Life of a Honeybee:

Days and Tasks

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Goal

Gain a better understanding of the different tasks performed by the honeybee at certain stages in its life.



Introduction

Life span after emergence varies depending on time of year – tasks performed

Worker bee can live 6 – 12 months

Average summer life span 4 – 6 weeks

Drone can live 4 months • Average 2 months



Queen can live 2 - 4 years • Usually not productive after second year

Workers: Egg to Emergence

Total development time of 21 days

• Egg – Day 0 - 3

- Larva Day 3 8
 - Fed royal jelly at first but less and less as it matures
 - Uncapped

Pupa – Day 8 - 21
 Capped



Workers - Hive Bee: Day 1 - 3

- Clean its body
- Get food from other bees
 - Clean out cells for queen to lay more eggs
 - Lick cell
 - Leave pheromone alerting queen the cell is ready
 - Does not clean out its own cell
 - Cells can be cleaned by single bee or multiple bees
 - Don't clean the capping left on brood cells that task is for older bees

Remain idle on sealed or unsealed brood keeping brood warm

Workers - Hive Bee: Day 3 - 11

- Begins to eat
- Hypopharyngeal gland develops 3-6 days from emergence
 - Secretes larval food
 - By the 15th day the gland degenerates
- Begins feeding older larvae that are no more than 2 days from being sealed
- Young larvae are fed by workers older than 5 days
- Each larva will be fed about 1300 times a day
- Provide care of queen

Workers - Hive Bee: Day 11 - 18

- Day 13 orientation flights begin to take place (Nasonov Pheromone)
 - If there is a lack of nurse bees, the period extends
 - If there is a heavy nectar flow the period shortens
- Relieve incoming foragers, store nectar and pollen
- Produce wax and build comb
- Ripen nectar



Workers - Hive Bee: Day 19 - 21

- Longer orientation flights
- Ventilation
- Debris remover
 - Need to have made enough orientation flights
 - Dispose of cappings from brood cells
- Guarding: (Koschevnikov Pheromone)
 Reaches highest level



Workers - Field Bee: Day 22 -

Gather nectar and pollen



 Older foragers with worn wings recognize their inability to perform

- Self select to remove themselves from the hive
- Stay off the entrance area to leave room for other foragers

Worker Bee: Summary

Age is not the major determinator in performing tasks. The duties of any individual are the result of the requirements of the colony, then the age of the individual.

Average

- Nurse bee: Day 1 10
- House bee: Day 11 21
- Forager/Field bee: Day 22 –





Life span seldom exceeds 4 months but varies by season and the condition of the colony.

Drones are tolerated when the colony is in a state of prosperity and as long as nectar is coming in fast enough to take care of brood rearing.

Even if there is little nectar, drones will be allowed if the colony is queenless or failing.

When the nectar flow slows, the rearing of drones will stop.

- Young drone brood will be removed from the hive
- Mature drones will be pushed out

Drones: Egg to Emergence

Total development time: 24 days

Egg – Day 0 – 3

Larva – Day 4 – 10

• Pupa – Day 11 – 24



Drones: Day 1 - 7

• Emergence:

- Beg food from nurse bees for first 4 days
- Eat from open cells in brood nest
 - Consume 3 times as much food as workers
- Stay in brood nest area just hanging out



Drones: Day 8 - 14

Begin flying after first week Orientation flights



Drones: Day 14 -

Fly regularly to Drone Congregation Area

- Early afternoon until evening
- 40 300 feet in the air
- Mile or more away from the colony
- Multiple trips each day
- Same area used year after year

 Only 1-2 have an opportunity to mate (must have another purpose)

Drones: Summary

Typical colony may have a few hundred or as many as several thousand.

Average is 5% of total population.

Queen

• Usually live 2 – 4 years

Critical to success of colony



Queen: Egg to Emergence

Total development time: 16 days

- Egg: 0 3 ½ days
- Larva: 3 ½ 7 days



- **Pupa: 8 16 days**
 - Cuts a perfect circle at tip of cell by turning her body and using her strong mandibles

Queen: Day 1 – 5

Emergence

- Chews perfect circle for exit
- Cleans and dries herself
- Finds unsealed honey and drinks for herself
- Destroys other queen cells, chewing a hole in the side; workers clean out the immature queen larvae/pupae
- Stings other emergent queens; usually oldest wins
- May stay in cell allowing workers to clean out other queen pupae while she hides out

Queen: Day 5 - 10

Orientation Flights

- Begin crawling near entrance inside the hive
- Fly during warmest part of day
- Hovers near entrance
- Increases distance from hive slowly

Queen: Day 6 -14

- Mating Flights
 - Heads to Drone Congregation Area
 - Flies an average of 2 miles
 - Mates with 5-15 drones, usually not from her hive
 - 2-3 mating flights equals approximately 7 million sperm stored
 - If weather doesn't allow her to fly for several weeks she will no longer be fertile

Queen: Day 10 – 20 +

Starts Laying

Average of 1,500 eggs/day

- Worker
- Drone



Queen: Summary

- Basically an egg laying machine directed by the workers
- Usually not productive after 2 years



Summary



Worker bees have a specialized schedule of age related tasks depending on season and condition of colony.

An effective, successful colony must allow for a degree of flexibility in age related tasks.

Drones and Queens are much more limited in the variety of tasks, but are critical to the success of the colony.



Bibliography

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