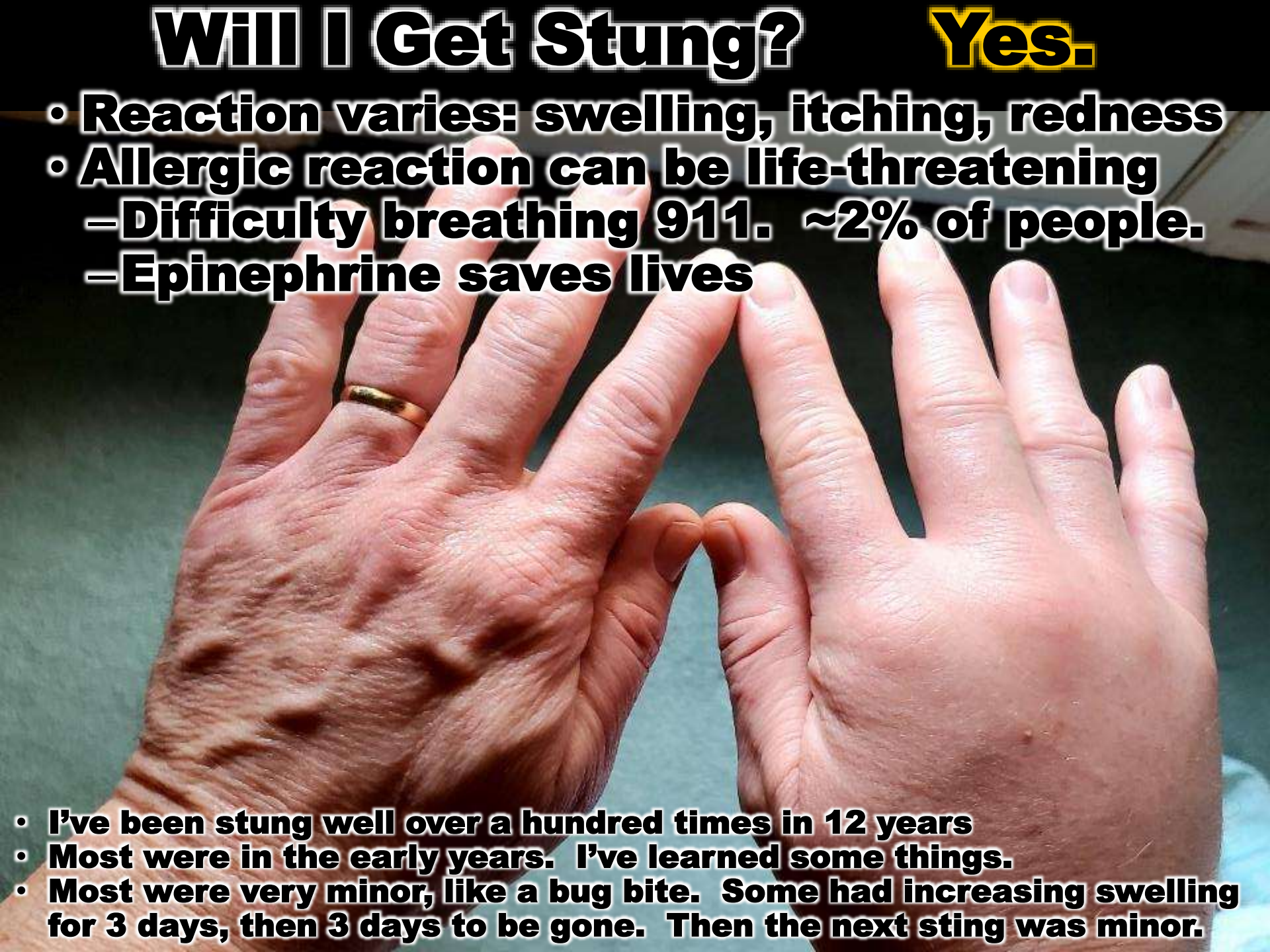
**Is Calvin a
Potential
Beekeeper?**



Will I Get Stung?

Yes.

- **Reaction varies: swelling, itching, redness**
- **Allergic reaction can be life-threatening**
 - **Difficulty breathing 911. ~2% of people.**
 - **Epinephrine saves lives**

- 
- A close-up photograph of two hands. The left hand, which has a gold ring on the ring finger, shows several large, raised, red, and swollen areas on the back of the hand and wrist, indicating severe allergic reactions to insect stings. The right hand appears relatively normal, with only a small, faint red mark visible on the back of the hand.
- **I've been stung well over a hundred times in 12 years**
 - **Most were in the early years. I've learned some things.**
 - **Most were very minor, like a bug bite. Some had increasing swelling for 3 days, then 3 days to be gone. Then the next sting was minor.**

About Bee Stings

- **Scrape stinger out with fingernail or credit card**
 - Pinching to pull stinger would inject more venom
- **Each sting releases some alarm pheromone**
 - More bees will come there & sting
 - Open the gentle hives first
- **Watch for allergic reaction**
 - Work with a friend
 - If trouble breathing, call 911
 - Experienced beeks can develop allergy
- **How to reduce stings**
 - Use smoke
 - Keep bees happy: queenright, stores, pests, housing
 - Minimize how often & how long you open the hive
 - When we open hives, we wear 3-layer ventilated suit & good gloves. Not always needed, but sometimes.
 - If genetics, consider changing queen
- **Some beekeepers say they need the dexterity of bare hands, but seem to count stings as merit badges**



<https://bobgunn.com.au/what-you-need-to-know-about-bee-stings/>

What Could Go Wrong?

Danger	For Adventure	For Less Interesting Stories
Sting, Allergic Reaction	<ul style="list-style-type: none"> • Wear sweet perfume • Expose lots of bare skin • Thump hive, annoy bees • 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"> • Drop smoker, match on tinder • Don't watch the smoker • No water or extinguishers 	<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



What Place Do I Need?

- **Level, dry, sunny, protect from winter wind, able to get cart near, low foot traffic**
- **Call local animal control to check laws**
- **Good approach (even if not required)**
 - **Fence (animals, kids, pushes bees up)**
 - **Water. Provide permanent water source.**
 - **Limit # of hives, consistent with area**
 - **Minimize robbing, limit open hives, honey**
 - **Be considerate to neighbors**
 - **Talk with neighbors before they talk to you**
 - **Wild bees were here before we got bees**
 - **Explain plans to be considerate to them**
 - **Ask how they feel**
 - **Reward neighbors with honey**

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

**Workspace in back
& sides**

Neighborhood Apiary

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

**Langstroth
10 frame**

**Mouse
Guard**

**Stand &
Bug barrier**

Entrance reducer

Facing south or east

Mulch, Grass deterrent

**Dry,
Level**

Top Bar

**Away from
foot traffic**

Nearby sources of water, nectar, & pollen



What Are Fort Worth Laws?

- **# Hives**
- **6' fence**
- **Water**
- **Robbing**
- **Aggressive**
- **Know your local laws**

10. Beekeeping/Apiary is allowed with the below regulations:

Ordinance 21653

- The responsible parties, who are beekeepers, must adhere to all applicable state laws concerning the care and handling of bees;
- Honeybee colonies are kept in hives with removable frames or top bars with dividers, which shall be maintained in sound working condition;
- The numbers of hives is tailored to the size of the lot as follows: a maximum of two hives on lots $\frac{1}{4}$ acre or smaller, four hives on lots larger than $\frac{1}{4}$ but less than $\frac{1}{2}$ acre, six hives on lots larger than $\frac{1}{2}$ acre but smaller than 1 acre. There shall be no limit on the number of hives on lots larger than one acre. The number of hives **may increase by up to 50% over the designated limits for a period not greater than sixty (60) days.** The Planning and Development Director or designee shall have the authority to require a person to reduce the number of hives or require other reasonable safety precautions in an apiary in order to abate any nuisance.
- If a hive's orientation has the hive entrances located perpendicular to and **within 25 feet** or less of an adjacent property line, **a solid wall, fence, hedge** or combination thereof **at least six feet high** shall be placed between hives and adjacent property lines of developed properties, and extends at least four (4) feet beyond the hive in each direction along the property line in order to minimize interactions between bees and the adjacent property
- A **convenient source of water** is provided to the bees on the property at all times during the year to discourage bees from congregating at swimming pools, hose bibs, or other water sources where contact with humans or pets may occur.
- No wax comb or other material that encourage robbing** by other bees is left upon the grounds of the lot; instead this material should be stored in sealed, insect-proof containers or closed buildings. For a period not greater than twenty-four (24) hours frames and hone harvesting equipment may be left in the bee yard to allow bees to clean excess honey from the equipment.
- If a colony exhibits **aggressive behavior** without provocation, the beekeeper will ensure that the colony is re-queened or otherwise managed using customary beekeeping practices;

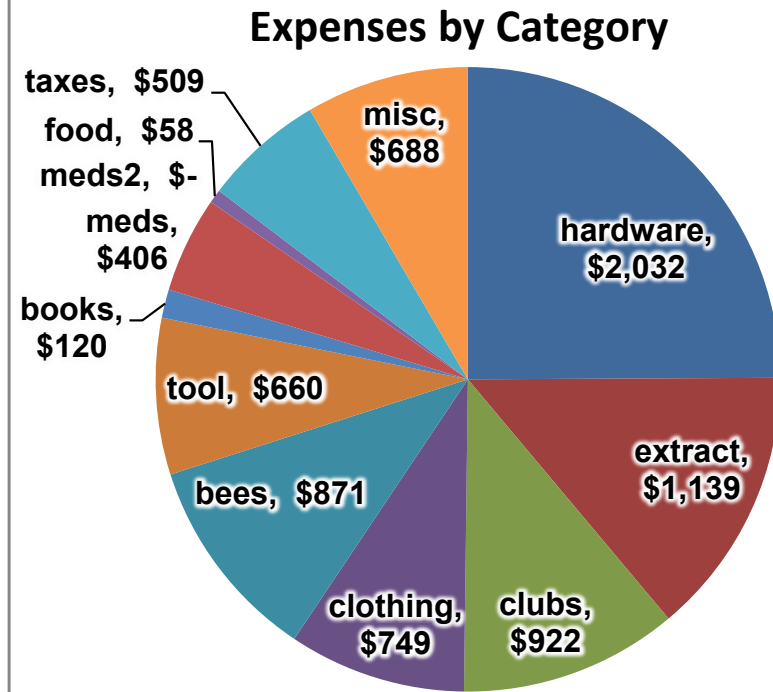
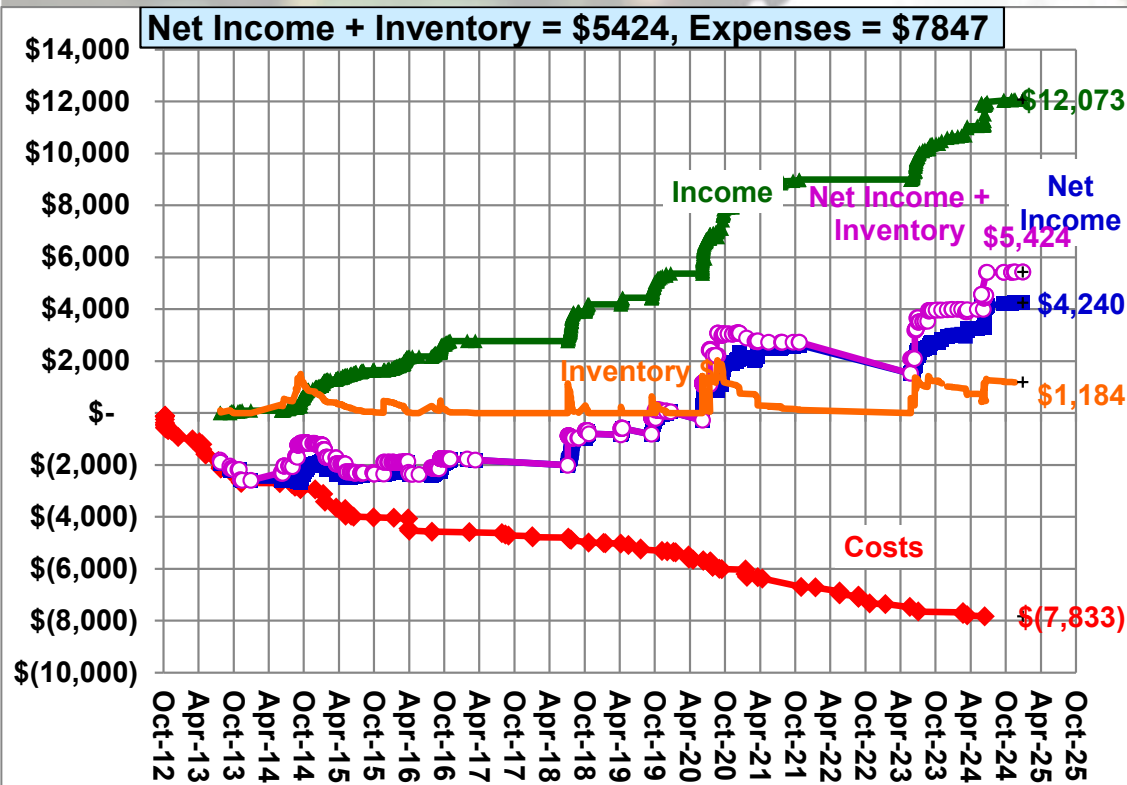
Lot size	# hives
< $\frac{1}{4}$ acre	2
$\frac{1}{4}$ to $\frac{1}{2}$	4
$\frac{1}{2}$ to 1	6
> 1 acre	No limit

<https://www.fortworthtexas.gov/departments/development-services/zoning/ordinance>
<https://www.fortworthtexas.gov/files/assets/public/development-services/documents/urban-agriculture.pdf>



How Much Does It Cost?

