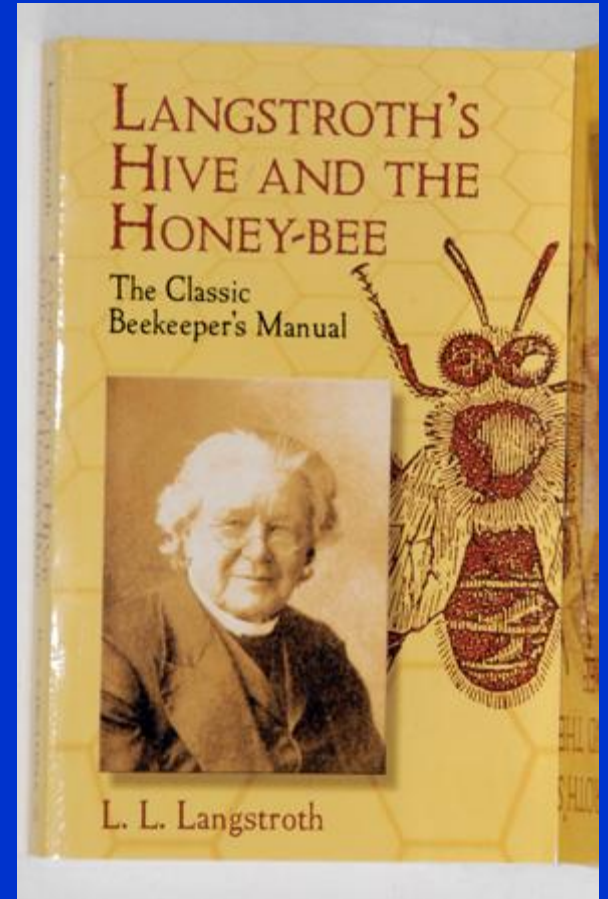


Honey Bees





Members of the Colony

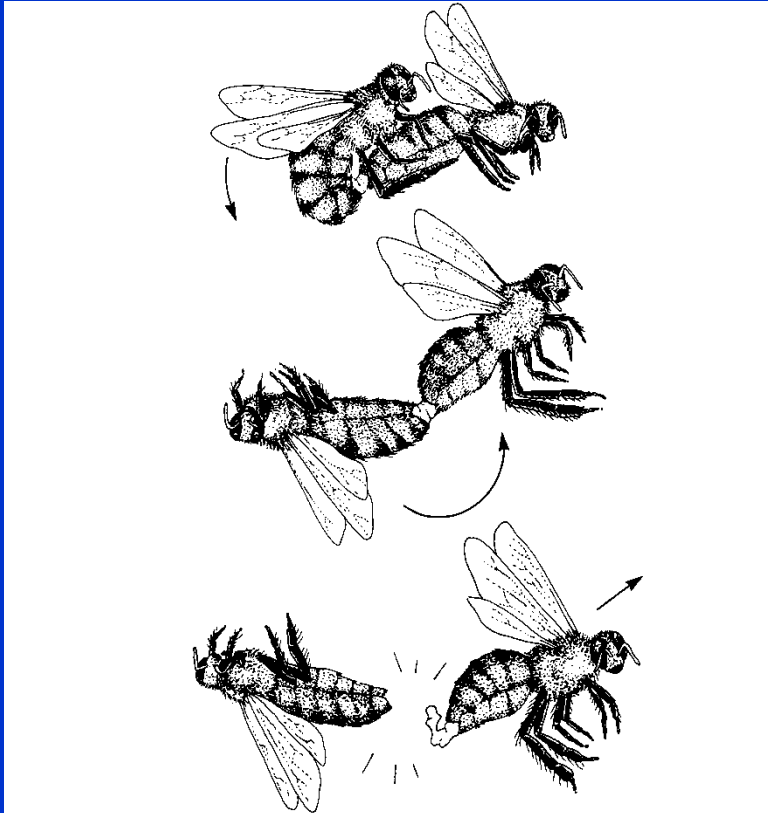




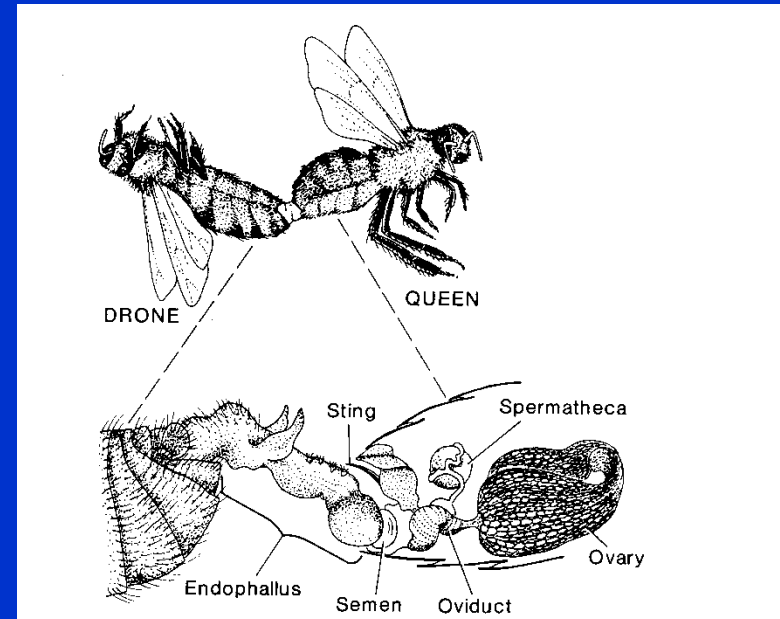
Drones Mate with Queens



Mating Occurs in the Air



Mating occurs high above ground (90-120 feet)

