

FUN BEE FACTS



- Alexander the Great was embalmed with honey
- It takes 12 bees their entire life to produce a teaspoon of honey.
- Honeybees are the only insect that produces food for humans.
- Although most folks think bears like honey, they really want the bee larva.
- Beeswax is used in the candy coating of M&M's so the "melt in your mouth, not your hand."
- Beekeepers live longer than any other occupation in the world.
- 5 gallons of honey weighs 60 pounds.
- Queen bees are fed Royal Jelly their entire life.
- There are approximately 3200 bees in a pound.
- The average swarm includes 10,000 – 12,000 bees.
- Approximately 1600 bees can cover a deep frame.
- Counting both sides of a deep frame, there are about 6400 cells.

STEVE'S HOUSEKEEPING LIST



- Course Format
- Discounts
- Teaching Hives
- Club Meetings
- Hive Raffle
- Mentors

GOAL OF THE COURSE

An INTRODUCTION to the fascinating world of beekeeping.



Mid-York Beekeepers Association

HONEYBEES – *Apis mellifera*



“The more I learn about bees, the more I realize I don’t know.” – Steve Burton

HONEYBEE CLASSIFICATION

- Genus = *Apis* (Latin for Bee)
- Species = *mellifera* (Latin for Honey Bearing)
- Races = Italian, Carniolan, Russian, Caucasian, etc.



HONEYBEE CLASSIFICATION

- Unlike other bees;
 - Hairy
 - Worker's Have A Barbed Stinger



HONEYBEE CLASSIFICATION

- No Native Bees in the Western Hemisphere
 - Introduced by Colonists in NA, Spaniards in SA



HONEYBEE CLASSIFICATION

- New York State – Classified as Livestock



HONEY BEE COLONY

- **SUPER-ORGANISM** -
An incredibly organized group of individuals who's duties are so well orchestrated, they act as an individual organism!



COLONY'S NEEDS

1) SHELTER – High + Dry + Warm



2) FOOD – Nectar + Pollen + Water + Propolis



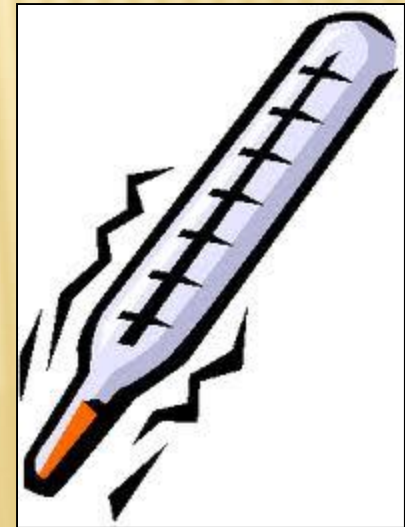
3) REPRODUCTION – Survival of the Species

TEMPERATURE – CONCEPT OF CRITICAL MASS

Temperature

Activity

- 100°F Comb builders most efficient
- 93°F Brood Nest Temperature
- 57°F Clustering Begins
- <50°F Unable to fly
- 45°F Immobile
- <40°F Dead



TYPES OF BEES IN THE COLONY

➤ Workers



➤ Drones



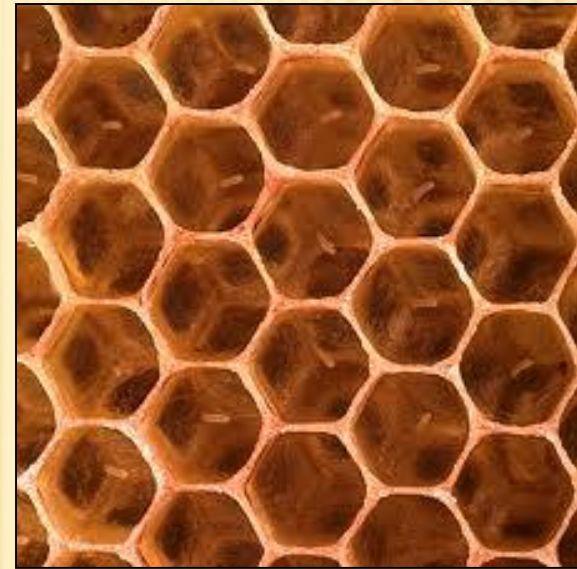
➤ Queen



QUEEN – THE CENTER OF ATTENTION

➤ TWO FUNCTIONS –

1) Egg Production –
builds population
numbers



2) Pheromone Production –
directs worker functions

QUEEN FACTS

- Fed a diet of only Royal Jelly during their entire life.
- Reportedly can live from to 5-7 years.
- Usually only 1 Queen per hive, kills other Queens.
- Lays an average of 1500 eggs per day. *(10,000/week)
- She dictates whether an egg is fertilized or not.
- Mates with 15-20 Drones, stores sperm for the rest of her life.
- Fertilized eggs = Females = Queens or Workers,
Unfertilized eggs = Males = Drones.
- Egg laying slowly dwindles down in the fall, stops altogether in late winter, starts up again after the winter solstice.