- It depends
- Ft Worth backyard, 1 to 3 hives for 12 years
- Spent \$7.6k & received \$11.6k, so net \$4k
- We didn't need all the stuff we bought



- For us, it's not about money, but it was nice to get honey & nice when net income was > 0



Can I Hire a Beekeeper? Yes!

- **Hiring a beekeeper has big benefits**
 - Tax savings for Ag Valuation
 - Improve gardens, plants, environment
 - Honey harvest
 - Learn beekeeping
 - Enjoy fascinating bees
- **Labor, Costs, & Knowledge are substantial**
 - Bees, Boxes, Equipment, Clothing, Tools
 - Setup, Inspections, Maintenance, Replacements
 - Know warning signs
 - Know what to do to help bees thrive
 - Hiring a beekeeper makes it easy for landowner
 - Costs vary based on agreements
- **A good contract is recommended**
- **Contact local bee club**
- **More info: [Hiring a Beekeeper](#)**



What Stuff Do I Need?

- **Join a club, take a class**
- **More likely to succeed!**

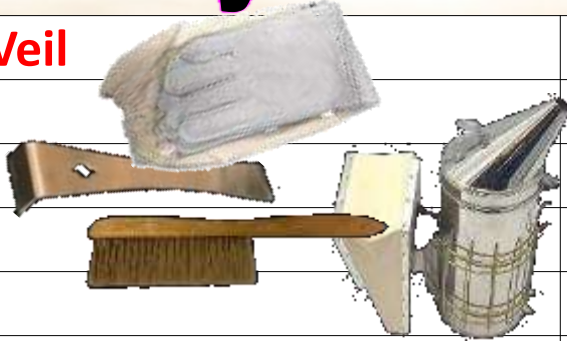


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- **Get ventilated, 3-layer suit**



Suit with Veil	\$80 to \$240
Gloves	\$25 to \$30
Hive Tool	\$13
Bee Brush	\$15
Smoker	\$43
Bottom Board, Reducer	\$44
Inner Cover	• Some people build \$18
Telescoping Cover	their wooden boxes, \$37
Deep Hive Box	boards, frames \$27
10 Deep Frames w/ Foundation	\$40
Two Medium Hive Boxes (at least)	\$26
20 Medium Frames w/ Foundation	\$39
Queen Excluder	\$10
Inner Feeder	\$11
Subtotal	\$430 to \$590
Nuc (bees with queen)	\$220
Subtotal	\$650 to \$800



- **Add 2nd hive for \$500 (\$250 + \$220)**



Do I Really Need Suit & Gloves?

- The web shows beeks with bare hands & no veil
- Every colony is defensive part of the time
 - Genetics, Low on stores, Dearth, Queenless, Mites, Weather, Grumpy Mood
- In north TX, a very small % of bees are very aggressive
- I want to be able to keep working when bees are grumpy or murderous
- When I open, I wear 3-layer ventilated suit, double gloves
- You get to choose, good luck



We are happy for Hawaiian Beekeeper Jen Rasmussen
https://www.facebook.com/jen_bee.520

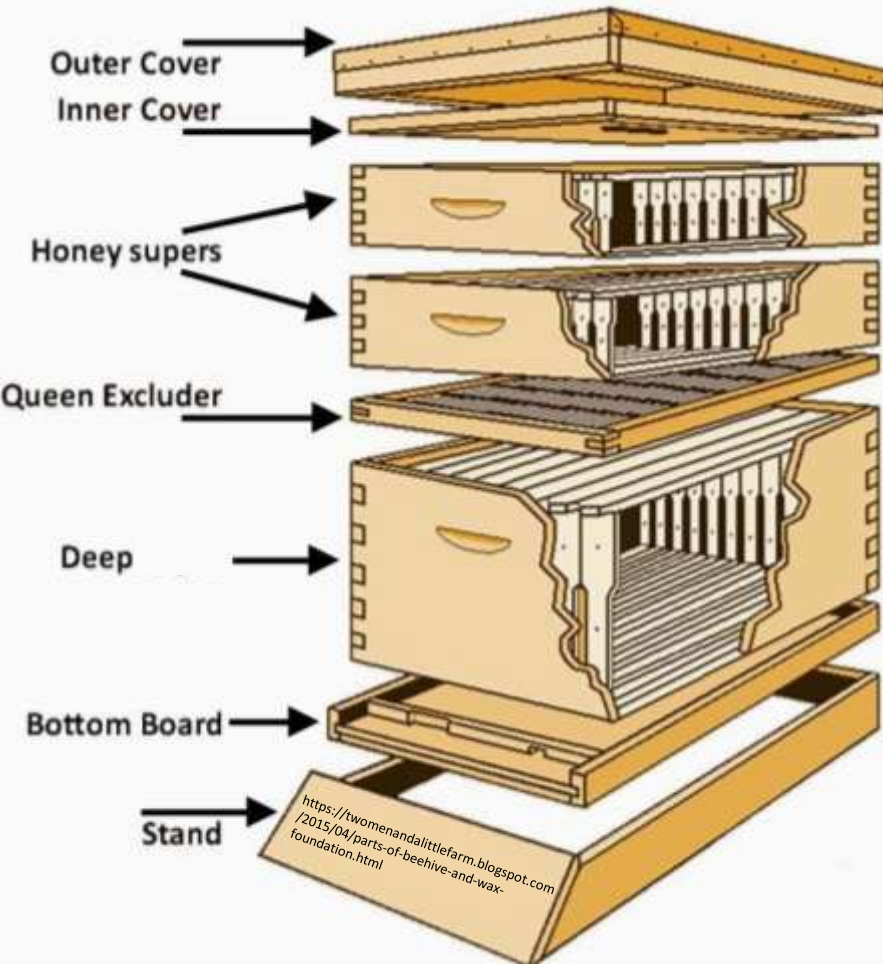


North TX. Each spot was a sting. After dealing very aggressive colony. Similar coverage on veil & suit. I was able to keep working.



What Are the Hive Types?

Langstroth

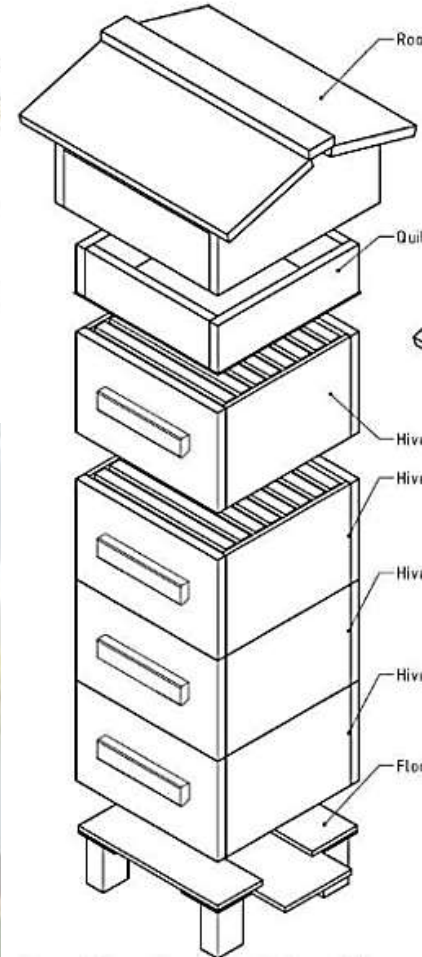


Top Bar

Lang Long



Warre



- Langstroth is most common, easy, productive
- Many other types. Beekeepers are inventive.



What Foundation?

- **Bees in nature build wax comb from scratch**
- **Bees prefer bee-built comb or beeswax comb**
- **Plastic foundation is easier to inspect & harvest, & reduces cross-comb**
- **Help bees accept plastic**
 - **Coat with bees wax**
 - **Spray sugar syrup**
 - **Use queen excluder only with drawn wax above**



**Bee-built
comb**



**Wood frame
Plastic foundation**



**Wood frame
No foundation**

**Plastic with
foundation**

**Plastic with
deep cells**



**Wood frame
Beeswax foundation**

<https://twomenandalittlefarm.blogspot.com/2015/04/parts-of-beehive-and-wax-foundation.html>



How Many Hives Should I Get?

- **Some people start with one hive**
- **Typical losses are 30% to 50% each winter**
 - **Losing 1 & having 1 is less sad than losing all**
- **Working 2 is much less work than twice 1**
- **Having more hives:**
 - **Helps you see problems**
 - **Adds options to solve problems**
 - **Move brood, stores, &/or bees from stronger hives to weaker hives**
 - **Helps you learn faster, see variety**



If Two is Better Than One, How Much Better is 864?



How Do I Get Bees?

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

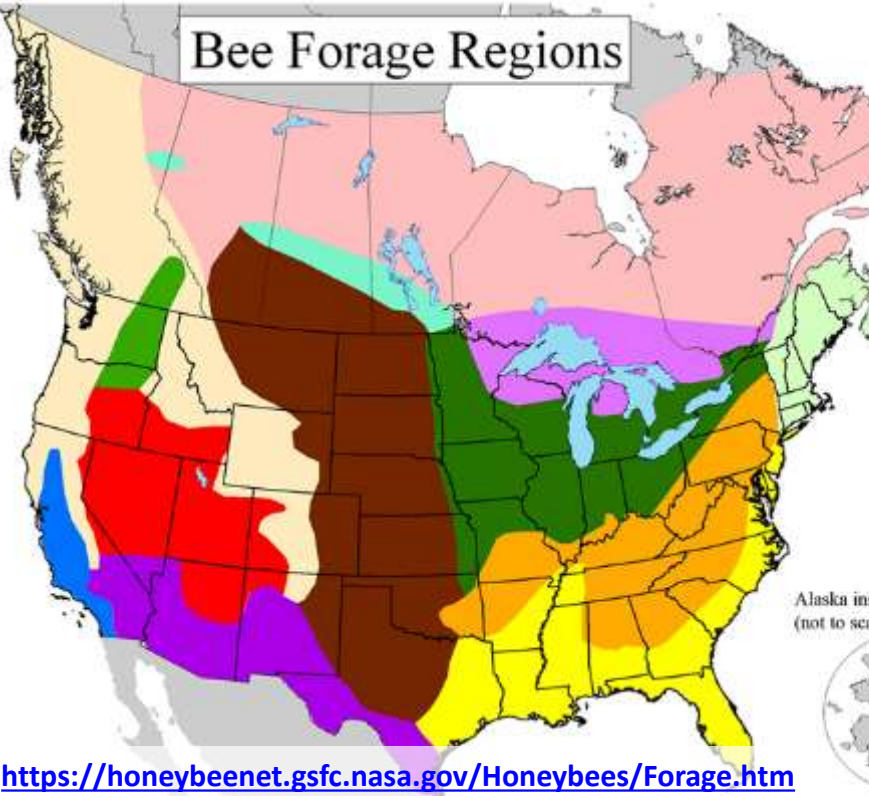


- **Swarm can be captured or bees can move into a swarm-capture box**
- **Or leave a small hole in your eaves (You know that's a joke, right?)**
- **Inspect all colonies & test for mites**



What are Good Plants for Bees?

Bee Forage Regions



<https://honeybeenet.gsfc.nasa.gov/Honeybees/Forage.htm>

- Region 1 - Alaska
- Region 2 - Western Mountains
- Region 3 - South and Central California
- Region 4 - Interior Northwest
- Region 5 - Intermountain Region
- Region 6 - Southwest Deserts
- Region 7 - Aspen Parkland & Peace River Valley
- Region 8 - Great Plains
- Region 9 - N. Great Lakes & S. Canada
- Region 10 - Agricultural Interior
- Region 11 - Appalachian-Ozark Upland
- Region 12 - Atlantic and Gulf Coastal Plain
- Region 13 - New England & Atlantic Canada
- Region 14 - Boreal Forest

List of Honey Bee Forage Species within Region 8 for the State of TX

Ordered by Begin Bloom Month

USDA code	Family	Latin Name	Common Name	Plant Type	Begin Bloom Month	End Bloom Month	Sig
CILAL	Cucurbitaceae	<i>Citrullus lanatus</i>	watermelon	C	5	7	N
CUME	Cucurbitaceae	<i>Cucumis melo</i>	Cantaloupe, muskmelon, casaba	C	5	8	N
CUSA4	Cucurbitaceae	<i>Cucumis sativus</i>	cucumber	C	5	8	N
IMESA	Fabaceae	<i>Medicago sativa</i>	Alfalfa, lucerne	C	5	9	Y
GAPU	Asteraceae	<i>Gaillardia pultcheif</i>	Marigold, indian blanket	F	5	6	Y
MELIL	Fabaceae	<i>Melilotus</i>	Sweet clover (white/yellow)	F	5	10	N
MONAR	Lamiaceae	<i>Monarda</i>	Horsemint, wild bergamot, bee-balm	F	5	8	Y
PRGL6	Fabaceae	<i>Prosopis glandulosa</i>	Mesquite	S	5	7	Y
TAMAR2	Tamnicaceae	<i>Tammarix</i>	Tamarsick, salt cedar, athel	S	5	9	Y
GOSSY	Malvaceae	<i>Gossypium</i>	Cotton	C	6	10	Y
HELIA3	Asteraceae	<i>Helianthus</i>	Sunflower	F	6	10	N
SOBIA	Poaceae	<i>Sorghum bicolor</i>	Sorghum, broom-corn	F	6	8	N
GUTET	Asteraceae	<i>Gutierrezia texana</i>	Broomweed	F	7	10	N
GUSA2	Asteraceae	<i>Gutierrezia sarothrae</i>	Matchweed, snakeweed	F	8	10	N
POLYG4	Polygonaceae	<i>Polygonum</i>	Smartweed, knotweed, fleece flower	F	8	9	N