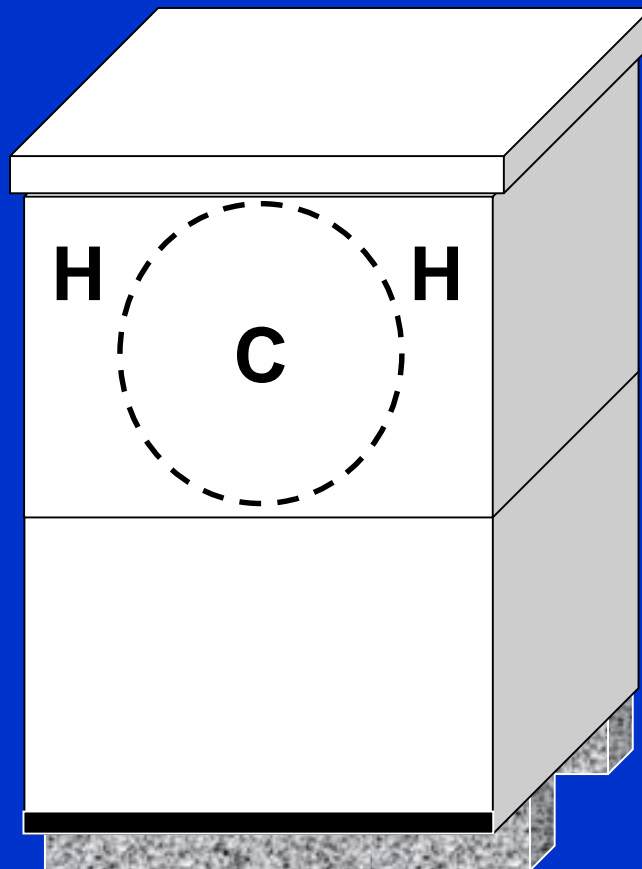


A queen mates with > 20 drones and store sperm in a special gland

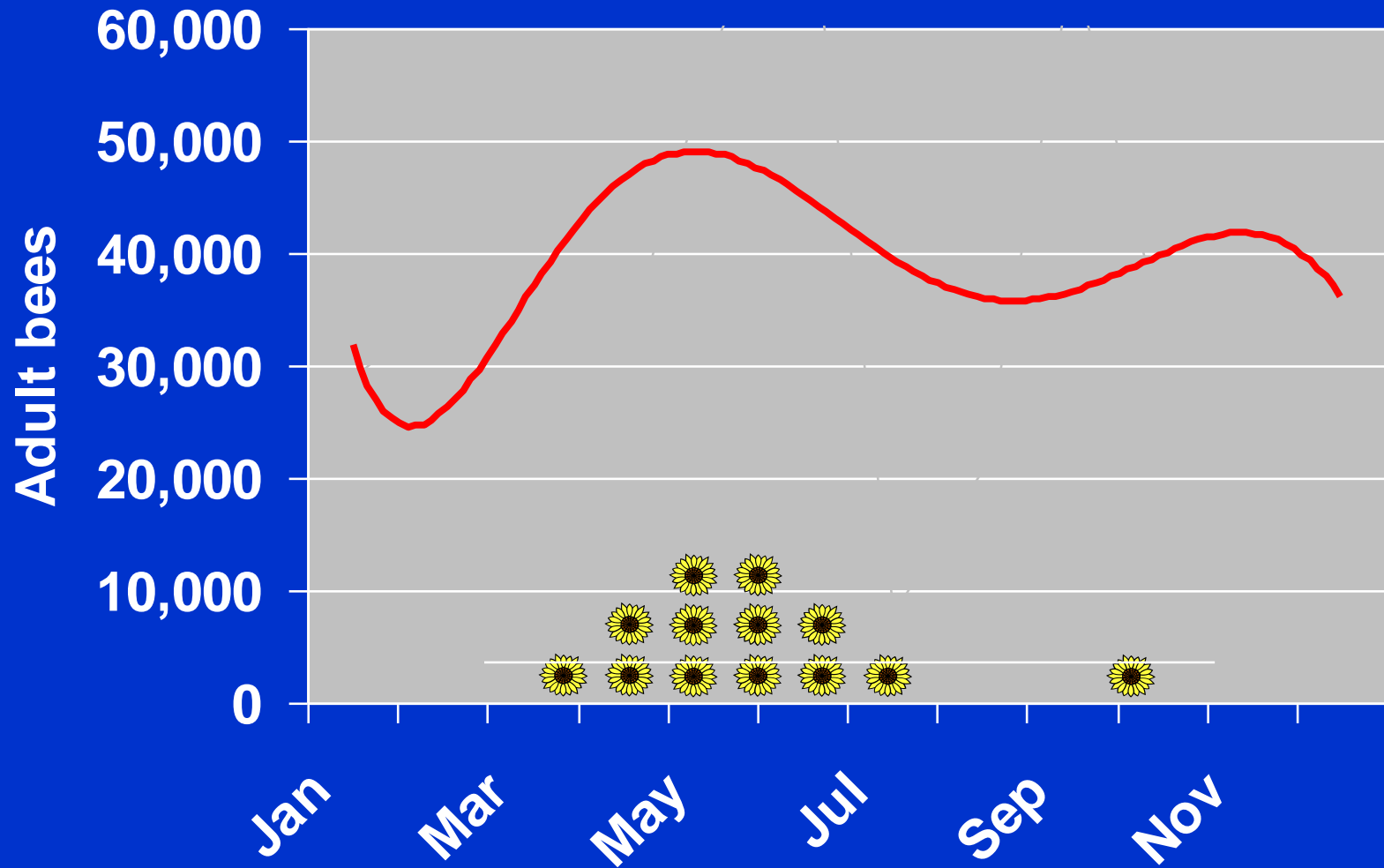
Most Members of Colony are Workers



Colony Growth (winter)

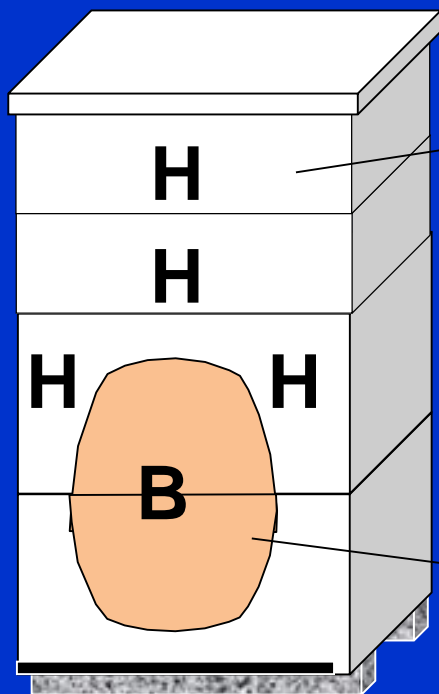


Annual cycles of **colony population** and **food resources**



Nectar Forage





Crowded Colony in the Spring



Crowded
Colonies
Swarm in
the spring



Nectar → Honey

- Nectar is a dilute solution of fructose, glucose and some sucrose
- Bees add the enzyme invertase to nectar, regurgitate the mixture into honeycomb, and evaporate the excess water
- The fully ripened and capped product is a complex mixture that we call honey

