

South Carolina Master Beekeeper Program Certified Level

Honey Bee Biology

Honey Bee Family

- ❑ Workers (undeveloped females) - majority of bees in a colony.
 - ❑ Drones (males) - few hundred at most, normally do not over winter.
 - ❑ Queen (only fully developed female in a colony) – normally only one per colony.
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Worker Bees

- ❑ Originate from fertilized eggs
 - ❑ Do all the work of the colony
 - ❑ Average life span is about 6 weeks in spring and summer.
 - ❑ Protects the colony – guard bees
 - ❑ Forages for nectar, pollen, water, propolis
 - ❑ Scout bees
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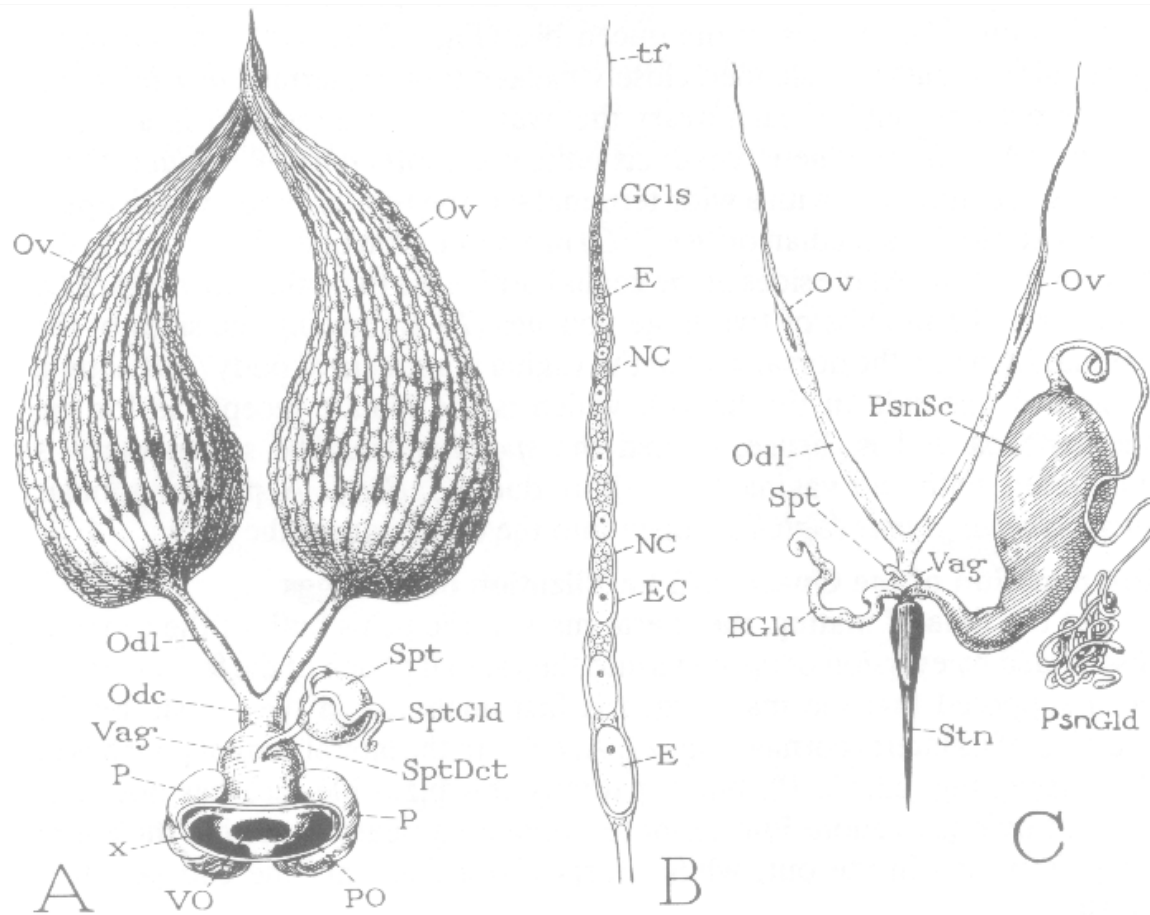


FIGURE 22. The female reproductive organs.

A, ovaries, genital ducts and genital pouches of the queen. B, single ovariole, diagrammatic, showing succession of egg cells and nurse cells. C, reproductive organs of a worker, together with shaft of sting, sting glands, and poison sac.

BGld, "alkaline" gland of sting; *E*, egg; *EC*, egg chamber; *GCl*s, undifferentiated germ cells; *NC*, nurse chamber; *Odc*, common oviduct; *Odl*, lateral (paired) oviduct; *Ov*, ovary; *P*, lateral genital pouch; *PO*, opening of lateral pouch; *PsnGld*, poison gland of sting; *PsnSc*, poison sac; *Spt*, spermatheca; *SptDct*, spermathecal duct; *SptGld*, spermathecal gland; *Stn*, shaft of sting; *tf*, terminal filament; *Vag*, vagina; *VO*, opening of vagina; *x*, cut edge of body wall around genital openings.

Other duties of worker bees

- Produces bees wax / 8 wax glands under abdomen, and makes comb
 - Clean cells and feed bee larvae
 - Produces royal jelly
 - Receives nectar from foraging bees
 - Removes moisture from nectar
 - Cools hive
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Drones

- ❑ Originate from unfertilized eggs
 - ❑ Has no stinger
 - ❑ Known for drifting to other colonies
 - ❑ Average life span is a couple months
 - ❑ Mates with virgin queens in congregation areas.
 - ❑ Dependent on worker bees for food
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Queen Bee

- ❑ Mother of all bees in the colony
 - ❑ Longer abdomen than workers or drones
 - ❑ Has a smooth stinger
 - ❑ As a virgin, mates in the air with drones
 - ❑ Average life span is about 2 years
 - ❑ Kills other rival queens
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Parts of a Honey Bee

- Head – contains brain, antennae, mouthparts
 - Thorax – region of locomotion, 6 legs and 2 pair of wings, spiracles
 - Abdomen – digestive and reproductive organs, wax glands, stinger
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Honey Bee Life Cycle (Queen)

- ❑ Egg stage – 3 days
 - ❑ Larva stage – 6 days, fed royal jelly
 - ❑ Pupal stage – 7 days, capped with beeswax
 - ❑ Adult stage - normally emerges on 16th day as adult
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Honey Bee Life Cycle (worker bee)

- ❑ Egg stage – 3 days
 - ❑ Larval stage – 6 days, fed royal jelly for only first 3 days
 - ❑ Pupal stage – 12 days, capped cell with beewax
 - ❑ Adult stage – emerges the 21st day as adult
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Honey Bee Life Cycle (Drone)

- ❑ Egg stage – 3 days
 - ❑ Larval stage – 6 days, fed royal jelly for only the first 3 days
 - ❑ Pupal stage – 15 days, capped cell, larger cell than worker bee
 - ❑ Adult stage – emerges on 24th day as adult
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Questions ?