List of Honey Bee Forage Species within Region 12 for the State of TX

Ordered by Begin Bloom Month

USDA code	Family	Latin Name	Common Name	Plant Type	Begin Bloom Month	End Bloom Month	Sig
CUSA4	Cucurbitaceae	<i>Cucumis sativus</i>	cucumber	C	1	12	N
VACCI	Ericaceae	<i>Vaccinium</i>	Blueberry, huckleberry	SDB	1	6	N
CUME	Cucurbitaceae	<i>Cucumis melo</i>	Cantaloupe, muskmelon, casaba	C	2	8	N
ULMUS	Ulmaceae	<i>Ulmus</i>	Elm	TDB	2	4	N
QUERC	Fagaceae	<i>Quercus</i>	Oak	TDB	3	5	N
BESC	Rhamnaceae	<i>Berchemia scandens</i>	Rattan vine, supplejack	V. F	3	6	Y
GAPU	Asteraceae	<i>Gaillardia pultcheif</i>	Marigold, indian blanket	F	4	10	N
MELIL	Fabaceae	<i>Melilotus</i>	Sweet clover (white/yellow)	F	4	10	Y
MONAR	Lamiaceae	<i>Monarda</i>	Horsemint, wild bergamot, bee-balm	F	4	10	Y
TRIN3	Fabaceae	<i>Trifolium incarnatum</i>	Crimson / Italian clover	F	4	6	Y
TRRE3	Fabaceae	<i>Trifolium repens</i>	White, dutch clover	F	4	10	Y
TRVE	Fabaceae	<i>Trifolium vesiculosum</i>	Arrowleaf, yuchee clover	F	4	7	N
VICIA	Fabaceae	<i>Vicia</i>	Velch, tare	F	4	9	Y
ACGR	Fabaceae	<i>Acacia greggii</i>	Calclaw, devil's claw, Texas mimosa	S	4	7	N
LIGUS2	Oleaceae	<i>Ligustrum</i>	Privet, hedge plant	S	4	7	N
PRGL6	Fabaceae	<i>Prosopis glandulosa</i>	Mesquite	S	4	6	N
ILEX	Aquifoliaceae	<i>Ilex</i>	Holly, yaupon	TEB	4	6	Y
CILAL	Cucurbitaceae	<i>Citrullus lanatus</i>	watermelon	C	5	8	N
ASTER	Asteraceae	<i>Aster</i>	Aster	F	5	11	N
SOBIA	Poaceae	<i>Sorghum bicolor</i>	Sorghum, broom-corn	F	5	10	N
TRSE6	Euphorbiaceae	<i>Triadica sebifera</i>	Chinese tallow tree, vegetable tallow	TDB	5	6	Y
GOSSY	Malvaceae	<i>Gossypium</i>	Cotton	C	6	9	N
GUTET	Asteraceae	<i>Gutierrezia texana</i>	Broomweed	F	7	10	N
SOLID	Asteraceae	<i>Solidago</i>	Goldenrod	F	7	11	N
GUSA2	Asteraceae	<i>Gutierrezia sarothrae</i>	Matchweed, snakeweed	F	8	10	N

• HoneyBeeNet

How to Find Good Plants

- Choose water, sun, pollinator, size, season, color, type, more
- TxSmartScape.com



PLANT DATABASE SEARCH

<https://www.txsmartscape.com/plant-search>

Search our database of Texas SmartScape plants.

Enter part or all of a plant's common name or botanical name (e.g., lily):

AND / OR

Region	<input type="text" value="All"/>	Plant Type	<input type="text" value="All"/>	Light Requirement	<input type="text" value="All"/>
Water Demand	<input type="text" value="All"/>	Landscape Use	<input type="text" value="All"/>	Ornamental Color	<input type="text" value="All"/>
Native or Adapted	<input type="text" value="Native and Adapted"/>	Wildlife Value	<input type="text" value="Any"/>	Season	<input type="text" value="All"/>
Plant Form	<input type="text" value="All"/>	Plant Spread (ft.)	<input type="text" value="Any"/>	to	<input type="text" value="Any"/>
Deciduous or Evergreen	<input type="text" value="All"/>	Plant Height (ft.)	<input type="text" value="Any"/>	to	<input type="text" value="Any"/>

• **Wildlife options: Bees, Birds, Hummingbirds, Butterflies, Mammals**

Search Plants

Reset

What Plants Are Toxic to Bees?



Rhododendron
Bees & Humans
Ericaceae



Yellow Jessamine
Bees & Humans
Gelsemium sempervirens



Mountain Laurel
Bees & Humans
Kalmia latifolia



California buckeye
Bees
Aesculus californica



Summer Titi
Bees, "purple brood"
Cyrilla racemiflora



<https://bee-health.extension.org/are-there-plants-that-produce-nectar-that-is-poisonous-to-either-honey-bees-or-humans/>

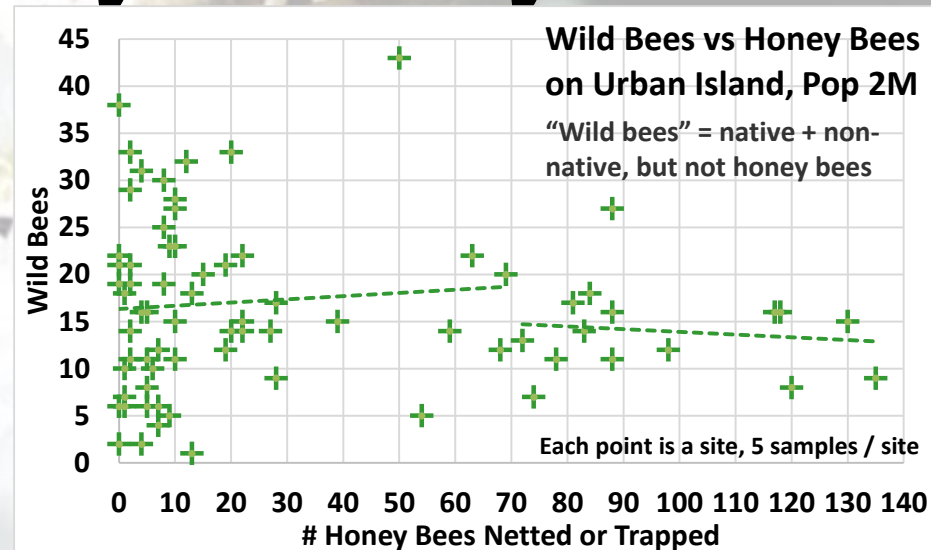
What Plants Are Toxic to Bees?

- **Aesculus californica**
- **Angelica triqueta/apiciaceae**
- **Asclepias spp**
- **Astragalus spp, lentiginosus, miser**
- **Camellia thea**
- **Convolvulaceae**
- **Corynocarpus laevigata**
- **Cyrrilliceae**
- **Ericaceae, Rhododendrum spp**
- **Liliaceae**
- **Loganiaceae**
- **Ochrama lagopus**
- **Solacaceae**
- **Sophora microphylla**
- **Tilia spp**
- **Veratrum californicum**
- **Some are toxic to bees**
- **Some produce nectar that deters honeybees**
- **Some produce unpleasant honey not fit for human consumption**
- **<https://beekeepclub.com/frequently-asked-questions-about-beekeeping/#question-14—are-there-some-poisonous-flowers-to-honeybees>**
- **Different sources have different lists**
- **Red are common with previous page**
- **This source says some are toxic, & some are unpleasant, but doesn't identify which**



Effect of Honey Bees on Native Bees

- Some reports suggest increasing managed bees can reduce native bees, but all say more study needed.
- Urban quantitative study
 - Counted bees, 15 sites, 24 traps/site, 6 months
 - No effect of honey bees on # of native bees
 - Non-native bees reduced if too many honey bees
 - Pollen supply reduced
 - 1st half of honey bee pop increased wild bees 15%
 - Why? Maybe increased plant health & density?
 - More honey bees decreased # wild bees 15%
 - Effect is not huge (15% increase, then 15% decrease)
- Sample size is not large. More studies needed.



Decline in wild bee species associated with honey bee
pubmed.ncbi.nlm.nih.gov/36755869

Do Honey Bees Compete With Native Pollinators?

- It's complicated. Sometimes, yes. Depends on diversity & density of plants & pollinators.**
- Honey bees help environment, plants, & people**
 - Can benefit other pollinators, if density ok**
- Agriculture requires honey bees**
- Beekeeper work also helps native pollinators**

How to Help	Honey Bees	Native Pollinators
Plant pollinator-friendly plants	✓	✓
Grow flowers all year	✓	✓
Provide a water source	✓	✓
Minimize use of insecticides	✓	✓
Minimize use of herbicides	✓	✓
Provide shelters	✓	✓

Beeks Can Provide Bee Nests

Wooden block



Bamboo bundle



Bumble Bee Box



Beekeepers & Native Bee Protectors can increase collaboration

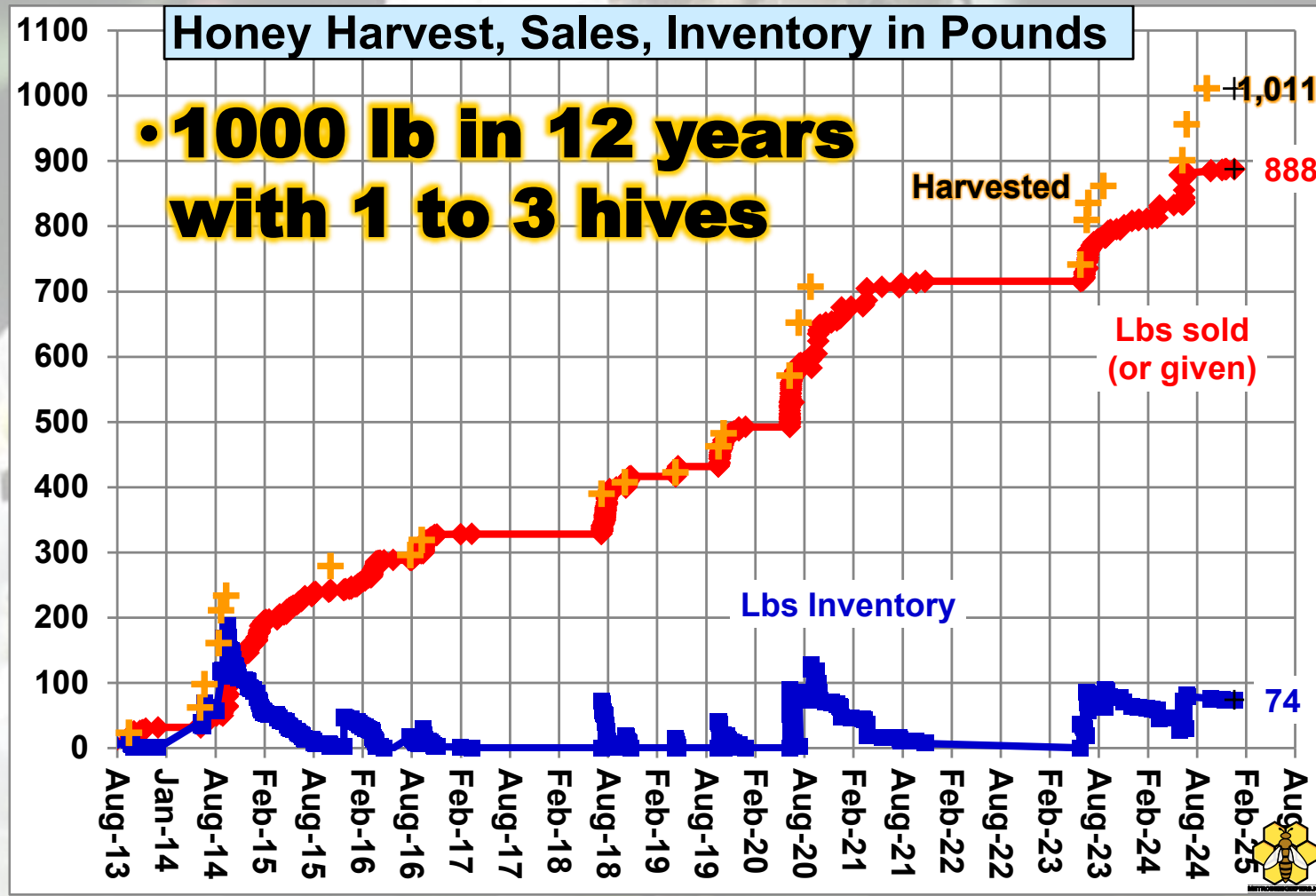
www.xerces.org/publications/fact-sheets/nests-for-native-bees (zer-sees)



How Much Honey Can I Get?

- Depends on # hives, weather, work, (luck?)
- Bad year: None. Good year: 100 lb per hive.
- Our average is 30 lb per hive per year

- Rumors of 200 lb/hive
- Can you do better?
- But don't starve your bees
- They need ~40 lb honey for winter



How Can I Harvest Honey?