Honey Harvest



Pfund Color Scale

(based on Absorbance at $\lambda=560$ nm)

- Water white – 0.0945
- Extra white – 0.189
- White – 0.378
- Extra light amber – 0.595
- Light amber – 1.389
- Amber – 3.008
- Dark amber



Pollen Forage



Total Value - \$81.3 billion

Non-*Apis* insects - \$9.8 billion (12%)

Honey Bees – \$19 billion (23%)

Total U.S. Honey Production in 2010

176 million pounds

\$282 million



**Honey Bees are Responsible for
One-quarter of the Food from Insect
Pollinated Crops**

Getting Started

Start with New Equipment

- Use standard equipment to avoid fitting problems
- Avoid diseases that might be transferable in used equipment
- Be prepared for the cost

Start with Enough Equipment

- Use two deeps for brood chamber
- 3-4 honey supers per colony
- At least 40+ deep frames of space

Hive or Apiary Location

- Shelter colonies from wind



Wind Breaks Protect from Pesticide Drift



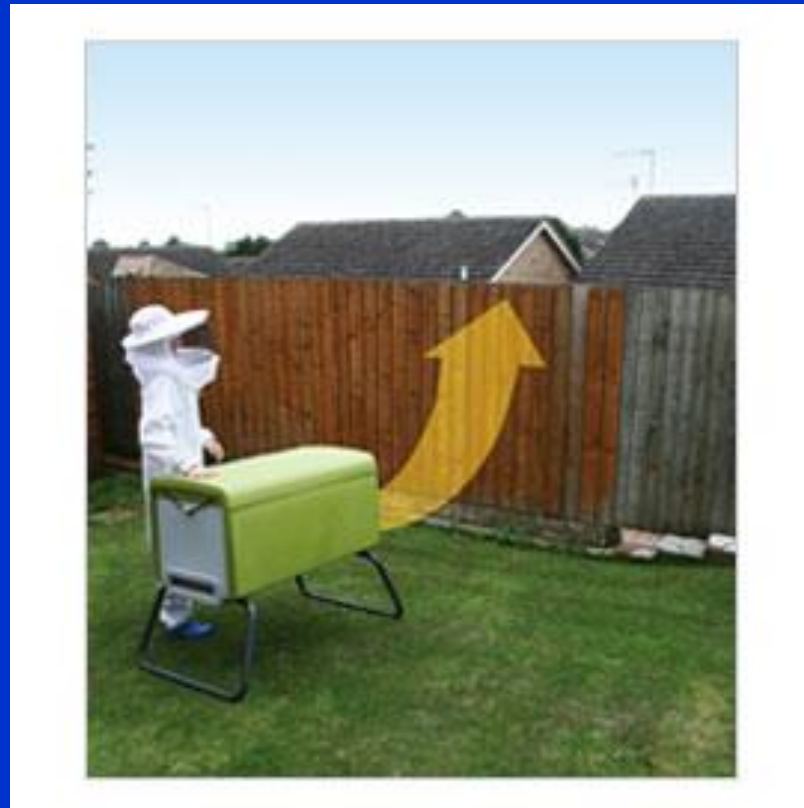
Hive or Apiary Location

- Place colonies above standing water



Hive or Apiary Location

- Bee flight paths should not bother neighbors



Hive or Apiary Location

- Bee flight paths should not cross busy roads



Hive or Apiary Location

- Hives should receive morning sun
- Colonies should be shaded

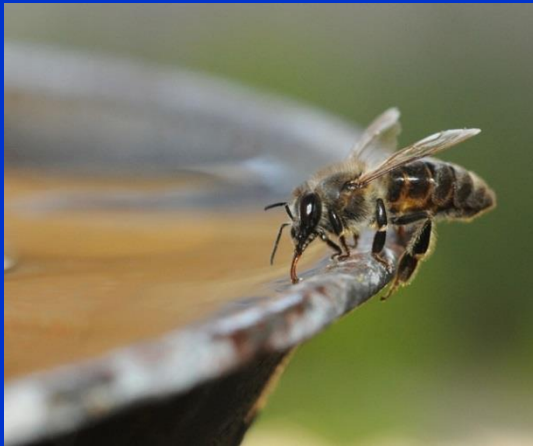


Sun Exposure & Small Hive Beetles



Hive or Apiary Location

- A water source should be close



Locate Near Abundant Food Sources

- **White clover**
- **Asters**
- **Basswood**
- **Berries**
- **Black locust**
- **Chicory**
- **Cucurbits**
- **Dandelion**
- **Fruit trees**
- **Goldenrod**
- **Maples**
- **Mustards**
- **Ragweed**
- **Vetch**
- **Willows**

Locate Near Abundant Food Sources (warmer climates)

- **Cotton**
- **Soybean**
- **Chinese Tallow**
- **Black Mangrove**
