

Lesson 12: Swarming

How one colony becomes two, and why beekeepers care

A single bee reproduces by laying eggs. But **a colony reproduces by swarming**: it splits into two colonies. Swarming is **natural and a sign of a strong, productive colony**. It's how honey bee colonies spread, and how genes get mixed as new queens mate with drones from other colonies.

For a beekeeper, though, a swarm usually means **losing half or more of your bees** and much of that season's honey. So it pays to understand swarming well. This lesson covers the biology; lesson 48 covers preventing it, and lesson 29 covers catching a swarm.

When colonies swarm

Colonies, especially those of European honey bees, most often swarm **in spring, just before and during the main nectar flow**. That timing makes sense for the bees: a swarm has to build comb, store food and raise brood from scratch in its new home, and it needs plenty of nectar and pollen to do it. (Your Seasonal Guide tells you when that is in your area.)

Swarming in the fall is possible under the right conditions, but it's uncommon.

Why colonies swarm

Several things push a colony toward swarming:

- **Crowding**. The population grows and there's no room to expand. **It's crowded colonies that swarm, not simply strong ones**. Even a small hive will swarm if its population outgrows its space.
- **The queen's scent is spread too thin**. In a packed hive, workers find it harder to detect the queen's pheromone (lesson 11). Less queen scent is a signal to start raising new queens.
- **Nowhere to lay**. When the queen runs out of open cells, that also pushes the colony to swarm.
- **Plenty of incoming food, longer days, and an older queen** all add to it.

How a swarm happens, step by step

1. **Queen cells**. Workers build **queen cups** and the queen lays eggs in them. The larvae are fed royal jelly and grow into queens. Swarm cells are usually on the **edges and bottom of the frames**, though they can appear anywhere. The cells are **capped at about day 8**, and once they're capped the swarm is very hard to stop.
2. **Getting ready**. Workers feed the queen less, so she **slims down** and can fly. She **lays far fewer eggs**. Foraging slows, workers **fill up on honey** for the trip, and the hive gets **noticeably louder**.

3. **The swarm leaves.** On swarm day, **about half to two-thirds of the workers** (roughly 50–70%, sometimes a little less) pour out of the hive, **taking the old queen with them.**
4. **The cluster.** The queen lands on something nearby, such as a tree branch or fence post, and the workers gather around her in a **cluster** anywhere from softball size to much bigger than a basketball.
5. **House hunting.** **Scout bees** fly out to find a new home, usually a **hollow tree or a wall void**, and report back by dancing. This can take anywhere from **minutes to about 4 days**; often the swarm moves on within a day.
6. **Moving in.** The whole cluster flies to the new site in one swirling mass.

The colony left behind

The original "**parent**" colony keeps **all the brood, about a third to half of the bees, and several developing queens.**

- The first new queen to emerge may kill her rivals in their cells, or the workers do it.
- Sometimes more than one queen emerges, and the colony sends out **more, smaller swarms** ("secondary" or "after-swarms").
- Eventually one **virgin queen** stays, goes on her **mating flights** (lesson 13), and starts laying.

Brood rearing stops in the parent colony while the new queen matures and mates, and the population drops sharply. That's why swarming costs so much honey.

Why beekeepers try to prevent swarms

- You **lose a large share of your bees**, and with them much of the honey crop.
- **Brood rearing is interrupted** in the parent colony.
- A swarm clustered on a neighbor's swing set or fence **isn't good for neighbor relations** (lesson 3).

How it looks:



A swarm clustered on a tree branch while scouts look for a new home.



Swarms settle wherever the queen lands, even on a bicycle.



Queen cells: the first sign a colony is getting ready to swarm (more in lesson 37).

What to remember

- Swarming is **how colonies reproduce**; it's natural, but costly for the beekeeper.
- **Crowded colonies swarm**, usually in spring around the main nectar flow.
- The **old queen leaves with about half or more of the workers**; the parent colony keeps the brood and new queens.
- **Capped swarm cells** mean a swarm is very close and hard to stop.

Quick check

1. Who leaves with the swarm, the old queen or a new one?
2. Is it strong colonies or crowded colonies that swarm?
3. Name two changes inside a hive that's about to swarm.

(Answers: 1. The old queen. 2. Crowded colonies; even a small colony will swarm if it outgrows its space. 3. Any two of: capped queen cells; the queen slims down and lays less; workers gorge on honey; foraging slows; the hive gets louder.)

Adapted from: UF/IFAS Extension, *Swarm Control for Managed Beehives* (ENY-160/IN970, 2022); UGA Bee Program, *Getting Started: Honey Bee Biology*; Delaplane, K. S., *Honey Bees and Beekeeping* (UGA Extension Bulletin 1045, rev. 2017).

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