Hive Type	Spin in Extractor	Crush & Strain	Comb Honey
Plastic Foundation	Yes ✓	Yes ✓	No ✗
Wax Foundation, With Wires	Spin slow, both sides. ✓ Repeat at higher speed.	Yes ✓	Yes, cut around the wires ✓
Wax Foundation, No Wires	No ✗	Yes ✓	Yes ✓
No Foundation, Bees build comb	No ✗	Yes ✓	Yes ✓
Top Bar	No ✗	Yes ✓	Yes ✓
Warre Hive	No ✗	Yes ✓	Yes ✓

- Depends on hive type
- If no extractor, crush comb in bin, put all through filter to drain



Selling Honey in Texas*

Category	Beekeeping Honey Producer	Cottage Food Operator	Com'l
Product	Only 100% pure, raw honey from your apiary, or pure, raw honey blended with your honey. No processing or adding ingredient(s).	May process &/or add non-potentially hazardous food ingredient(s)	Any
Processing	Only strain, dry, cool, warm, blend, package. Not high heat (160°F), pasteurize, whip.	Yes, incl pasteurize, whip.	More rules
Kitchen	Can use various facilities. Not inspected.	Your home, not other bldg. Not inspected.	Com'l
Packaging	Prevent contamination		More
Label	Product: Honey, Pure Honey, Raw Honey, etc. Name & place of business Net weight in both English & metric units (No longer requires label about inspections.)	Name of product, Name & physical address If additives, list ingredients, allergen warning. "This food is made in a home kitchen & is not inspected by the Department of State Health Services or local health department." Rules about size & location of text "honey".	More rules
Label, optional	"Do not feed honey to infants under one year of age."		
Employees?	Anyone associated with the farm/apiary	Employees may produce & sell	Any
Sales limits	In TX. No sales limit.	In TX. < \$50,000 / year.	No limit
Customers	Can sell to consumers & re-sellers in TX.	Sell only directly to consumers in TX.	Any
Location of sale & delivery	In person, phone, mail, online, can mail.	If sold online, must deliver in person. If sold in-person, can be mailed.	Any
Advertising	No restrictions (internet advertising allowed)		More
Licenses	None reqd, but Food Handler recom.	Food Handler's Card (\$7 online)	Biz, Food
Local govt	May not regulate or inspect without a warrant. Must record complaints.		Yes
Taxes	No Texas sales tax on honey (food item). Federal income tax per IRS code.		Sales tax

* This is not legal advice, but a summary of public documents. Sellers are required to adhere to local, state, & federal laws.

• Red text shows the changes in 2020 (law was 2017, but new interpretation comments in 2020, apiary is a farm)

<https://www.dshs.texas.gov/food-manufacturers-wholesalers-warehouses/frequently-asked-questions-food-manufacturers-wholesalers-warehouses>

<https://dshs.texas.gov/foods/faqs.aspx>, <https://www.dshs.texas.gov/foodestablishments/cottagefood/default.aspx>,

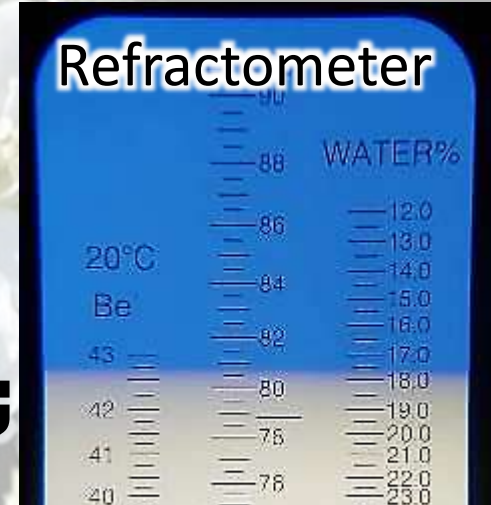
<https://texasbeesupply.com/pages/monthly-webinar> Dec 2021

[MBA summary](#)



Does Honey Spoil?

- **Honey has been found at 5,500 yrs old**
 - Low moisture, low Ph, stored in cool & dark
- **Honey can spoil if moisture >18%**
 - Pulls moisture from the air, grows yeast, ferments
- **Signs of spoiled honey**
 - Mold; Bubbles; Separated layers; Smell (rancid, vinegar); Taste
- **Crystallized honey is not spoiled**
 - Spread w/ knife or spoon, or
 - Warm jar in bowl of warm water



How Do I Melt Wax?

- **Bees eat 5 lb of honey to make 1 lb of wax**
- **Don't use open flame, since wax can ignite**
- **Line crockpot w/ nylon mesh, add comb, water**
- **Heat to about 160° F, Don't overheat, Stir**
- **It will separate to layers: wax, water, debris**
- **Pull the nylon up to remove the debris. Cool.**



Brent's Bees:
Wax Processing



How to Store Frames

- First freeze frames > 2 days to kill pests/eggs
- Then store



Bags w/ PDB, seal
w/ twist tie



Open air storage

Stack w/ PDB



- Use PDB, para-Dichlorobenzene
- **Don't** use moth balls (naphthalene)
- Before re-use, air-out for 2 days

www.youtube.com/watch?v=c1rS7eAmhvM

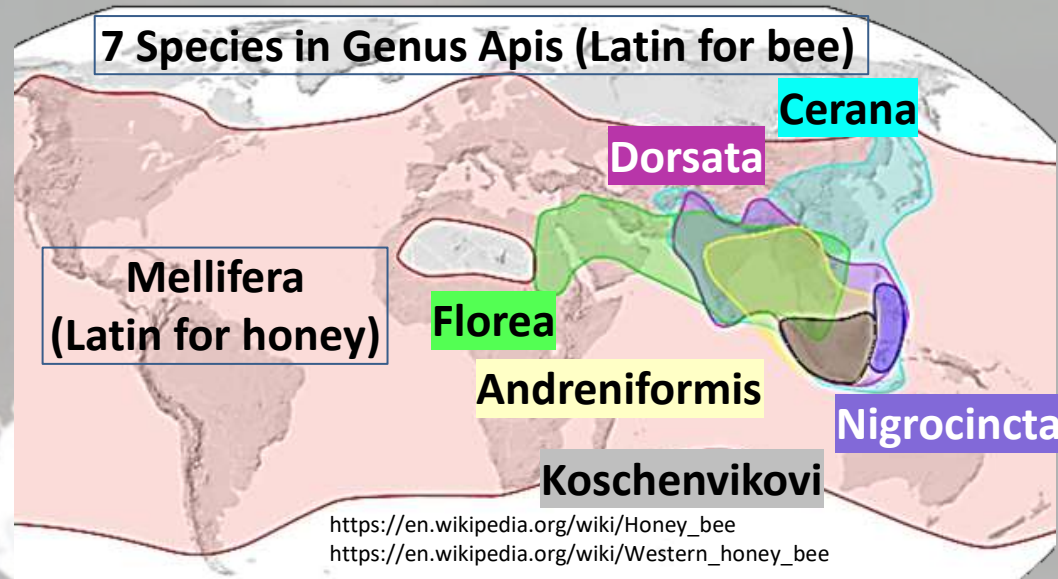


Freezer



Honey Bees

- 7 honey bee species in genus *Apis* →
- 31 *Mellifera* subspecies
- ~10 types of European honey bee
- Inter-breeding changes traits, incl w African

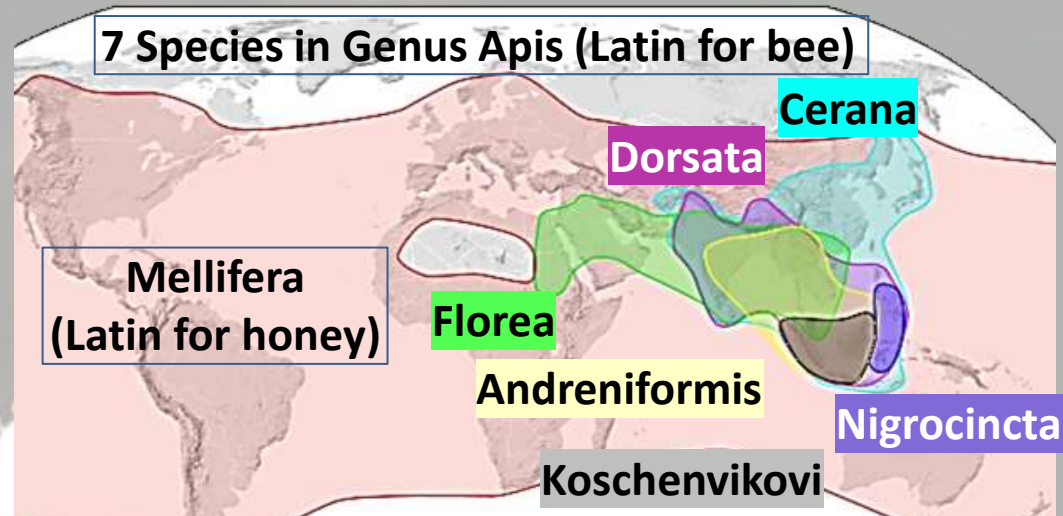


Per NC State Univ	Carniolan	Italian	Caucasian	German	Russian	Buckfast
Gentleness	High	Moderate	High	Low	Low-Mod	Low-Mod
Spring buildup	Very good	Good	Very low	Low	OK	Low
Over-wintering	Good	Good	OK	Very good	Very good	Good
Excess swarming	High	OK	Low	OK	OK	Low
Honey producing	Good	Very good	Low	OK	OK	Good
Disease resistance						
Varroa	-	-	-	-	+	-
Tracheal	-	-	0	-	+	+
American FB	+	0	0	-	0	0
Other	+	0	-	0	0	+
Propolis	Low	Low	High	OK	OK	Low
Color	Black	Light	Dark	Dark	Gray	Medium
Other traits	Low robbing. Good comb builders.	Heavy Robbing. Most Com'l.			Queen cells always present	Supersedure becomes defensive

source: <https://content.ces.ncsu.edu/the-different-types-of-honey-bees>

7 Species of Honey Bees

- **Family Apidae**
 - Honey bees, bumblebees, carpenter bees, long horn bees, many others
- **Genus Apis**
 - 7 species
 - Individuals can vary from pictures



European Honey Bee (*Apis Mellifera*)



Queen: 0.8 inch or 2 cm, Female
Lives 2 to 3 years
Un-barbed stinger
One queen per colony



Worker: 0.4 inch or 1 cm, Female
Lives 2 to 9 months
Barbed stinger
Can be >50,000 workers in Summer



Drone: 0.6 inch or 1.5 cm, Male
No stinger
Hundreds per hive Spring to Autumn

Bees, Wasps, Hornets

**Honey
bee**

Apis mellifera

Vespa crabro

European Hornet

Vespa crabro

European Hornet

Vespa crabro

Vespa crabro

Sphex ichneumoneus

Great Golden Digger Wasp

Sphex ichneumoneus

Cimbex americana

Elm Sawfly

Vespula squamosa

Southern Yellowjacket

Vespula vulgaris

Western Yellowjacket

Vespula atropilosa

Vespula pensylvanica

Prairie Yellowjacket

Dolichovespula maculata

Bald-Faced Hornet

Polistes aurifer

Polistes dominula

Umbrella Paper Wasp

Polistes fuscatus

European Paper Wasp

Bombus huntii

Northern Paper Wasp

Bombus fervidus

Hunt Bumblebee

Bombus fervidus

Golden Northern Bumblebee

1 cm

Sphecius speciosus

Cicada Killer

Sphecius convallis

Pacific Cicada Killer

Sphecius grandis

Western Cicada Killer

Vespa mandarinia

Asian Giant Hornet

Vespa mandarinia

Asian Giant Hornet

Tremex columba

Pigeon Hornet

- **Cicada killers**
 - **Very common in TX**
 - **Beneficial species**
 - **Can be mistaken for Asian Giant Hornet**
 - **Bands are not smooth**



Which are these?

- **Asian Giant Hornets**
 - **Not in TX (yet)**
 - **Harmful to honey bees**
 - **Bands are smooth**



Sphecus speciosus
Cicada killer



Sphecus grandis
Western cicada killer



Vespa mandarinia
Asian giant hornet



Vespa mandarinia
Asian giant hornet



How Long Do Bees Live?

- **Worker** bees wear out flying ~500 miles
 - Spring & Summer bees 3 weeks in field
 - Winter bees can last 6 months*
 - bee-health.extension.org/how-long-do-worker-honey-bees-live/
- **Queens** can live 5 years, but productivity drops. Some replace queens 1 or 2 years
- **Drones** (males) are evicted late Autumn



honeybeesuite.com/diaphanous-wings-they-soar/

Day	Worker in Cell	~Day	Adult Worker
1	Egg is laid	1	Adult emerges
3	Larva hatches	1 to 2	Clean cells, warm brood
3 to 6	Fed royal jelly	3 to 5	Feed older larvae & queen
9	Cell Capped	6 to 11	Feed younger larvae, cap cells
12	Pupa	12 to 20	Make wax, build comb, move food, circulate air, guard
21	Adult emerges	21 to 45	Field bee: find & bring pollen, nectar, propolis, water
		Up to 6 months	If Winter bee, then fly less & live longer, cluster for warmth, guard, feed queen, clean, occasional forage



woodsbeeco.com <https://youtu.be/SoF6N7G7Afs>



***Winter bee larva are fed less pollen, increasing their fat bodies, helping them store more protein for winter survival**

www.honeybeesuite.com/what-are-winter-bees-and-what-do-they-do/



How Much Work Are Inspections?

- 10 to 30 min / hive
- ~Weekly in Spring
- ~Monthly in Winter
- Think ahead
- Do we need to do anything to help the bees?

1. Queenright
2. Nutrition & water
3. Pests & Diseases
4. Housing

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)
 - Superseding cells (on frame sides)
- Brood pattern appropriate
- Larvae in jelly?
- Queen sighting or signs?
- Bees with deformities?

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.)

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 (remove?)
- 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?