- **Mesquite**
- **Palmetto**
- **Sourwood**
- **Tupelo**

Start Early in the Season

- **All beekeeping depends on local geography and climate**
- **Don't start too early (probably not before March)**
- **March, April or May – the earlier the better**

March Plants

• North Mississippi South Mississippi

- *Maple (NP)*
- *Henbit (NP)*
- *Mustard (NP)*
- *Redbud (NP)*
- *Elm (P)*
- *Crimson Clover (NP)*
- *Spring Beauty (NP)*
- *Willow (NP)*
- *Blackberry (NP)*
- *Fruit Bloom (NP)*
- *Vetch (NP)*
- *Hawthorn (NP)*

- *Henbit (NP)*
- *Mustard (NP)*
- * *Spring Ti-ti (NP)*
- *White Clover (NP)*
- *Tupelo Gum (N)*
- * *Willow (NP)*
- * *Tulip Poplar (NP)*

* Major Value

April Plants

North Mississippi

- **Black Gum (NP)*
- **Black Locust (N)*
- *Crimson Clover (NP)*
- *Willow (NP)*
- *Blackberry (NP)*
- *Fruit Bloom (NP)*
- *Vetch (NP)*
- *Hawthorn (NP)*
- **Tulip Poplar (NP)*
- *Holly Species (NP)*
- **White Clover (NP)*
- *Mustard (NP)*

South Mississippi

- *May Buttercup (NP)*
- ** White Clover (NP)*
- *Poison Ivy/Oak (NP)*
- **Black Locust (NP)*
- **Yaupon Holly (NP)*
- *Persimmon (NP)*
- **Rattanvine (NP)*
- **Tulip Poplar (NP)*
- **Highbush Gallberry (NP)*
- **Privet (NP)*
- **Black Gum (NP)*
- *Brambles*

*** Major Value**

What kind of bees to install?

- **Italians – excellent honey and wax producers; gentle; tend to rob readily; don't do well in cold climates**
- **Carniolans – gentle; grow rapidly in Spring; populations often crash during late summer to fall in our climate**

What kind of bees to install?

- **Caucasians – gentlest of strains; build a lot of burr comb and propolis; total honey production may be lower than others; populations of bees remain strong in summer**
- **German black bees – nervous bees; slow starter in Spring; not the best choice**

