

Making Splits

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Basic Questions Before You Start

- Why are you splitting your hive?
- Do you have the bee resources to make a healthy split? i.e. for good queen production
- Do you have the necessary equipment – woodenware?
- Do you have an out yard or is new hive going in same location?
- Do you know where the queen is? Do you want to find her?
- What time of year is it?
- Are you trying to produce honey while making splits?

Why are you splitting your hive?

- Expand your apiary – more hives
- Make new queens
- Prevent swarming
- Panic – hive is in swarm mode
- Control varroa (brood break)



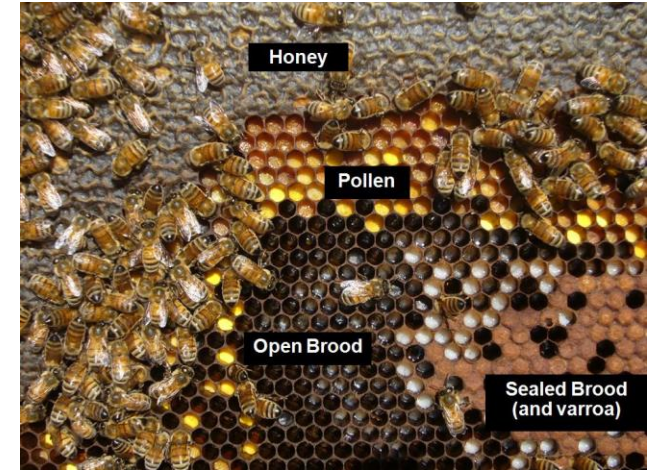
Different reasons may mean different split techniques

Bee and Equipment Resources for Splits

- Both colonies (old and new) need to have a queen or the resources to make a queen i.e. eggs or larvae that just hatched from the egg, drones flying, pollen and honey, plenty of nurse bees.
- Both colonies need an adequate supply of honey and pollen to feed the brood and themselves.
- When making the new colony make sure you keep the frames in the correct order - brood combs together, drone brood goes on the outside edge of the brood and pollen and honey go outside that.

Wooden Ware Requirements

- Have all your wooden ware ready to go – including stand and frames of foundation or comb to replace frames you have taken from original hive
- Feeders and 1:1 syrup



Make a plan and keep notes!!

Bee Biology for Splits –

- **For great queen production need:**

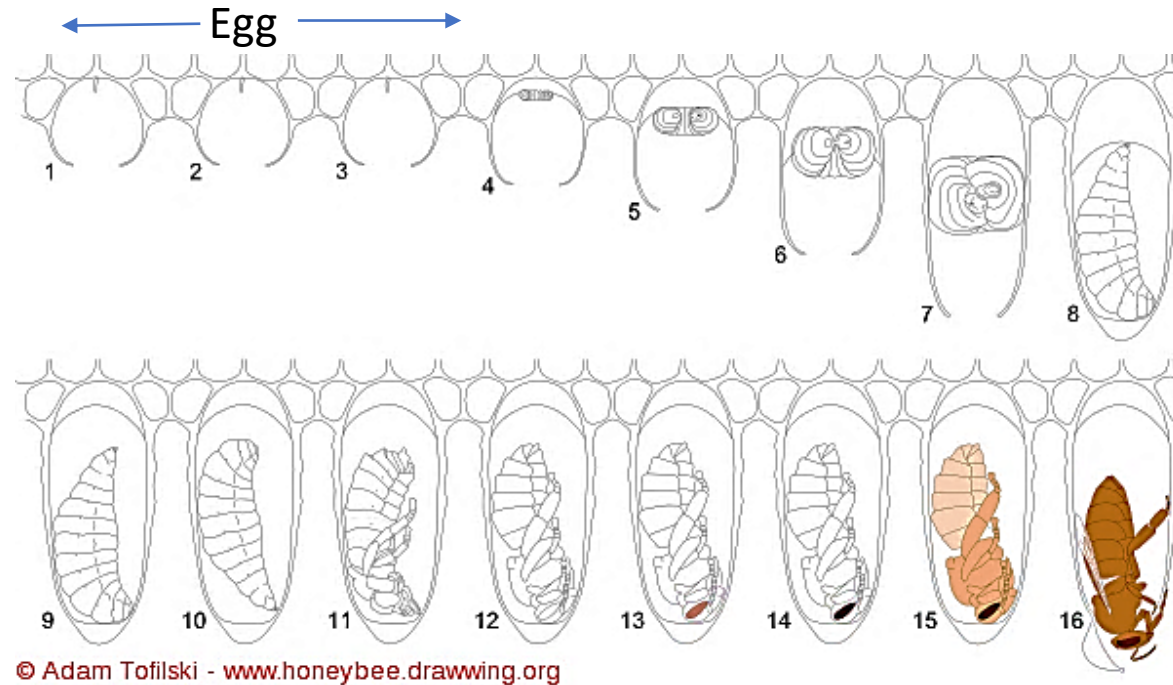
- Larvae of correct age - critical!!!
- Strong nurse bee force to:
 - Make the royal jelly
 - need lots of nectar (or syrup)
 - Protein - pollen (or patties/substitute)
 - Make the wax for the queen cell

