

Swarms & Splits

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Swarms

- Strong, healthy colonies reproduce by swarming
- Once the decision to swarm is made, it is very hard to change the colony's collective mind
- Queen cups will be drawn near the bottom of the brood area and the queen will lay eggs in them. Unlike supercedure or emergency cells, the eggs in swarm cells are intended to be queens from the start
- The original queen is put on a diet and exercise program to slim down for flight
- Weather permitting, the original queen and up to two-thirds of the bees will leave the colony
- Sometimes they move directly to the new home and sometimes they cluster around the queen outside a hive while scouts locate a new home
- Swarm

Swarm Prevention – Pre-Queen Cells

- Give the queen space to lay eggs and the workers room to store nectar
 - Add supers early
 - Rotate hive bodies in spring
 - Use a slatted rack
 - Remove combs of honey and replace with foundation, occupy the bees with drawing wax – nurse bees become ‘employed’ again, queen has a place to lay
 - Use screened bottom boards and top entrances to increase ventilation
 - Checker boarding – Insert empty frames between brood frames alternating positions. *Depends on strength of hive and night-time temperatures.*
- Watch for colony congestion and/or a restricted brood area
 - Make sure the queen has room to lay (adding a box on top expands the pantry but doesn’t always result in expanding the nursery)
- Watch for signs of swarm preparations (drone brood, queen cups/cells, etc.)



Swarm Prevention – Post-Queen Cells

- State of queen cells



Swarm Prevention – Post-Queen Cells

- Committed to swarming
- Make splits – already have queen cells
 - If queen is still there - Simulate a swarm
 - Find the old queen (marked) and put her in a nuc with a frame of brood and a frame of honey. Leave one frame with queen cells in original hive.
 - If queen is gone – Make nucs
 - Queen likely gone if swarm cells have been capped
 - Put every frame with queen cells in separate nucs with frames of resources
- Remove queen cells – repeat every 7 days
 - Low chance of working
 - Often ends in queenless colonies

WHY Make Splits

- Increase colony numbers
- Requeen
- Raise queens
- Produce nucs
- Prevent swarms
- Control mites
- Get more honey production

WHEN To Make Splits

- Depends on goals of the split
 - Need resources, natural (nectar/pollen) or artificial
- Colony increase
 - When mated queens are available for purchase
- Queen rearing and requeening
 - When drones are flying
 - Fresh eggs or newly hatched larvae available
 - Plenty of nurse bees, pollen and honey
- Reduce swarming
 - Early in the season, when walking drones are spotted
 - Swarms start about 3 weeks after capped drone cells (bee math)
 - Must have enough bees to keep brood warm

HOW To Make a Split

- Concepts
 - Make sure both colonies have a queen or resources to make a queen
 - Make sure both colonies have adequate supply of honey and pollen to feed the brood and themselves
 - Account for drift, make sure both colonies have enough population (nurse bees) to care for the brood and hive
 - Respect the brood nest structure
 - Brood combs together in the middle
 - Drone brood outside edge of brood
 - Pollen outside of brood
 - Honey on outer edges
 - Protect split – reduced entrance or robbing screen

Queen Cups vs Queen Cells



Kinds of Splits

- Even Split – Can't find queen
 - Divide everything in half. Face new hives at sides of old hive. Swap places in a week to equalize drift. Excellent option if you can't find the queen. Double your hives.
- Walk Away Single Split – Can find the queen
 - Place a frame of eggs, two frames of emerging brood and two frames of honey and pollen in 5-frame nuc. Shake extra nurse bees in if necessary. (Don't get the queen.) Check back in 4 weeks for mated queen. Can make multiples from a strong hive.
- Quick Split
 - Same as above but can introduce mated queen (3 weeks faster). Higher chance of successful results. (Don't have to worry about queen getting mated and making it back to the hive.)

Kinds of Splits

- Hive Increase Split (*maximum increase*)
 - Place old queen, frame of brood, frame of honey and pollen and empty frames into 5-frame nuc box. Allow original colony to make queen cells for raising a new queen. Before new queens hatch (9-10 days after pulling old queen) break down hive into individual nucs putting one frame with queen cells into each nuc, along with dividing up the remaining brood, honey and pollen.
 - Can also cut out queen cells from individual frames and place them in additional nucs for more increase.
 - Eliminates possibility of making honey from this colony as it is totally broken down.
 - Can put a frame of brood, a frame of honey and pollen and a queen cell in a mating nuc/queen castle to raise queens.
 - Usually works best when temperatures are warmer so you don't need a critical mass of bees in each split.

2-Frame Mating Nuc



Kinds of Splits

- Swarm control split (*Artificial Swarm*)
 - Place the old queen, two frames of emerging brood, a frame of honey and pollen and an empty frame into a 5-frame nuc. With old queen and many bees gone, they will think they have swarmed.
 - If queen cells are present, be sure NOT to put one in with the old queen.
 - Allow old hive to make a new queen, whether with queen cells or eggs (if no queen cells present yet).
 - Removing *minimum* number of resources to keep original hive from swarming.
 - Old queen will continue to lay eggs.
 - Can exchange frames with capped brood from nuc with empty brood frames from old hive. Will continue to boost the population of the original hive while they are waiting for the new queen.

Kinds of Splits

- Cut Down Split – *Maximum Honey Production*
 - Place the old queen, almost all open brood except one frame of eggs, most of honey and pollen into a new hive in new location. Leave all capped brood, some honey and pollen and one frame of eggs in the old location.
 - Leaving capped brood allows the population to continue to increase.
 - New hive won't swarm because it doesn't have a workforce (returned back to original hive).
 - That's why you are adding most of the honey and pollen into the new hive
 - Old hive won't swarm because it doesn't have a queen. Six weeks or more to raise new queen and build up brood nest. Frees bees to forage and maximize comb drawing and honey production. Reduce size of hive (brood boxes) and add additional supers.
 - Still have all the foragers so they don't need as much honey left.
 - Don't need pollen since no open brood to feed so focus on nectar collection.
 - Timing is important – Should happen right before main nectar flow.
 - By the time hive is strong enough to swarm, swarm season should be over.
 - Maximizes honey production on the old hive.

Kinds of Splits

- Old Hive – Old Location
- *No queen*
- *Capped brood*
- *One frame of eggs*
- *Nurse bees to cover eggs & brood*
- *Small amount of pollen*
- *Small amount of honey*
- *All the foragers*
- *Reduced number of brood boxes*
- *Increased number of honey supers*
- New Hive – New Location
- *Old queen*
- *Uncapped brood*
- *Remainder of eggs*
- *Nurse bees to cover eggs & brood*
- *Most of pollen*
- *Most of honey*
- *No foragers*
- *Normal number of brood boxes*
- *Normal number of honey supers*

Things to Remember

- When dividing up resources, *focus on nurse bees*. If splitting in the original apiary or within 2 miles, foragers will return to original hive.
- If splitting in original apiary, it may look like there are no bees in the split, because only nurse bees remain. As nurse bees age and become foragers, activity will pick up.
- Provide adequate honey (or syrup) and pollen (or pollen patty/sub) to split. They have no foragers collecting resources initially.

Problems and how to deal with them

- No queen
 - If no queen is produced, add a frame of fresh eggs from another hive to give them another opportunity to raise a queen.
 - If no queen a second time, it is best to recombine that split with another hive to avoid a laying worker.
 - Can also purchase a mated queen if available
- No bees left in hive
 - Possible drifting problem. Replace frames from split with fresh frames from source hive. Make sure fresh eggs are available. Shake in extra frames of nurse bees when creating.

Questions?