**I recommend Italians for all
beginners – they are
predictable!**

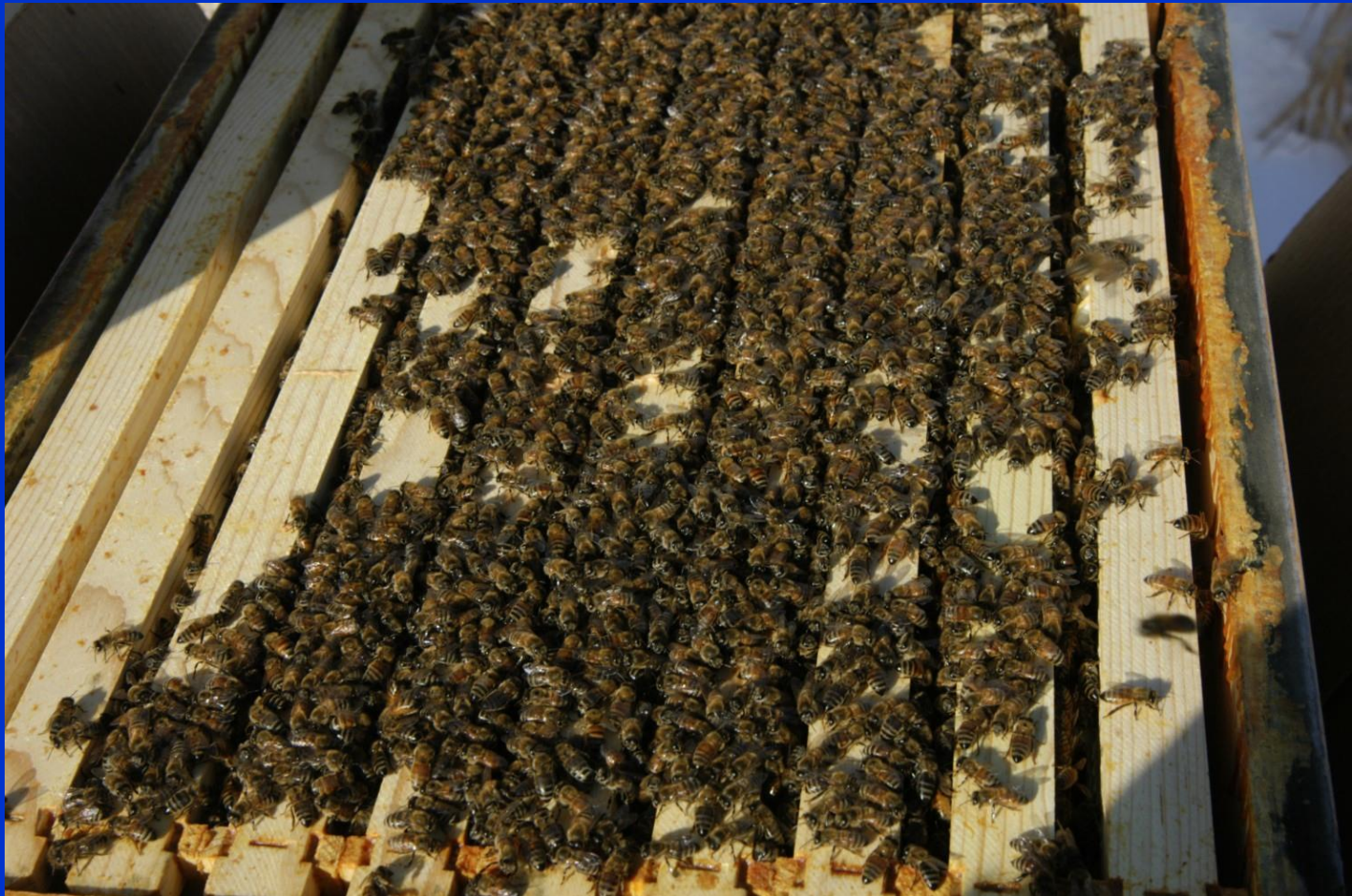
Start with Package Bees

- **You will learn more if you start small**
- **You will gain confidence as your bees grow**
- **Start with at least two colonies – allows for comparisons, and one can be used to bolster or strengthen the other**





After a Few Weeks



Starting from Nucs



Catching Swarms



Swarms Can Land Anywhere



Making Splits



- making nucs is a form of splitting
- units should be given heavy honey, pollen, and older capped brood
- need 1-2 combs with space for queen to lay eggs
- a caged queen

Feeding Colonies (bucket gravity)



Moving Colonies



Robbing Screens



Find a Mentor



Don't Experiment in First Two Years

- **Learn and use basic methods**
- **Master these methods before playing with advanced techniques**
- **You can't raise queens if you can't even grow a single colony**

Don't Buy a Beginner's Outfit

- **Some of the equipment is extraneous**
- **It may be cheaper to buy only what you need**
- **You can add the extras over time if you would like to try them**

Some “Don’ts”

- **Don’t feed too much – you will plug the nest, which restricts growth and stimulates swarming**
- **Don’t allow swarming**
- **Don’t disturb bees too often**
 - **No more than every two weeks in growing season**
 - **No more than 20-30 minutes per visit**

Bee-keepers
vs.
Bee-havers