[Inspection Checklist](#)

Inspections Vary by Season

- **Objectives are the same all year**
 - Is the colony Queenright? (healthy queen)
 - Do they have the honey & pollen needed?
 - Are there pests or diseases that need help?
 - Housing. Too little or too much space?
 - Sound boxes & stands?
- **MBA free Resources**
 - [Inspection Checklist](#) (blank forms)
 - [This-Month-in-the-Hive](#) inspections by season

Inspection Checklist, Outside

- Be ready for contingencies (clothing, boxes, frames, buckets, pollen sub, nectar sub)
- # of bees coming & going
- Crowded entrance
- Fighting or robbing
- Pollen going in
- Water source
- Sounds of bees
- Spotting
- Bees crawling on ground
- Dead bees on ground
- Equipment (weathering)
- Any neighbor issues
- Tall grass around hives (ant & pest bridges)
- Sun/shade level



Inspection Checklist, Inside

- Smoke before opening
- Temperament of bees
- Pests (SHB, moths, etc)
- # of bees on frames
- # of frames with bees
- If frames full, add box
- If not enough bees to defend space, reduce a box or combine
- Queen health
 - Brood pattern
 - Queen cups (open, no larvae)
 - Queen cells (larvae or closed with pupa)
 - Supercedure cells (on frame sides)
 - Queen sighting
- Stores (honey, pollen)
- Cells
 - Eggs, single at base
 - Larvae healthy
 - Perforations in wax
 - Wax color & condition
- Bees with deformities
- Nurse bee behavior
- Drones, drone cells
- Old comb (replace)



Inspection Checklist

- Mite Count
 - Sugar roll, alcohol, sticky board
 - Need treatment?
 - See [Varroa Mite](#)
- After inspections
 - Place orders ahead of time (bees, queens, jars, labels, equipment, etc)
 - Equipment for supering, harvesting
 - Record keeping
 - Learn more: Attend Bee Club, books, web, etc.

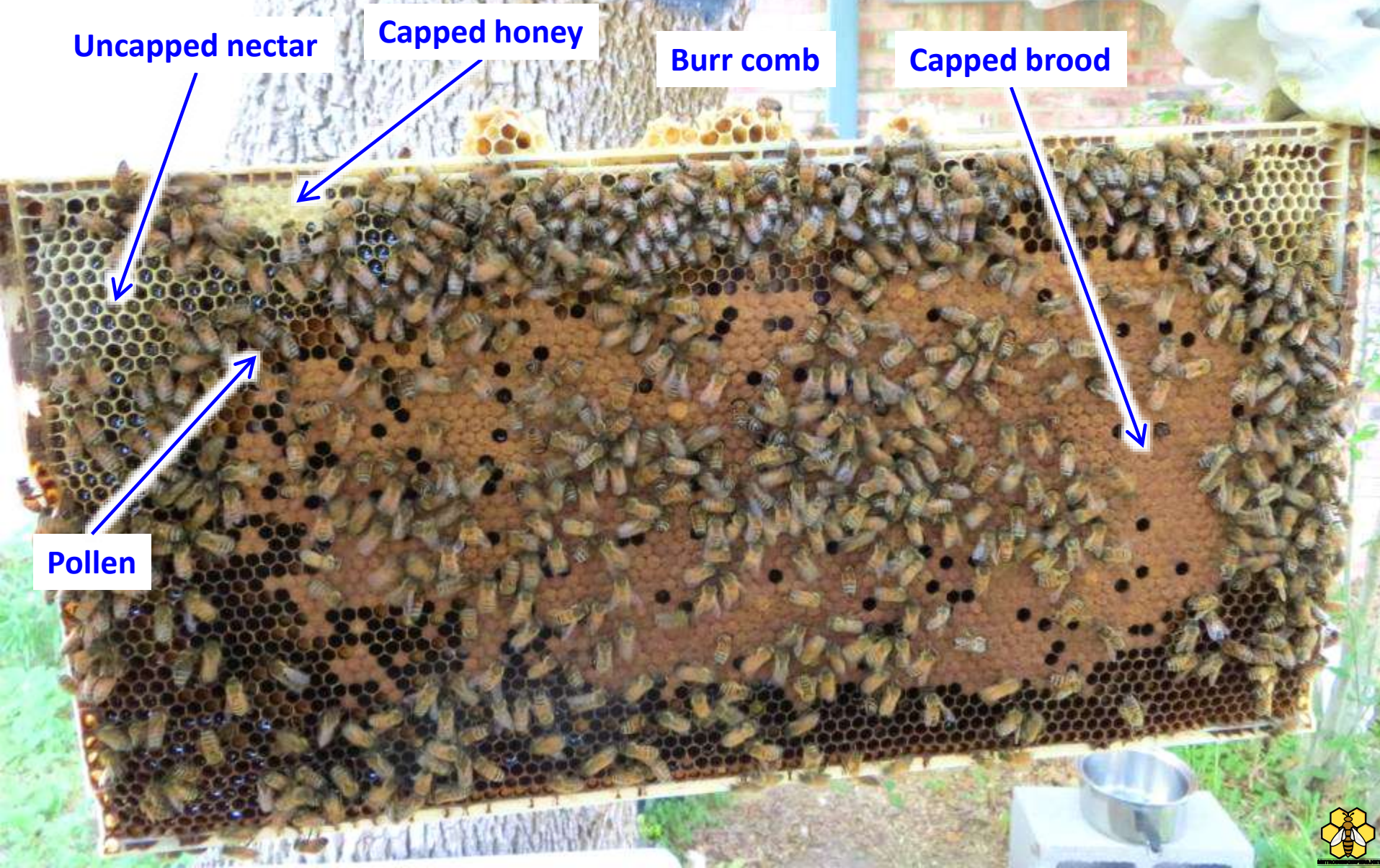


Inspections & Actions by Season

	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		Lots on warm days	None on cold days
Inspect	Weekly	1 to 2 weeks	2 to 4 weeks	4 to 6 weeks
Queen	Lots brood		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? When mites < 2%. When mites > 3%.			
SHB, Moths	Remove/add boxes consistent with enough bees to defend the space			
Boxes, Frames	Keep 50% to 70% bees/frame. More → swarm. Less → 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**

Healthy Colony in Spring





How Can I Find the Queen?

Here She Is





How Can I Find the Queen?

Here She Is



- But, seriously, you don't need to find her all the time
- You can tell if she's healthy by seeing brood appropriate to the season
- Treat every frame as gentle as if she's there

How to Find the Queen

- **Most inspections don't need to find her**
 - You can tell if she's healthy if brood is appropriate to the season
 - Treat every frame as if she's there
- **When you do need to find her**
 - Be able to recognize the queen
 - Look first near the brood
 - Remove outside frame, check for queen, set frame outside hive box
 - Keep frames over hive box, don't drop queen outside
 - Slide 2nd frame sideways, away from 3rd frame, lift & check for queen. If not, put inside box by wall.
 - Continue through the brood box until you find her
 - If you need to move to the next box, set aside the box you have searched, so she can't move to there
- **Practice finding queen. [CarolinaHoneyBees video](#)**
- **Maybe get marked queens (but marks can come off)**

Queen



Drone



Worker



Why Smoke Bees?

- **Smoke masks honeybee's alarm pheromone**
- **Reduces bee defensiveness/aggression**
- **Reduces stress to bees, incl nearby hives**
- **Reduces beekeeper stress**
- **Allows more work in less time, which further reduces stress to bees**
- **Don't overdo it**
- **Too much smoke or too hot smoke can harm bees & honey**



When to Add or Remove a Box?

- If frames are ~70% full & growing, add a box
 - Or bees may swarm
 - Consider checkerboarding frames of honey
 - Don't split brood
- If frames are empty & bee population is declining, remove a box
 - Or hive beetles & wax moths will grow
 - Bee population determines how much space they can defend from pests
 - Do not remove brood. Keep brood together.
 - If some frames have honey, pull empty frames from a lower box & leave the honey

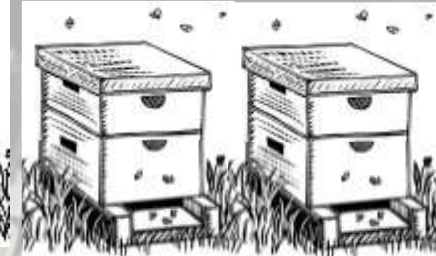
New box	New	Honey	New	Honey	New	Honey	New	Honey	New	Honey
Orig box	Honey	New	Honey	New	Honey	New	Honey	New	Honey	New



How Do I Split a Hive?

- **Set up a new box at a good location**
- **Take about half the brood, stores, & nurse bees from old hive to new box**
- **Make sure both hives have at least**
 - **1 frame of fresh eggs**
 - **2 frames of capped brood, w/ nurse bees**
 - **2 frames of honey & pollen or bee bread**
- **If you want them to raise a queen, you don't need to find the old queen, but it's best if you move the old queen to the new hive box. That reduces swarm pressure.**
- **If you got a new queen, install her in a cage in the box without a queen. Requires finding old queen.**
- **Feed both colonies to encourage acceptance**
- **If new hive is within 2 miles of the old, put branches at the entrances to force field bees to reorient**
- **Check in 3 to 4 weeks for a laying queen in both**
- **Inspect & add boxes as both hives grow**

Maybe only 1
deep each to start



<https://i.pinimg.com/736x/af/b9/de/afb9de21f28a5a8b635e931a314e81c5-bee-clipart-bee-drawing.jpg>

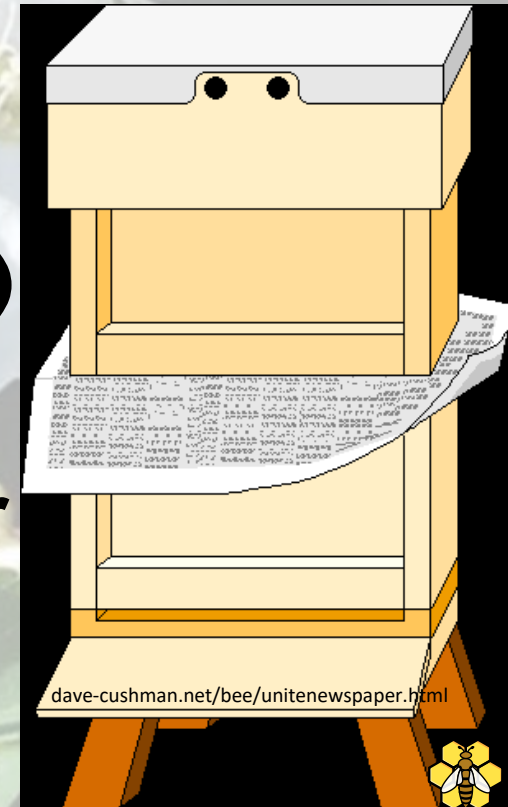
• **More info:** carolinahoneybees.com/how-to-split-a-beehive

www.honeybeesuite.com/splits-2



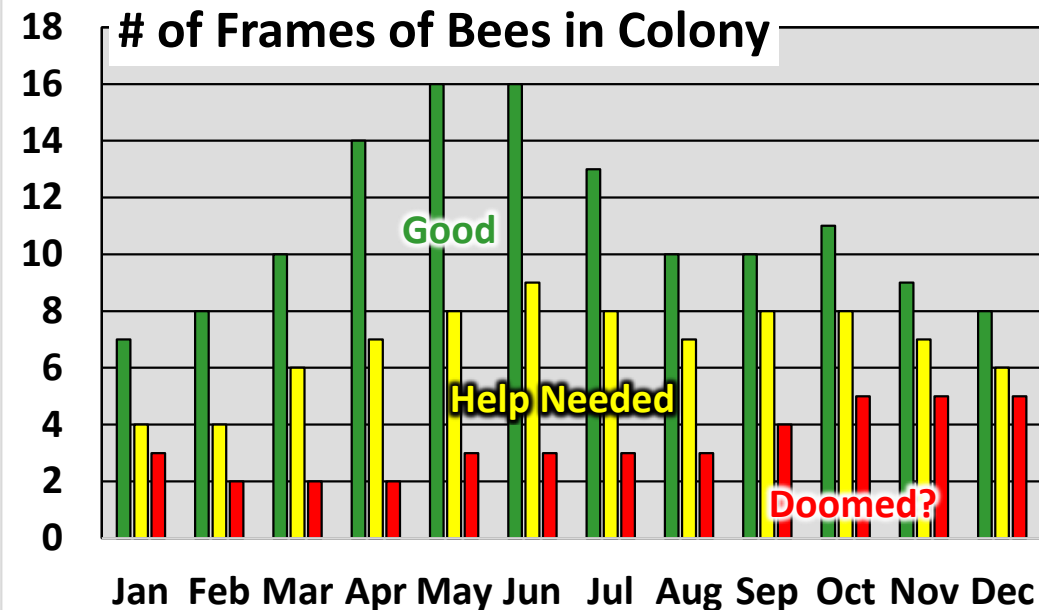
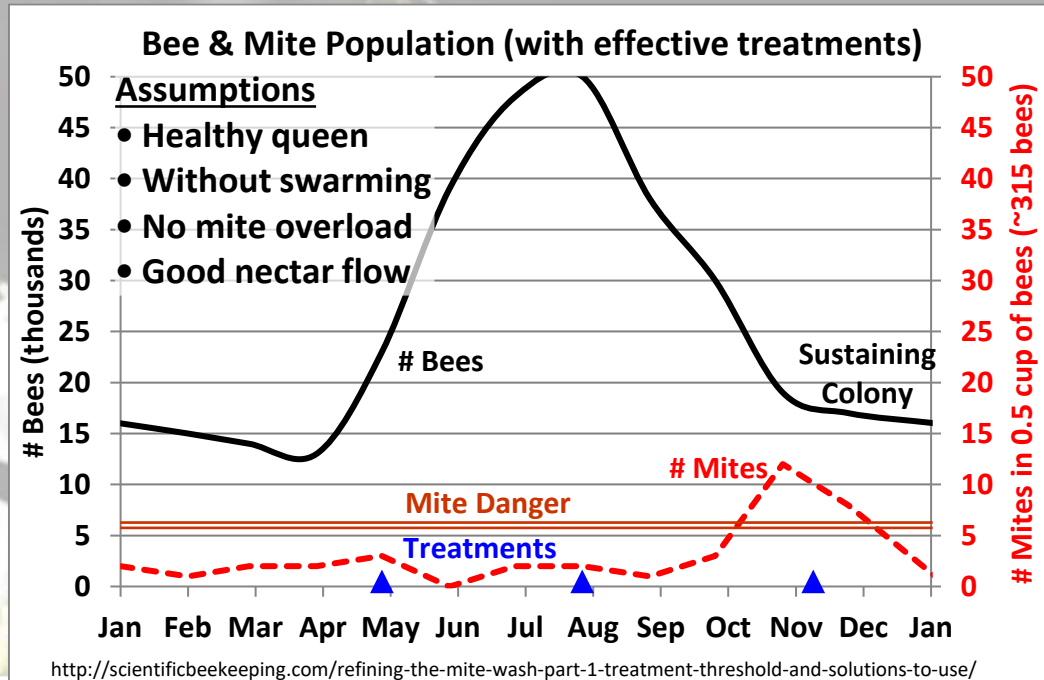
How Do I Combine Hives?

