A Different Twist on Swarm Prevention Part II

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In Part I, we provided some random observations of elements of behavior that we consider significant. Inclusion of the classic swarm game plan was probably overkill because it is common knowledge among beekeepers. The main thrust of Part II will be to apply the random observations that are less publicized, included in Part I as Other Considerations. To get there, we will dabble in what works and what is inappropriate for our area. For "our area" you might draw an arc from north Texas through Arkansas, Tennessee, Virginia and Maryland. These regions receive roughly the same effects from winter/spring frontal systems pushing out of the northwest. A band of area inside that arc will be somewhat later in development. You northern beekeepers should not cast this concept aside just because the stage of brood cycle development is not appropriate for you.

WHAT WORKS

Two things that we are fairly certain reduce the urge to swarm are adding space (supers) at the top of the hive and any of a variety of disturbances of the brood nest. Adding supers to provide space is beneficial if accomplished early enough and does not impede the normal build-up of bee population.

Brood nest disturbances help discourage swarming by reducing the number of bees. They are lumped together here since the basic difference is degree. All have the basic effect of reducing total brood cell volume or arresting the normal expansion of that volume. They range in degree from Mr. Sechrist's "clear brood nest" through hive body reversal, splitting the colony, to the more severe Demaree approach. The "clear brood nest" name implies that the queen has more room to lay, but in actual implementation the technique could be more aptly named "reduced volume brood nest." At the other end of the scale the Demaree scheme has the queen isolated where the bees have to start over making a brood nest.

All of these techniques reduce congestion. Bees make more honey when they are crowded and more bees make more honey. So it would seem that brood nest disturbance is counterproductive by any name. It may be worse in this area than more northerly locations where the nectar flow is later in the season. The bees would have more recovery time as we go north.

As an example, splits do not do well here. If they are strong enough to split in early April, they do not have time to reorganize the brood nest and get up and running for the peak flow in May. They will normally store enough to get them through the summer doldrums, but that is not much help in the honey house that year.

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Brood nest disturbances may have more impact on honey production than is obvious just from the number of bees. What if the brood cycle you knocked out would have been the nectar handling house bees during the peak flow? The impact on production would not be readily discernible. We assume that the normal buildup produces bees of the right age to perform the tasks required.

THE TRIGGER

The trigger or element that actually turns on commit to swarm has eluded beekeepers forever. Suspecting that swarm commit preceded swarm cells by a longer lead time than anybody knew, we took an active interest in brood cycles. When plotted against the calendar, we were amazed at how effective the buildup really is, and how few cycles are involved.

We had observed that there were extended periods when all brood was capped and the queen was inactive. We wondered if perhaps the queen, like the workers, was happiest when she was busy. Maybe she gave off some bad vibes when she was disgruntled during the all capped period of the brood cycle. For the sake of discussion, let's just hypothesize that she is satisfied as long as the brood nest is expanding. She gets to lay a few eggs in stores cells as they become available. The burgeoning bee count is eating more each day. And then a real nectar flow starts. Suddenly the brood nest is getting smaller.

It really doesn't matter whether the queen triggers "swarm commit" with some signal or if the incoming surge of nectar causes the colony to feel secure that the parent colony has what it takes to survive. Incoming nectar is surely mandatory for the swarm in a new location to become established. If congestion prevails (excess bees), swarm commit is endorsed.

This writer believes that we have been working the wrong problem. We want more bees (congestion), but we need to find a technique that allows the absorption of the first influx of nectar without infringing on brood nest volume. We should focus our efforts on the band of open-cell feed honey above the brood nest. More specifically, we should solve the problem of the capped honey just above the feed honey. Ideally, we should provide empty storage cells at the top fringe of the feed honey. A sudden influx of nectar might then be stored above the feed cell band rather than the top edge of the brood nest. Under some conditions of brood nest expansion, hive body reversal achieves the desired configuration.