- Foragers are oriented on the location of the original hive
- Nurse bees have not left the hive and will stay in what ever location you place them, including other hives
 - Move in warmth of day when foragers are out, use a little smoke – make sure queen is not on frame!!!
- Nurse bees will move in a hive to “cover” open brood frames
- A hive with overwintered queen is more likely to swarm than new queen
- When you see queen cells in a hive (assuming swarming) it is too late to stop the “swarm program” you need to simulate the aftermath of swarming in your split - destroying the queen cells will not stop the program
 - Hive will likely swarm around the day the first queen cell is capped!
 - Old queen, lots of bees and resources (honey) have left the hive
 - Remaining in hive are queen cells, some bees (not so many egg or very young larvae) and resources (honey, pollen)
- It is NOT true that a hive will instantly kill a foreign bee trying to enter their hive
 - Typically happens in a robbing situation or in the dearth
 - If a bee brings nectar or pollen they will often be let in (hence drifting)
- If making splits in early spring – need to make sure drones are flying
 - Takes 12 days after drones emerge (day 24) for them to be sexually mature



Take advantage of bee's natural behavior when making your splits

Queen Biology – 16 Days from Egg to Virgin



A queen rearing beekeeper needs to be able to recognize:

- **Age of eggs and larvae**
- **Presence of royal jelly**
- **Critical days of cell development**
 - **Day 8 - no vibration, no temp extremes**
 - **Day 8-12 – metamorphosis – very delicate**

It can take **35 days +**
before a queen is laying consistently!

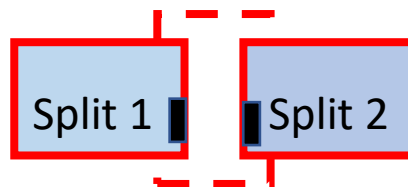
<i>Day</i>	<i>Queen-rearing day</i>	<i>Stage of queen development</i>
0-1		Egg
1-2		Egg
2-3		Egg
3-4	1	Larva in uncapped worker cell
4-5	2	
5-6	3	
6-7	4	
7-8	5	
8-9	6	Larva in capped cell
9-10	7	
10-11	8	Pupa in capped cell
11-12	9	
12-13	10	
13-14	11	
14-15	12	
15-16	13	Adult queen emerges
20-25	18-23	Queen goes on mating flights
25-30	23-28	Queen begins egg laying
30+	28+	

Do You Have an Outyard?

- If you can move one of the colonies 2 miles away, that can simplify equalizing the resources in the splits
- If not - Account for drift back of foragers to the original hive site. Ensure that both resulting colonies have enough population of bees to care for the brood and the hive they have.
- One way to help equalize number of foragers is to turn the 2 resulting splits towards each other at the site of original hive. Returning foragers then have to choose the left or right hive and somewhat equalize themselves. Then slowly rotate hives back to facing front over next few days.