- **Combine when at least 1 hive is too weak to survive**
- **Make sure both colonies have low pests & disease & not laying workers**
- **Find the weaker queen & “retire” her, after you’re sure other queen survives**
- **Remove covers of the stronger hive, use smoke**
- **Lay down a layer of newspaper**
- **Add box(es) of weaker hive on top of newspaper**
- **Add inner feeder with syrup (in season)**
- **Put the inner cover & top cover on top**
- **Within a few days, the bees will chew through the paper & accept each other**
- **If you remove the paper, it saves the bees some work, but adds disruption**



How Many Bees in a Hive?

- **Typical colony**
 - **Winter**
 - **15,000 bees**
 - **7 frames**
 - **Peak**
 - **50,000+ bees**
 - **20+ frames**



- **Some hives survive winter with 2 frames of bees, depending on winter severity**
- **Some beekeepers combine hives if at red levels**

How Many Bees on a Deep Frame?

125 capped cells

150 bees

10 frames = 3,000 bees

1100 capped cells

750 bees

10 frames = 15,000 bees

1800 capped cells

1500 bees

**10 deep frames = 30,000 bees
(add a box, dude!)**

~3400 cells/side/deep

~2,240 cells/side/med

Thanks to Dave Cushman

<http://dave-cushman.net/bee/beesest.html>



What if My Bees are Gone?

- If you don't act quickly, small hive beetles & wax moths destroy honey, combs, & frames
- If you catch it & act quickly, you can save the honey, wax, & frames
- Regularly watch bee activity at hive entrance

SHB larva

Wax Moth larva

- Scavengers, invade under-defended frames
- Keep colony strong. Locate hive in sun.
- Keep space consistent w/ bee population



What if I Suspect Poisoning?

- **Signs of poisoning:**
 - **Dead bees w/ “tongues” out**
 - **Dead bees on ground by hive**
- **Try to find source & fix it**
 - **Spraying (city or neighbor)**
 - **Plants treated in your bee fly zone**
 - **Poisonous plants in bee fly zone**
 - **Treatment not following directions**
- **Report dead bees call 512-463-7622**
- **To get dead bees tested, contact Jonathan Barber, USDA Lab, Jonathan.Barber@ams.usda.gov, Main: 704-867-3873, Direct: 704-833-1523**
 - **Ref: <https://honeybeelab.tamu.edu/beekeeper-resources/bee-removal-and-sample-submission/>**
- **You can get on list to be notified of spraying**
 - **If you know city will spray for mosquitoes, you can cover hives at night during spraying with damp sheet, & remove it before dawn**



www.motherjones.com/wp-content/uploads/shutterstock_94126963_0.jpg

Report Pesticide Exposure

- **Bees may be exposed:**
 - When foraging
 - From in-hive products
- **Symptoms include:**
 - Dead or dying bees near hive or on plants
 - Spinning, twitching, disoriented bees
 - Regurgitation with an extended tongue
 - Abnormal behavior
- **Immediately report suspected pesticide-related incidents in Texas 512-463-7622**
- **EPA uses reports to identify patterns of bee kills, inform pesticide regulatory decisions.**
- **Info: www.epa.gov/pollinator-protection**

Immediately report bee-kills suspected to be associated with pesticides to the Texas Department of Agriculture

Dr. Chrissy Mogren

Life Scientist, Pesticides & Toxics
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, TX 75270
Office: (214) 665-6579



What is Natural Beekeeping?

- **No official definition, so you get to define it**
- **From Randy Oliver:**
 - **Bees “naturally” live in irregular tree cavities far off the ground, not in rectangular boxes located at knee level**
 - **In an apiary, we put bees in boxes, crowd hives together, take their honey, feed them syrup, open hives, & disturb them. Natural?**
 - **Before varroa, we were all natural beekeepers**
 - **Migratory beeks herd stock to better pasture**
 - **Commercial migratory pollinators are hard-working heroes, critical to agriculture**
 - **scientificbeekeeping.com/the-rules-for-successful-beekeeping/**

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		Feed syrup &/or pollen as needed	
Vitamins, etc	None		Maybe	Usually
Medicines	None		Solve problems. Some use organic acids, essential oils, synthetic chemicals.	
Drone Brood Removal	No		Can be done to reduce varroa mites	
Harvest	No	Maybe	Usually	Usually
Migratory	No		Maybe for food	Pollination, honey → \$
Effects on Bees	More pests, disease, starvation, suffering, losses		Ease suffering. Increase survival.	Increase survival. Adds stress to bees?

- **Commercial beekeepers have bee livestock, free-range cattle**
- **Bee-friendly beekeepers give bees more attention & care**
- **It's not really distinct lines between types of beekeepers, but various options. You get to choose.**



Bee Removals

- **Bees can be a swarm or established hive**
- **If people don't like the bees there, call a bee removal expert**



Swarms, no comb



Established, w/ comb

- **Removing a colony from a house can be a lot of work & require repairs. Call expert.**

How Do I Ask for Bee Removal?

• **Metro Beekeepers**
metrobeekeepers.net/bee-removal/

• **TX Apiary Inspect Svc**
txbeeinspection.tamu.edu/bee-removal/

Browser address bar: <https://metrobeekeepers.net/town-center/2a-28826/131572>

A Swarm of Honey Bees

A swarm of bees is a cluster of bees with no honey comb. A swarm of bees will only stay temporarily because they are looking for a permanent home where they will build honey comb, store honey, and raise more bees. It is very important to report swarms quickly so the bees don't end up in a location where they are not wanted (in a wall, attic, etc.). Beekeepers may rescue swarms for only a small fee, sometimes free, depending on how hard it is to retrieve them.

A Hive of Honey Bees

A hive of bees is an established colony with wax comb, but you might not see the comb. Bees going in and out of a small opening typically means there is a hive in the structure. A hive can contain 50,000+ bees depending on the season and age of the colony. Hive removal from a structure can be labor intensive, and most beekeepers will charge a fee.



Use a SWARM of Honey Bees



Use a HIVE of Honey Bees



Bee Removal

Bee Removal Disclaimer

The beekeepers listed below have registered with the Texas Apiary Inspection Service as required by Texas Agriculture Code, Section 131.045, and have submitted a statement of intent to be added to this list. Beekeepers registered with the Texas Apiary Inspection Service are excluded from complying with the Texas Structural Pest Control Act pursuant to Texas Occupations Code, Chapter 1951, Structural Pest Control, Section 1951.056. (See: <http://www.statutes.legis.state.tx.us/Docs/OC/htm/OC.1951.htm>)

• **TXAPBR**
txapbr.org/



Texas Association
OF
Professional Bee Removers

Home About Us For Removers

* Saving Honey Bees *

* Protecting the Public *

The Texas Association of Professional Bee Removers is a 501(c)6 professional trade association dedicated to representing the best interests of those who perform honey bee removals in Texas. Our goal is to ensure that our members remove live bees as safely as possible and with the highest ethical business practices.



How Can I Shoo Away Bees?

- **Things to try when unwanted bees visit (this is not a swarm or colony, no comb)**
- **Have plants that bees dislike (peppermint ...)**
- **Smoke the area, bees & surfaces**
- **Spray area w/ mix of 10-20 drops of natural oils + 6 Tablespoons witch hazel**
 - **Various oils recommended**
 - **Peppermint, Citronella, Eucalyptus, Clove, Geranium, Cedarwood, Tea Tree, Cinnamon**
 - **Good summary www.tipsbulletin.com/natural-bee-repellent/**
- **Or crush garlic in water to make spray**
- **Several commercial products use natural oils to temporarily clear supers for honey harvest**



What Causes Bee Colonies to Die?

Queen Failure

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

Parasites & Pests

Varroa Mites
Small Hive Beetle
Wax Moths
etc

Poor Nutrition

Not enough nectar & pollen
Flowerless landscapes
Mono agriculture
Herbicides

Diseases

Viruses via varroa
Foulbrood
Nosema
etc

Animals

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

Pesticides

Neonicotinoids
Pyrethroids
Fungicides
Herbicides
etc



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



What Are Varroa Mites?

- **Varroa mites grow inside honey bee cells**
- **Attach to pupa & adult bees & eat**
- **Not easy to see on adult bees**
- **Need to test to know varroa count**

Not easy to see
on adult bees

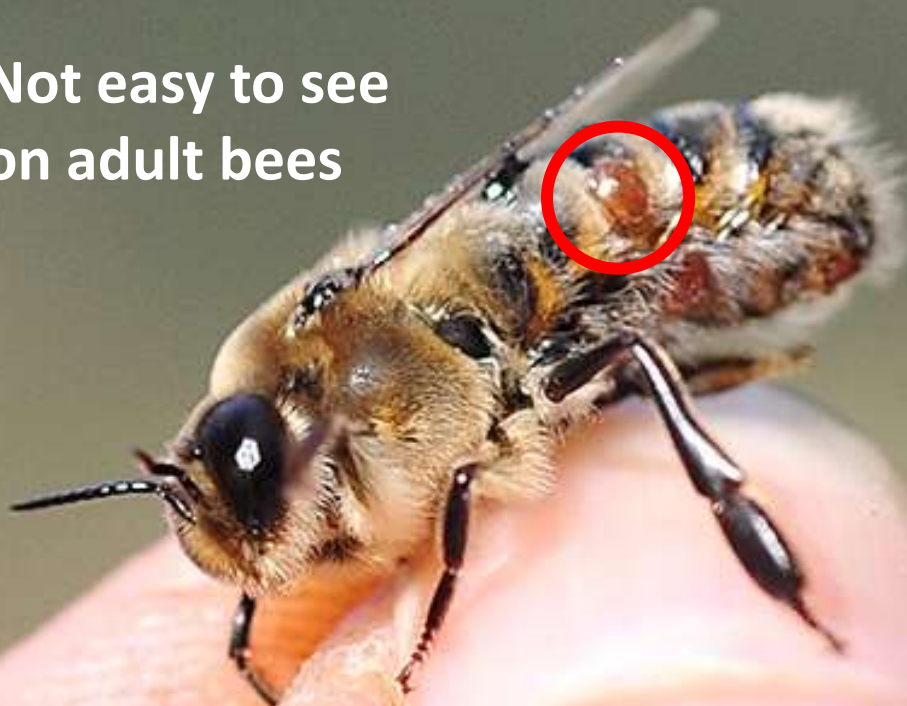


Photo by Kathy Keatley Garvey

Agriculture and Natural Resources, University of California

https://ucanr.edu/blogs/bugsquard//blogfiles/62719_original.jpg

<https://beewellhoneyfarm.com/wp-content/uploads/2020/08/varroa.jpg>



How Do I Treat for Varroa?

- **If you do nothing to manage varroa, your bees will die.**
[Danielle Downy](#), Exec Dir Project APIS m (www.projectapism.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](#)
- **There is no hope of bees who can survive without treating until we stop treating.** [Michael Bush, Natural Beekeeper](#)
- **There are effective methods without synthetic chemicals**
 - Drone brood trapping, queen caging for brood interruption, screen bottom, powdered sugar
 - Organic acids (oxalic, hops, formic)
 - Apivar is a synthetic chemical fallback option
 - MBA Resource [How to Help Bees Against Varroa Mites](#)

How Do I Test for Varroa?

	Sticky Board	Sugar Roll	Alcohol Wash
Pros	Easiest, Not bother bees	Easy	Most accurate
Cons	Least accurate	Less accurate	Kills 300 bees
Process	Put sticky board under screened bottom board. Can be board or tray with oil you add, or buy sticky boards (pre-made sticky boards cost \$4 to \$6 ea). Remove after 1, 2, or 3 days.	Put ½ cup of nurse bees (not queen!) in jar + 2 TB powdered sugar & screened lid, shake 2 min, pour mites & sugar thru screen, release bees, count mites, kill mites	Put ½ cup of nurse bees (not queen!) in jar with alcohol, swirl 30 sec, count mites. This kills bees & mites.
Limit	May: 9 mites/24 hrs Aug: 12 mites/24 hrs	4 mites (some mites are missed)	May: 6 mites (2%) Aug: 9 mites (3%)
Links	betterbee.com/instructions-and-resources/using-sticky-boards-to-monitor-varroa-mites.asp ontario.ca/page/varroa-mites	carolinahoneybees.com/varroa-mites-and-bees/	scientificbeekeeping.com/first-year-care-for-your-nuc/

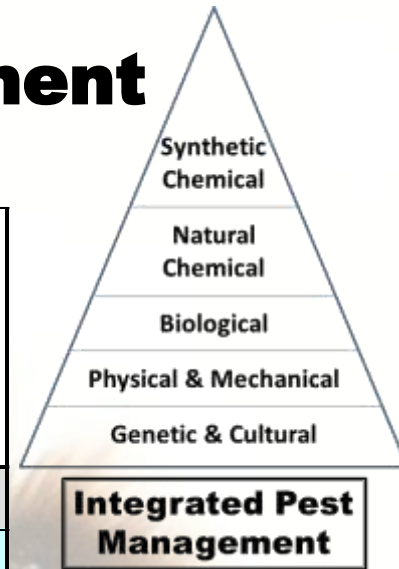
• **All these links are good; read them all. Test again after treatments.**



When Mite Count is Below 2 or 3%

- **Start low on Integrated Pest Management triangle 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 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

- **Sanitation: cull old brood comb, space out colonies, sunny area w good drainage, clean tools between colonies, freeze frames**
- **Combine all these methods for best results**

When Mite Count is Above 2 or 3%

Info compiled from honeybeehealthcoalition.org/Varroa/ 2021

• Move up the Integrated Pest Management 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 (dangerous)		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, Coumaphos			Y		97%*	7%	Yes						Y		L		Y		L	
Vadescana (norroa)			rna		Not yet available. Tested since 2015. EPA approval requested early 2025.															

