SWARM PREVENTION In Tennessee

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"Checkerboarding" is a completely natural way to control swarming. Population growth and honey production are both encouraged.

Swarm prevention by what I call "checkerboarding" (CB) has only one basic requirement: Provide nectar storage space immediately above the open-cell nectar/honey feed band at the top of the brood nest.

Taking honey from the brood nest has been taboo down through the ages because we thought the bees needed that honey to build up to strength in the Spring. It turns out that they needed some of the solid overhead honey to insure the reproductive process of swarming. That solid overhead honey ring, however, forces new nectar to be stored in the top of the brood nest area, triggering swarm preparations, so we take honey out of the upper part of the brood nest.

Checkerboarding takes some getting used to. It is fairly radical when compared to normal Spring management. The objective is two and a half stories of brood prior to redbud bloom here in Tennessee. It may be some other nectar source where you live that triggers swarm cell building, but you should know what it is, and when it occurs. Redbud blooms locally the second half of March and overlaps the beginning of dogwood.

We need to anticipate the swarm trigger by at least a couple of weeks to add space in time. The bees need that time to adjust their "space available perception." They do not immediately start storing nectar in a super when it is added. They have to look around in it for a while. Therefore we need supers in place in early March.

The configuration of the brood nest might need some adjustments before you start. First bottom the brood. If an empty hive body is on the bottom, you can use it for deep brood comb, or you can reverse hive bodies. If you need deep brood comb for use on other hives, stand it on end in front of the hive for the bees to evacuate. In my area of Tennessee the bees will sometimes not move down into the bottom hive body in the Fall. They may store substantial pollen in it but not occupy the space for lack of backfilling nectar or the foragers to collect it. Frames not fully plugged with pollen can be used in checkerboarding upper levels.

Occasionally you will find a cluster that is two or three frames wide and two stories high. Put all frames of brood in the bottom box. Maintain their pollen frames adjacent to, and facing, the frames of brood.

If you Wintered in two stories, and the lower is now empty, you can reverse the two. In which case you probably still have the solid band of capped honey above the brood nest. *The intent of checkerboarding is to perforate that capped honey band.* Consider placing a couple frames of brood with the most honey at the top of the frame up into the now empty super you just placed above. Close-in the lower brood nest by moving all brood frames together. Add empty frames from the top to the outside of the lower box. This does not appreciably increase cluster volume requirements, but does break up the honey barrier. Remember, if you split

your brood nest by raising a couple of frames, make sure there are enough bees to cover the whole area.

Solid capped honey overhead impedes brood nest expansion upward. The open-cell feed band between the capped honey and brood cells is quite thin, leaving very little nectar storage space. When alternate frames are empty overhead, nectar is stored there. We do not fully understand why brood nest expansion should be accelerated with alternate frames of nectar, but this appears to be the case. When all capped honey is consumed and only nectar is overhead, brood expansion is even faster.

If you Winter in one and a half stories (a deep and shallow super), checkerboarding is easy. Alternate the shallow capped honey into a second shallow of brood comb such that each shallow has alternate frames of honey and empty comb. Add an empty of brood comb on top to make a two and one-half story brood volume. Monitor nectar storage in the empty comb frames. As it approaches the top of the brood volume of two and a half stories, add honey supers of drawn comb. That's assuming, of course, that you have removed your mite control medication. Honey supers can be added earlier with no ill effects, but they should definitely be in place before your local swarm trigger (here it is redbud) blooms.

If you Winter in double hive bodies, there is more involved. When there is solid honey in the top hive body, several options are available:

a. Extract three or four alternate

frames, being careful to protect cell depth. Put them (or other empty frames) back in and add a super of brood comb on top.

b. If you have extra frames of brood comb from Winter losses or queenless combines, they can be used as described above in the story and a half – extracted, of course. The extra hive body can be harvested after the brood nest recedes to a lower level.

c. You can wait until brood expands into the second hive body. A one-time hive body reversal and addition of a super of brood comb provides the two and one-half stories of brood nest with continuous overhead storage space. However, early brood nest expansion has been retarded by this method.

In all of this shuffling of combs of honey, we make a concerted effort to keep honey acquired during mite treatment periods out of the marketable honey. Combs raised into supers from the brood nest are marked with an "X" with a felt permanent marker. These are set aside during extraction to be extracted later for bee feed only. It's handy to have a few jugs of real honey to feed the bees when needed.

When you have configured your two and a half stories of brood volume with continuous storage space for nectar, stay out of the brood boxes. You will find it difficult to believe that this many bees are not thinking *swarm!* If you absolutely must prove it to yourself, check for swarm cells on a weekly basis on a few colonies.

One other item we might mention that is not specifically part of checkerboarding management is the building up of slower developing colonies. We wait until most colonies have a double hive body of brood. A slow starter that still has not expanded into the second hive body needs a boost. We give them a quantum leap forward by doubling their brood volume. If you do not have brood comb to substitute for brood taken from the strongest, do not use foundation. It won't be used until they transition to the expansion mode, and that may be two months away. That makes a dead space in the interior of the brood volume. If you don't have empty comb on hand, take five frames from the slow starter. Shake the bees off and leave the slots open until you return with five frames of brood. Use those

frames to substitute for brood taken from the strong colonies. Take one or two frames from the second hive body of the strongest. Frames in the second hive body were originally filled with brood incrementally with brood nest expansion. If you take all capped brood, some should be emerging soon.

To improve survivability, take some bees from each colony by shaking a couple super frames over the box. We find looking for emerging brood to be unrewarding early in the buildup. Be careful not to abduct their queen along with the adhering bees on the brood frames.

A few tips are offered for transporting loose frames of bees between locations:

"This technique has the potential for eliminating brood nest operations because swarm prevention occurs in the *top* of the hive during the swarm season."

• Collect the brood on the first day of a warming trend when warmer weather is expected for 3 or 4 days.

• If travel time is more than a few minutes, soak a few bricks in hot tap water and place in the bottom of the carrier for heat and humidity.

• Use a frame spacer in the carrier to maintain separation and do not load the outside slots. Heavy frames can slap the outside walls during transport.

• Load them on the truck crosswise. You will seldom start and stop fast enough to slap frames, but rough terrain can cause abrupt side-to-side motion. BC

Walt Wright is a TN beekeeper who has had success with this technique, in his home state.