WORKERS – WHERE THE ACTION IS

➤ FUNCTIONS

Days 1-3 “Nurse” Bee – Cleaning cells and incubating eggs

Days 3-6 “Nurse” Bee – Feeding younger larva

Days 6-10 “Nurse” Bee – Feeding older larva and Queen

Days 8-16 “Worker” Bee – Receiving nectar and pollen from Field Bees

Days 12-18 “Worker” Bee – Wax making and cell building

Day 18+ “Guard/Field Bee” – Guarding entrance, nectar and pollen foraging

Adult Life Span - As short as 6 weeks when very busy (wear out), up to about 30 weeks when clustered for the winter.*

NECTAR & POLLEN COLLECTION

- Collection of nectar and/or pollen dictated by colony's needs.
- Bees communicate the location of food sources using the waggle dance.
- Bees suck the nectar through their proboscis into their honey stomach where enzymes begin the conversion of nectar into honey.
- Transferred to house bees, who evaporate it from about 85% moisture, down to 18%.
- Cap the honey when "ripe."
- Pollen collects on the bees hair, which she then brushes into a ball and packs it in her pollen baskets on her back legs.
- Most of the evaporation process is done by house bees fanning their wings.
- Pollen balls are "kicked off" in the hive where house bees mix it with honey, storing it in cells as well preserved "Bee Bread."
- Colonies in CNY should have at least 100 pounds of honey to make it through winter.



DRONES - BUMS

- ONLY PURPOSE – Breed a Queen!



DRONE FACTS

- Produced from an unfertilized egg.
- No stinger.
- Travel freely between hives.
- Do not gather pollen or nectar, but eat it.
- Fly to Drone Congregation Areas to breed Queens about mid-afternoon.
- Immediately die after breeding a Queen.
- Kicked out of the hive in the fall and left to die.

HONEYBEE LIFE CYCLE CHART - DAYS

<i><u>TYPE</u></i>	<i><u>EGG</u></i>	<i><u>LARVA</u></i>	<i><u>PUPA</u></i>	<i><u>ADULT</u></i>
Queen	3.5	4.5	8	16
Worker	3.5	5.5	12	21
Drone	3.5	6.5	14	24

NUTRITION

- **NECTAR/HONEY** – Carbohydrate source for energy (Glucose & Fructose).
- **POLLEN** – Protein/vitamin/mineral source for producing brood and queen pheromones.
- **WATER** – Required for diluting honey for feeding larva.
- **PROPOLIS** – Tree resin source, hive medicine.

When these aren't available, beekeeper provides substitutes in many forms.

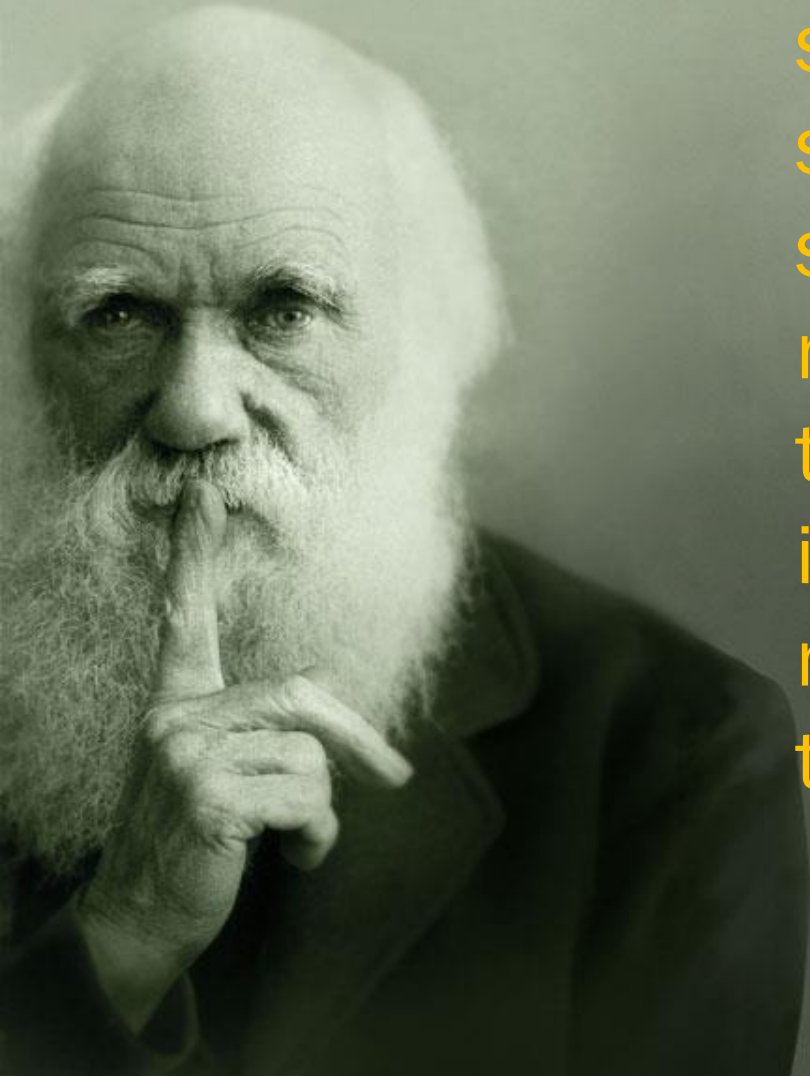
REPRODUCTION – A MATTER OF SURVIVAL

- Egg laying positively influenced by;
 - Warm Temperatures
 - Increasing Day Length
 - Open cells in comb
 - Bountiful nutrition*
 - Balanced hive population
 - High Queen Pheromone levels*

REPRODUCTION – EMERGENCY

- If Queen is failing or colony is preparing to swarm, she's coerced into laying eggs into Supersedure or Swarm cups (Queen Cells.)
- In an emergency, ANY fertilized, day old larva can produce a Queen if fed copious amounts of Royal Jelly during larval stage. Grafting basis.
- Queen Larva receives 1600 feeding visits from nurse bees versus 143 for worker larva.

CHARLES DARWIN



“It’s not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change.”

THE END.....



ACTUALLY ONLY THE BEGINNING!