* For non-resistant mites

- **Powerful info about effectiveness, pros & cons**
- **Brood & broodless are same except for Oxalic Acid**
- **Rotate treatment methods to reduce resistance**
- **Effectiveness changes (resistance, advancements)**
 - **Amitraz was found in early 2025 to be less effective due to over-use, causing mite-resistance**
- **New treatment “Norroa” is close to being approved. New method.**
- **Read & follow directions. Required for safety (honey, you, bees)**
- **See MBA resource [How to Help Bees Against Varroa Mites](#), [FAQS](#)**

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

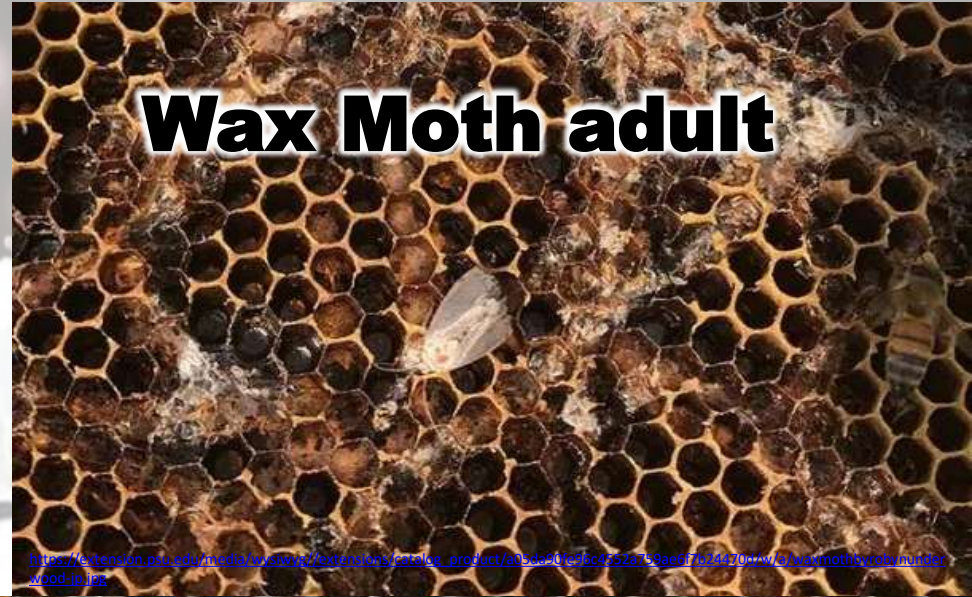


What Other Pests Are Threats?

**Small Hive Beetle,
SHB, adult**



Wax Moth adult



SHB larva



Wax Moth larva



- **Scavengers, invade weak colonies**
- **Keep colony strong. Locate hive in sun.**
- **Keep space consistent w/ bee population**

<https://bee-health.extension.org/managing-small-hive-beetles/>

www.homesweetbees.com/3-30/2017/7/20/how-to-save-one-remaining-hive-from-small-hive-beetles



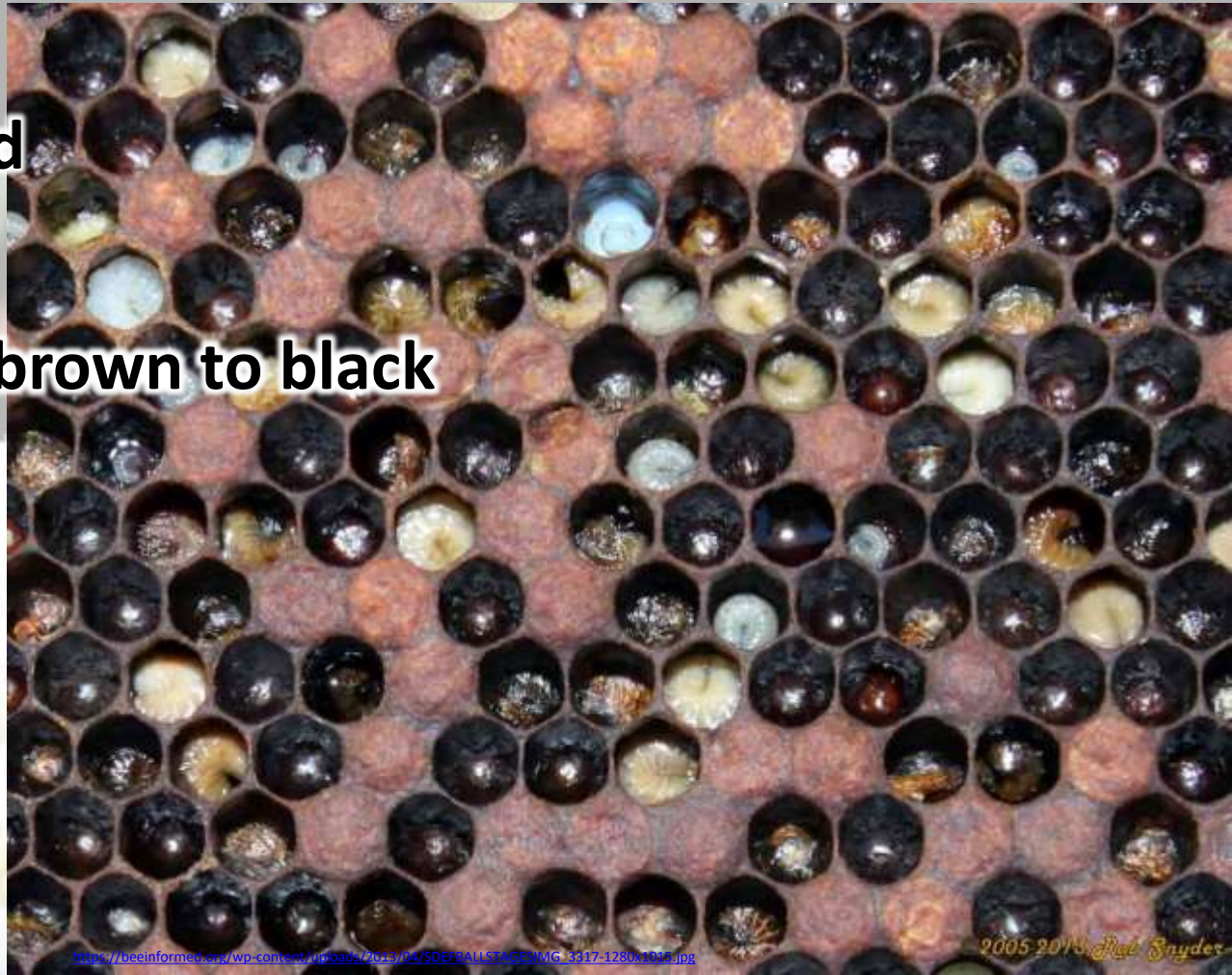
What Diseases Are Threats?

European Foulbrood

Rare

Bacteria, treatable

Larva dull white to brown to black



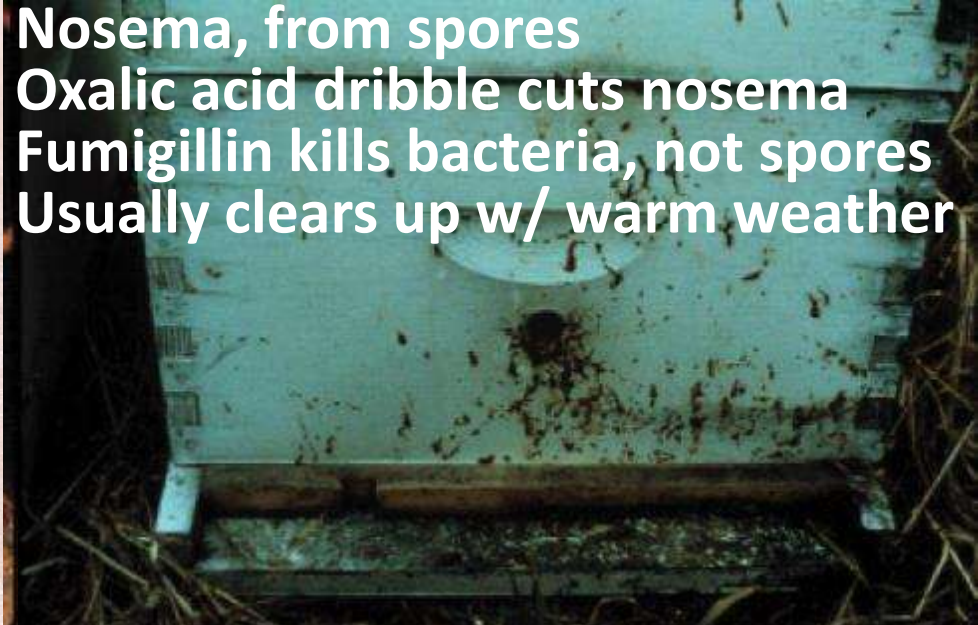
- **Spotty brood pattern can be caused by many things**
 - Failing queen, Varroa, Hot dry conds, nutrition, Not enough space for nectar & pollen, Brood diseases
 - Need to inspect further to determine causes

What Diseases Are Threats?

Deformed Wing Virus, DWV



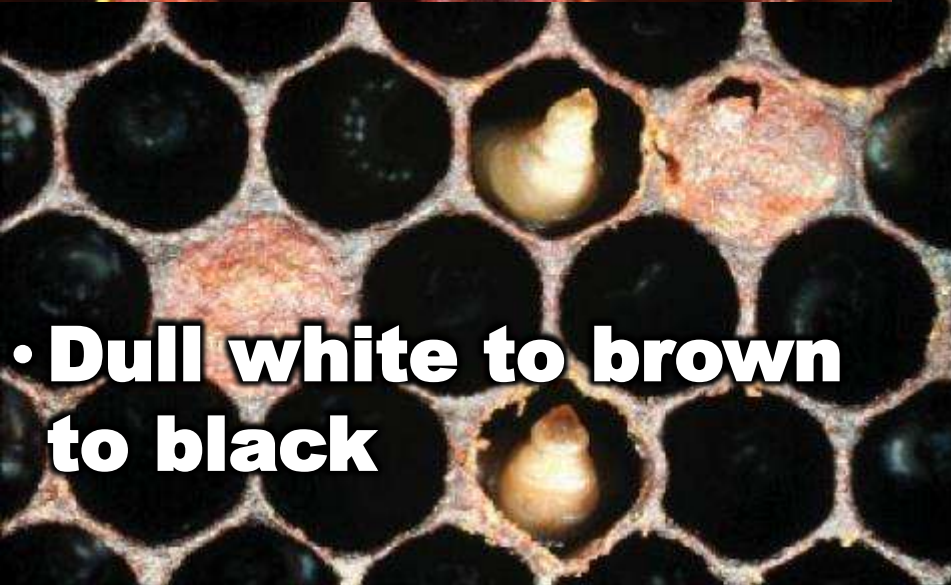
Nosema, from spores
Oxalic acid dribble cuts nosema
Fumigillin kills bacteria, not spores
Usually clears up w/ warm weather



American Foulbrood, Bacteria, very rare, catastrophic

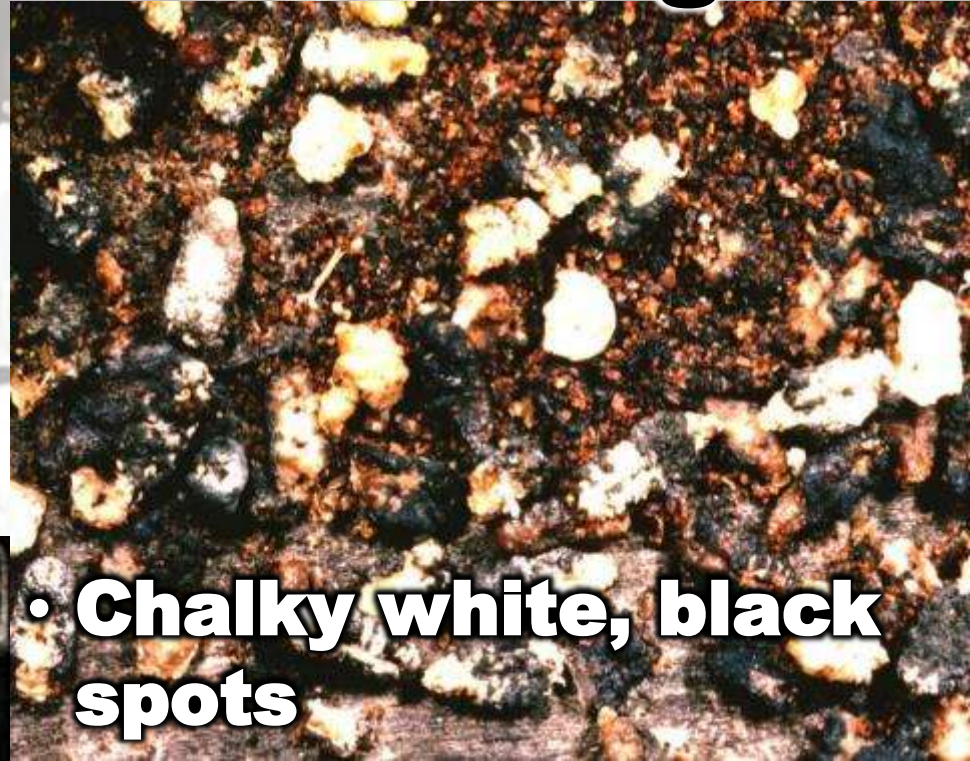


Sacbrood from Virus



- **Dull white to brown to black**

Chalkbrood from Fungus



- **Chalky white, black spots**
- **Learn to recognize colonies that are healthy vs unhealthy**
- **Catching early gives more opportunity to fix**



