Decision making process and/or reasons for splitting a Hive:

When and why to split is not always clear, especially to the new beekeeper, but there are telltale signs of an impending swarm and once you've seen these signs they are hard to miss in the future.

Splits are done for the health of the hive. When a hive swarms, more than half of the bees and the queen leave the hive. Only 19 percent of swarms survive in the wild, due to habitat loss. Splitting is a form of controlled swarming. Splitting also keeps the mite population down because it allows for a period of broodlessness. Splitting encourages new queens to be reared. Some people split their healthy hives as routine Spring hive management.

Initially, in late Winter/early Spring, it's better to help the hive grow by "strengthening" the hive--giving the brood nest plenty of space by placing 1 or more empty, foundationless frames inside the brood nest, (between brood frames); or, if using foundation, then placed outside of the brood nest to avoid splitting the brood nest. This gives the Queen more egg-laying space and increases the size of the brood nest.

Also, providing "forager space" will give returning foragers a space to cluster at night and feel less crowded; to do this add a super with empty frames & follower boards (don't even need comb or foundation) underneath the brood chamber (under-supering.) Be sure there is space above the brood nest for incoming nectar to prevent the foragers from filling the brood nest with extra nectar. These techniques help delay swarming and can strengthen the hive until the prime time to split.

The decision to make a split or to strengthen a hive may not be visible until after the hive is opened up. The conditions need to be evaluated by the group and all the consequences discussed but the discussion should be brief and the hive should not be open too long! No two hives are alike and conditions like weather (microclimate), nectar dearth, Spring population burst and health of the hive need to be considered. In order to proceed with a decision to split, the group should consider these hive conditions:

- **Population of the hive**; must be populous; lots of workers found on top of the frames when you open the boxes; also when you can look under the hive at night and see an impacted lower chamber with bees literally touching the bottom of the screen, they need forager space. Returning foragers can often trigger a swarm.
- **Presence of queen cells (not queen cups) in swarm position**; absolutely split and do a 50/50 with queen going to one of the splits; If many queen cells are present several nucs can be made; If a colony is superseding do not split.
- **Space: Is there available space for hive growth?** If no space, give them space for strengthening; space in the brood nest, the forager space, nectar, and new comb building space.
- **Drones:** presence and placement of drone cells; drone brood around the edges; how many; Are there adult drones around, are they flying?
- **Stores:** how many frames? pollen, nectar (more important than honey); bee bread;
- **Number of sealed brood frames**: frames with 80% capped brood; need a minimum of 8 filled medium frames (5 deeps);
- **Amount of eggs or young larvae**. Scattered eggs and larvae or large areas?

At this point, the Split team could decide to split and make any of the following types of splits:

An even split - also called a 50/50 split: As much as possible divide the hive in two, equally. If you see the queen and know in which half she resides make sure there is egg-laying space. If you don't see the Queen make sure there are eggs/young larvae present in both halves. Make sure there is bee bread and stores in both. Check both halves in 4 to 7 days for queen cells. The one with queen cells, leave alone for 4 weeks; then check for a mated queen (by observing if there are eggs being laid.) The one with the queen, add egg laying space in the form of drawn comb, if available, or an empty frame to be built.

Split by Creating a NUC (nucleus colony): A frame with some young brood and some eggs (a patch, not the entire frame); two frames of emerging brood and two frames of pollen with nectar and honey and put them in a 5 frame nuc or a super with follower boards, shake in some extra nurse bees (making sure you don't get the queen), put the lid on, if the nuc is staying and resides close to the mother hive, angle the nuc entrance in a slightly different direction. Check on hive in 4-7 days for a queen cell. Come back in four weeks and see if the queen is laying.

Creating a NUC with a transplanted queen cell: Same as above, but you introduce a closed queen cell into the split which you obtained from another hive. By introducing a queen cell, the process will be three weeks ahead of the hive that is raising their own. However there are some disadvantages to this. It reduces the advantages brought by the period of broodlessness that is brought about when the entire development of the young queen happens in the new colony.

Fan Splitting: When swarm queen cells are present and swarming is imminent or a hive has already swarmed and multiple queen cells are present, a number of nucs can be made depending on the resources available in the hive. Ideally put two queen cells per nuc (queen cells can be grafted to put 2 queen cells on the same frame), 2 frames of emerging and/or sealed brood, 1 frame of pollen, 1 frames of nectar/and or honey. Remaining frames can be distributed among the nucs to strengthen them.

<u>Guidelines for checking on Splits and mother hives</u>

First check

- 4 to 7 days after the split. The nuc(s) needs to be checked for a queen cell(s). If not present check to see if you have the queen and for eggs and or young larvae.
- If you have the queen that means the mother hive is re-queening. Then the mother hive needs to be checked to see if it has a queen cell(s).
- If either is ascertained to be failing every effort needs to be taken to remedy the situation by either adding eggs/young brood or re-combining.

Second check - four weeks later

- When you check your splits, try to be brief and to minimize disturbance. The queens may have been delayed a bit during the period of the mating flights by

cool and windy weather. So, you may want to postpone your inspection by a few days.

- Watch the entrances to see if pollen is being brought in (a positive sign that indicates that the hive needs or expects to need protein in the near future, i.e. for brood rearing).
- Minimize the use of smoke. You probably will not need it at all, but have your smoker ready anyway. Look and listen to the bees when you open the splits. They should be calm and quiet. This is a good sign, which, even if you do not see eggs or brood, would indicate that there is a good chance that they are queenright.
- When you inspect the frames, look for eggs or brood. If you see queen-laid eggs, then this is good, obviously, but not necessarily right. You want to make sure that the eggs are fertilized, not drone eggs that a drone layer would produce. Unless you can differentiate between female and male larvae, you may have to check the hive again when the brood is sealed to make sure of this.
- Don't worry too much if you see multiple eggs in the cells, because young queens tend to do this during their first few days as laying queens.
- If you do not see eggs or brood, look for areas of clean and polished cells in the center of a few frames. This indicates that the bees are preparing cells for egg-laying. A nuc that either failed to rear a queen or that lost her would not do this.
- If things are on track, transfer the nucs to regular equipment and add a couple of frames (preferably with empty drawn comb, if you have them). Keep the entrances small (about 2" wide), because the nucs are going to be at their weakest stage in a couple of weeks.

Third Check:

- In some cases, you may have to wait a few more days. In others, you may have to return a few days later and confirm that things are on track such as making sure the queen is laying a nice pattern of worker brood that can be confirmed by sealed worker brood. If sporadic drone and worker brood are being laid, the queen was not mated well. If all drone brood then the queen did not mate or is defective.
- Give them a total of six weeks at most. If not successful by then, consider combining the nucs with other colonies.
- One thing that can be done to strengthen the nucs, is to give them some sealed and emerging brood from another colony, if available.