In our area redbud blooms in the second half of March. Redbud is a generous nectar source and is plentiful. There is no doubt in our minds what the swarm com-

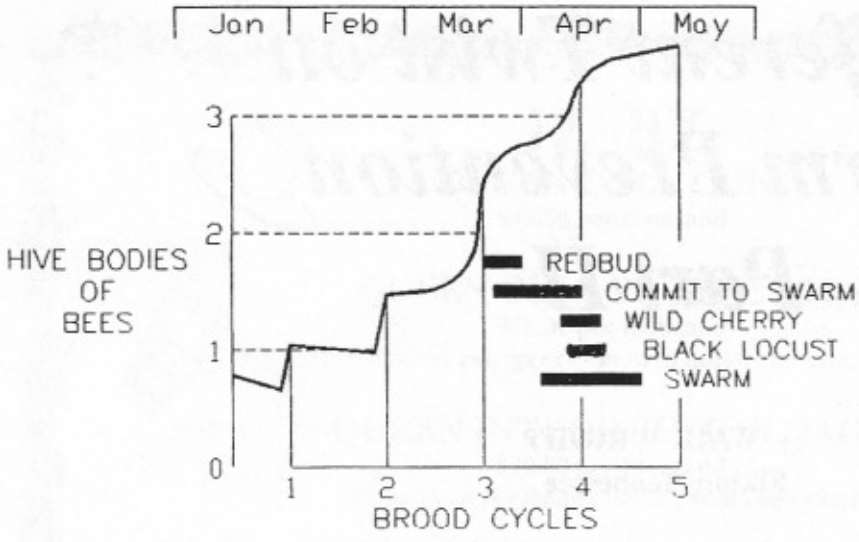

Figure 1: Southeastern Brood Cycles

Selection of February 1 as the first hatch-out is arbitrary.

mit trigger is here. Funny thing about coincidences: they happen together.

Fig. 1 is a seat-of-the-pants visual representation of swarm factors plotted against the spring calendar. No actual data was used in chart preparation, and the chart is added for reference only. The total number of bees continues to increase after late March when redbud blooms, but the rate of increase slows with brood nest encroachment. Had this colony swarmed, the total number of bees would have plunged during the swarming season in April.

This year we will try a three-pronged approach to swarm prevention:

A. Two supers will be in place by mid March. This puts us in a strain to get medication on and off in time to support the schedule.
B. Checkerboarding is what we call removing frames 3, 5 and 7 of honey in the top hive body and feed box and substituting empty brood comb. The intent is to provide continuous storage cells to the super above; a perforation of their honey dome. The bees should not have much trouble maintaining their band of feed honey in the empty comb because honey is available in adjacent combs.
C. If checkerboarding their winter stores is not enough to get them working upstairs during the redbud flow, we may be checkerboarding the top of the broodnest; penetrating the feed band from the top with empty comb protruding into the brood nest and raising alternate frames into the next higher super. This would be brood nest disturbance where it should do the least harm, and expanding the brood cell volume.

If you believe the listed observations, or think the concept might have some merit, I would welcome any help I can get in pursuit of a dependable technique.

I have one other suggestion to offer someone experimenting with this concept: If you want to thrust the brood nest up into the first honey super, give them drone brood comb in the center frame of the honey dome. This might be all that is required. Those frames could be removed when capped, taking with them the multiplying varroa mite population and the nonproducing drones. Replacement drone comb, unlike worker comb, is not prepared for eggs by the bees hatching from that comb. If we had suitable drone comb on hand, we would have used it for frame 5 of the B checkerboarding discussed above.

Other Considerations: An expanded version of the following one-liners appeared in Part 1. They are provided here for ready reference:

1. A vigorous queen can lay enough eggs to cycle brood in 2 1/2 hive bodies.
2. The bees resist storing nectar above the capped honey of their honey dome.
3. When a serious nectar flow starts, the nectar is stored at the bottom of their feed cell honey, enroaching on brood nest volume.
4. A frame of brood comb or foundation substituted for brood reduces total brood cell volume.
5. The primary focus of build-up is on the band of feed cells above the brood nest.
6. Loafing bees enjoy the heat rising off the brood nest, causing congestion at the top of the hive.
7. The bees will find and use drone brood cells even outside the cold night cluster.
8. The bees prefer to expand their brood nest laterally into adjacent comb rather than upward into honey stores.
9. Working in the supers seems to take the edge off the urge to swarm.