Original hive



Finally! – Types of Splits

	Reverse	Nuc Split out	"Equal" Split	Walk Away
Equipment	original hive and nuc box or single hive box setup in new location	original hive and nuc box in new location	original hive and another hive setup in new location - this is really best when you have a location 2 miles away	original hive and another hive setup in new location
Old Queen location	remove queen from original hive and place in new hive location	Queen remains in original hive	Place queen in which ever location you want	do not know which hive has queen
Frames to be moved to new hive	lots of open brood with as little capped brood as you can – if not swarm conditions need to make sure leave eggs in original hive	3 frames of brood - 1 capped, 2 with eggs and young larvae	divide hive resources equally between 2 hives - brood, honey and pollen making sure to keep correct order of frames	divide hive resources equally between 2 hives - brood, honey and pollen making sure to keep correct order of frames
Food frames	place honey, then pollen, then brood frames	place honey, then pollen, then brood frames	place honey, then pollen, then brood frames	place honey, then pollen, then brood frames
Additional actions - always feed new hive	shake lots of nurse bees into new hive. If swarm conditions do not shake frames with swarm cells - brush nurse bees off	shake in extra nurse bees from at least 2 frames into nuc	place new hive 2 miles away	check back in 4-5 days - see which hive has eggs - that's who has the queen
If swarm conditions – i.e. swarm cells present	All frames with swarm cells stay. Reduce number of swarm cells to youngest 2-3 cells so they are well fed can also reduce secondary swarms			
Actions for original Hive	replace removed frames with foundation or comb - place frames to outside of remaining H,P, brood area. In new hive make sure queen has plenty of space to lay	replace removed frames with foundation or comb - place frames to outside of remaining brood area but inside H,P	want to do this early in morning or late in day when lots of foragers are back in hive so each hive gets good crew. If it turns out one is weaker add capped brood frames.	can use hive turning method to help equalize foragers, can also equalize by moving capped brood back to hive with out queen and open brood with nurse bees to hive with queen. Put hive with out queen in original hive location.
Benefits	since most capped brood is with original hive which has to make a new queen - will get brood break but they will have nurse bees by time queen is laying - can treat for varroa once capped brood emerges	since very little capped brood in nuc - get brood break here and can treat for varroa. Original hive has lots of resources and can continue to grow		

When to use different types of Splits

	Reverse	Nuc Split out	"Equal" Split	Walk Away
Yes - I know where queen is				
No - I don't know where queen is				
queen cells present - swarming		Multiple Nucs		
no queen cells present				
want to keep producing honey				
want 2 equal strong hives				
want 1 strong 1 smaller hive				
want brood break				
Prevent swarming (before queen cells)				



Want to keep all splits strong and healthy –
IMHO - walk away splits do not meet that criteria

Do You Know Where the Queen Is?

- Making splits easily is a good reason to MARK YOUR QUEENS!
- Queen usually found near the frame(s) with the most recent eggs
- If you cannot find your queen, splits will take a few days to complete
- Method 1 – sort of reverse split but more handling of bees
 - Set up new hive in new location
 - Starting with bottom box in old hive move over Honey, Pollen and then brood frames
 - If the frame is capped brush off all the bees into the new hive and replace capped brood frame into old hive
 - Continue dividing frames between hives so that new hive gets almost of all the new brood and old hive gets all the capped brood – leave a few eggs and larvae for old hive just make sure queen is not on that frame
 - Almost all the foragers will return to the old hive but you have insured that the queen is now in the new hive
- Method 2 – use queen excluder
 - Set up your new hive in new location
 - Place open Honey, Pollen, Open brood frames in a new box – as many resources as you want for the new hive – as you remove them from original hive – brush off all the bees into original hive
 - In brood box of original hive – leave the food and brood resources you wish to leave behind in original hive – this is where queen will end up
 - Add more frames to brood box if necessary
 - On the original hive add a queen excluder
 - Place the box with the open brood with no bees above the queen excluder on the original hive
 - Within a few hours the nurse bees will move up to cover the open brood frames and you can then move this box off to your new hive location
 - Only do this when it is warm so you don't chill brood
 - This type of split will not be the best but it may allow you to find the queen



What Time of Year Is It?

- The old adage is that you can try to raise more bees or more honey - not both.
 - Conflict of resources – need foragers for honey production – need queen to increase number of foragers during nectar flow
 - To raise new queen and create new colony requires splitting of resources and a brood break while new queen is produced, mates, starts laying and then matures workers to become forager force
- Spring time –
 - Want honey – make “nuc” split
 - Reduce swarming tendency – nuc, even split, reverse split
 - Already swarming mode – reverse split
- Summer – make new queens
 - Any kind of split – but I prefer reverse
- Can make splits even in August but need to make sure that new hive is strong enough to survive winter



OK - so you did a split what now?

- Feed that new split – if they don't have a queen or foraging force they need food to keep the nurse bees strong. This means 1:1 syrup and possibly pollen patties
- Leave the new queenless split alone!! For at least 5 days.
 - Let them get started on building queen cells
 - Once you have confirmed queen cells started – leave them alone for how long?
 - When should you start panicking that your split is queenless?
- Decide if you are going to do any treatments for varroa
- Make sure the hive that ended up with the old queen has lots of room to lay

NVBA Swarm alerts - <https://www.remind.com/join/swarmn>

Keep Notes!!!

Questions?