Top Mistakes in Beekeeping

- **Not learning to recognize Problems due to Skipping Classes, Field trips, & Mtgs; Not Reading Books**
- **Not inspecting Weekly in Spring & Monthly in Winter**
- **Not knowing what to do for various problems**
- **Not acting in time to save the colony**
- **Giving up after losses**

Problems	Bees Die	Bees Leave	Actions Beekeepers Could Take
Varroa	Yes	Yes	Prevention, Inspect, Treat or Help
Starve/Nutrition	Yes	Yes	Leave enough honey after harvest &/or Feed well ahead of when needed
Queen Failure	Yes	Yes	Replace queen Give frame of brood & young eggs
Pests, Diseases	Yes	Yes	Keep colony strong (queen, nutrition, varroa, location)
Swarm		Yes	Give them another box or split
Freeze, Condensation	Yes		Ventilation, Windbreak, Strong Colony, Solid bottom board in winter



Some of Our Favorite Resources

Group	Notes	Link
Metro Beekeepers	Take MBA Class . Attend monthly mtgs, Q&A. Read online Resources	metrobeekeepers.net
The Bee Supply	Monthly webinar, magazine, training, equip, bees	thebeesupply.com/
Honey Bee Suite	Rusty Burlew	www.honeybeesuite.com
Carolina Honeybees	Charlotte Anderson	carolinahoneybees.com
Scientific Beekeeping	Randy Oliver, biologist, does experiments & publishes data, observations, lessons	scientificbeekeeping.com scientificbeekeeping.com/first-year-care-for-your-nuc/
Honey Bee Health Coalition	Developed guide for varroa management & other resources	honeybeehealthcoalition.org
Dadant	Learning center, equipment, bees	https://www.dadant.com
Texas Beekeeping Assoc	Beekeeper news, Club locations & contacts, clinics, convention, journal (past issues free)	texasbeekeepers.org
Bee Culture	Monthly magazine (subscription)	www.beeculture.com
American Bee Journal	Monthly magazine (subscription)	www.dadant.com
Beekeeping for Dummies	Book by Howland Blackiston	
Beekeeper's Handbook	Book by Diana Sammataro, Alphonse Avitabile	
The Backyard Beekeeper	Book by Kim Flottum	
Honeybee Biology and Beekeeping	Book by Dewey M. Carron	

- **Many good resources** (& many bad ones, not shown)
- **Tell us your favorites**



What's A Master Beekeeper?

- **Texas Master Beekeeper Program (TMBP) is a 5-year (min) training & certification program**
- **Goal: Increase health of TX Honey Bee industry**
- **Texas A&M Agrilife Extension Service & Texas Beekeepers Association**

	Apprentice	Advanced	Master
Register	Yes	Yes	Yes
Keep bees	1 year	+1 year	+1 year
Online training		6 modules	Expert in 3 credits in major + 5 credits outside major
Written exam	> 70%	> 70%	> 70%
Practical exam	> 70%	> 70%	
Public service		5 credits	+10 credits

- **Master Craftsman is beyond Master**
- **More info <https://masterbeekeeper.tamu.edu>**



Terms

Bee Bread
Cell

scientificbeekeeping.com/reevaluating-beebread-part-1-the-story/

Bee Brush

Brood Box
Bottom Board

Abscond	All bees leave, boxes empty
Apiary	Bee yard
Apivar	Synthetic chemical to kill varroa
Bearding	Bees gather on outside of hive
Bee Bread	Pollen, nectar, enzymes, ferments
Bee Brush	Brush to herd bees
Bee Space	1/4" to 3/8" between combs for bees to move & work
Beek	Beekeeper
Beetle Trap	Trap for Small Hive Beetles
Boardman Feeder	External syrup feeder
Bottom Board	Lowest board in Langstroth hive
Brood	Bee eggs, larva, pupa
Brood Box	Box w/ brood. Deep or medium.
Burr comb	Bees built inconvenient comb
CCD	Colony Collapse Disorder
Cell	Wax comb hexagon shape
Chalkbrood	Brood disease from fungus
Checkerboard	Alternate honey frames, not brood
Combine	Combine 2 weak hives into 1
Cross-comb	Bees built comb across frames

Bearding


Boardman Feeder

Beetle trap

New box	New	Honey	New	Honey	New	Honey	New	Honey	New	Honey	New	Honey
Orig box	Honey	New	Honey	New	Honey	New	Honey	New	Honey	New	Honey	New

Checkerboard honey frames

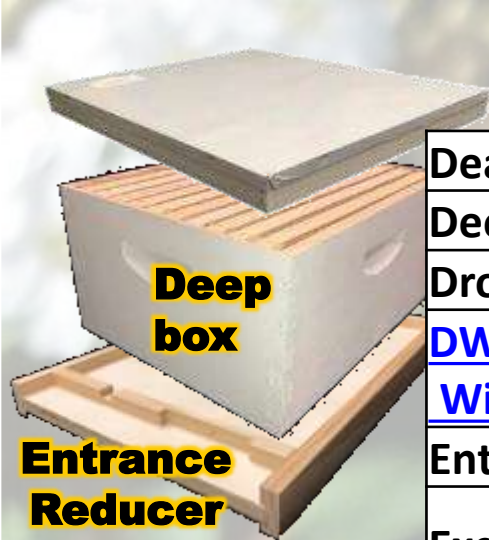


	Honey	New	Checkerb honey fra
	New	Honey	
	Honey	New	
	New	Honey	
	Honey	New	
	New	Honey	
	Honey	New	
	New	Honey	
	New	Honey	
New box	Orig box		



Terms

Dearth	Lack of nectar, pollen, rain, etc
Deep Box	9 5/8", usually used for brood
Drone bee	Male bee
<u>DWV, Deformed Wing Virus</u>	Causes some infected bees to be born with useless wings
Entrance Reducer	Insert to reduce entrance size
Excluder	Grate that queen & drones cannot move through, but workers can
Extractor	Machine to spin honey from frames
<u>Filter</u>	Removes debris from honey
Fondant	Sugar & water to feed cold bees
Food-grade bucket	Used to store & handle honey
Food Handler's License	Texas license, available online with training, small fee
<u>Foulbrood</u>	Brood disease from bacteria
<u>Foundation</u>	Plastic insert in frame
Frame	Used to hold wax comb



Terms

J-Tool



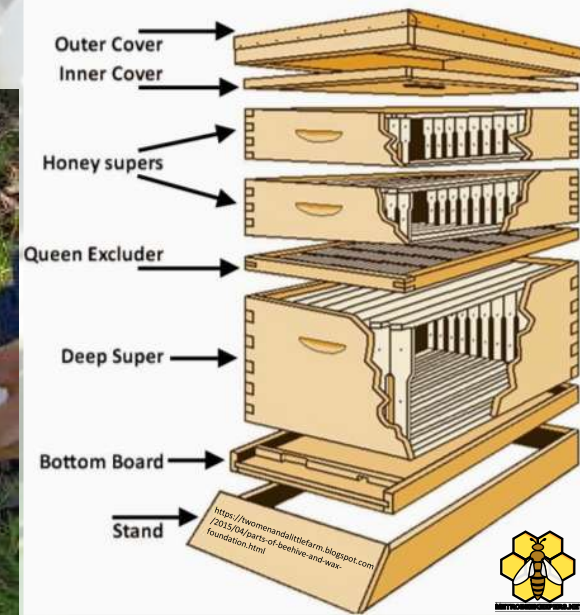
Hive Tool

Honey Gate in Extractor

Filter



Langstroth Hive



Nuc



Mouse guard



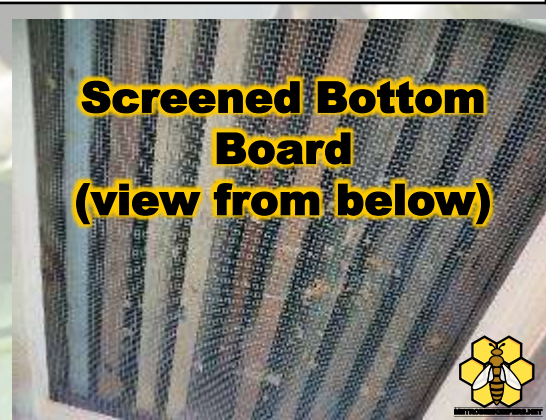
Hive Tool	Tool to pry, scrape, lift
Honey Gate	Valve to control honey pouring
Inner Cover	Prevent top cover from being sealed closed w/ propolis. Insulation.
<u>Inspection</u>	Beekeeper looking at hive for health
<u>IPM</u>	Integrated Pest Management
J-tool	A hive tool w/ hook to lift frames
<u>Langstroth Hive</u>	Standardized hive type
<u>Larva</u>	Bee after egg hatches
MBA	<u>Metro Beekeepers Association</u>
Medium Box	6 5/8", usually used for honey
<u>Moth balls</u>	Naphthalene, do not use! Use PDB.
<u>Mouse guard</u>	Entrance reducer w/ bee-size holes
Nectar Flow	When flowers produce nectar
<u>Nosema</u>	Disease caused by spores
Nuc (Nucleus)	Starter hive w/ queen, 5 frames of bees, honey, nectar
<u>OA</u>	Oxalic Acid, anti-varroa mite
<u>PDB</u>	para-Dichlorobenzene, anti-moth
Pheromone	Bee communication via "smell"

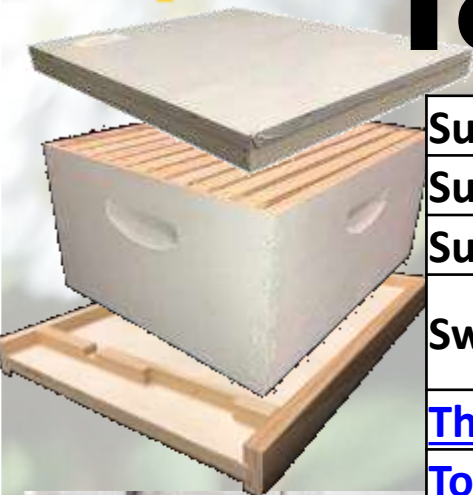


Terms



Piping	Sound made by queen
Pollen Substitute	Given to bees in pollen dearth
<u>Propolis</u>	Made by bees from plant sap
Pupa	Bee state after larva before adult
Queen	The bee who can lay fertilized eggs
Queenright	Hive has healthy, productive queen
Robbing	Bees from other hive invade, take honey
Royal Jelly	Fed to larva to grow
<u>Sacbrood</u>	Brood disease caused by virus
Screened bottom board	Screen reduces mites, beetles, & adds ventilation
<u>SHB</u>	Small Hive Beetle
Smoker	Tool to puff smoke onto bees
<u>Split</u>	Divide strong hive into two
<u>Stores</u>	Honey, pollen, bee bread

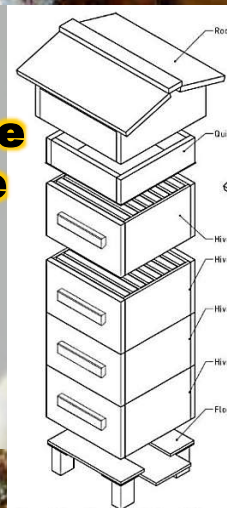
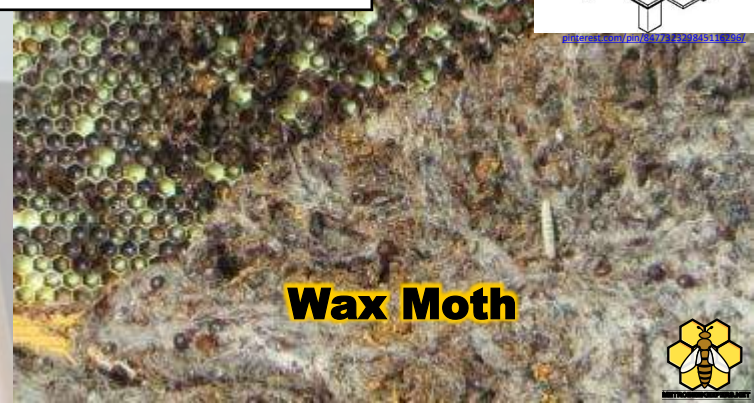


Top Cover

Terms

**Uncapping Tools**

Sugar Brick	Sugar & water to feed cold bees
Sugar Syrup	Sugar & water to feed non-cold bees
Super	Box added for bees to full w/ honey
Swarm	Queen & ~half the bees leave to find new home. Staying bees raise queen.
Thymol	Anti-varroa chem
Top Bar Hive	Horizontal hive type
Top Cover	Lid for hive boxes
Uncapping Tool	Removes wax caps to harvest honey
Varroa Mite	Tiny bug that sucks life & gives viruses
Veil	Head protection
Ventilated Suit	3-layer suit prevents stings, ventilated
Warre Hive	Stacked boxes with top bars
Wax Moth	Scavenger, destroys unprotected comb
Worker bee	Female bee, does <u>all</u> the work!

Sugar Brick**Ventilated Suit****Warre Hive****Top Bar Hive****Worker****Wax Moth**

Happy Beekeeping



METROBEEKEEPERS.NET

- **We hope you enjoy our FAQs file**
- **Take a class & find out if any of this is right**
- **Corrections & suggestions are welcome**
- **[Contact us](#)**

