Apply Survival Traits of Honey Bees for Swarm Prevention and Increased Honey Production

Part II—Conclusion

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In Part I, several survival traits of the European honey bee were identified. Some are quite controversial in that they stray considerably from "conventional wisdom" found in the popular literature.

I do not expect to sway the "experts" or experienced beekeepers with this new information. Its the nature of our species to reject concepts contrary to our beliefs. The target audience for this information is the growing corps of novices and hobbyists, who do not have preconceived notions that can't be altered. Their success will eventually break down the resistance of those suffering from "old dog" syndrome.

An introduction to the concepts was published on these pages in 1996. What I now call nectar management was referred to in '96 as "checkerboarding". Those early articles were preliminary in scope and dealt only with swarm prevention. What I recommended was opening up the overhead band of solid capped honey with empty brood comb. The intent was to offset nectar congestion accumulating in the brood nest. Nectar storage overhead, when empty cells exist, is preferred by the bees to nectar congestion of the brood nest. Although the concepts were, and are, valid, very little notice was taken by the beekeeping community preoccupied with parasitic mites.

Initially, I expected diverting nectar storage overhead to reduce swarming. But, I was unprepared for all the other fringe benefits. As a novice beekeeper, I didn't even recognize the benefits, as such, when they presented themselves. After several seasons of concept application, I have a better appreciation of the fringe benefits of nectar management. I'll touch on the major advantages to the management scheme before I proceed to the "how to" description.

The first major advantage is the reliability of the swarm prevention aspect. I was surprised that the technique virtually eliminated swarming. When the recommendations are followed, 100% swarm prevention is a reasonable expectation.

The colony that is expanding the brood nest and filling overhead empty comb has set swarm ambition aside until that empty comb is filled. This makes the beekeeper's activity in the swarming season much less demanding. He doesn't have to reverse hive bodies to offset nectar congestion because there is none. The colony is adding to the brood nest at the top, all the way through the swarming season. After he gains confidence in the system effects, he will leam that he doesn't even need to check for swarm cells on a regular basis. Swarm cells will not be found.

However, he needs to be able to distinguish between swarm and supersedure cells. The colony's favorite requeening method is by swarming. When deprived of swarming by beekeeper intervention, the colony will often resort to supersedure immediately when they cancel reproductive swarm ambition for the season (Characteristic 2). Others will follow suit between that time and early in the main flow. My criteria for determination of supersedure is less than seven cells on any given level. I have seen only one cell or as many as 20 on several levels when expanding into shallow supers.

The automatic supersedure is an advantage of its own. There is no need to requeen on a regular basis. Some literature tells us that supersedure queens are the best that are available. And they are free. A nectar-managed colony with upscale of two hive bodies of brood has a multitude of nurse bees to nurture queen cells. They make some really impressive cells.

The increase in honey production was mentioned in Part I as it relates to increased population. There are three other factors that improve honey production. First, the accumulation of overhead nectar during the build up. The colony reaches the main flow with two or three supers of nectar in place above the brood nest. Secondly, the increase in brood volume will be filled with honey during the brood nest reduction of the main flow. Thirdly, the colony makes better use of the trailoff of nectar availability. The standard managed colony, that started brood nest reduction in the swarming season, often is down to a single hive body of brood by mid-main flow. The nectar managed colony may be reduced to two hive bodies of brood at that time. The colony that has met survival requirements by accumulation of capped honey and brood nest reduction has very little incentive, (and fewer bees) to add stores. The combination of these three features, under normal circumstances, will provide an extra four supers over standard management.

Another advantage of the nectar management approach is that it is accomplished without disruption of the cluster or brood nest. All beekeeper action is done at the top, excepting early empty hive body reversal. This allows manipulation in marginal weather conditions. The system is ideally suited to the weekend beekeeper for yet another reason. Standard management requires checking for swarm cells within the nine-day queen cell capping period. The weekender often gets weathered out for both days in the unstable early season. Checking for swarm cells is not required if the colony is increasing brood nest size into accumulated nectar and there is still empty space at the top.

Are you paying attention yet? If you are, you may be interested in how to do it.

Making it work in your beeyard is dirt simple. You only have to perform an easy manipulation very early in the season and add drawn comb at the top for the remainder of the build up. It is imperative that you not let the colony fill the empty comb to the top and reactivate swarm ambition.

The sketch provided shows some variations in manipulations for overwintered colonies of different status in late winter. The result of the manipulation in all cases is the addition of empty brood comb immediately above the brood nest. This one-step manipulation gets the colony started on overhead nectar storage very early in the build-up. The well-provisioned colony shows little interest in nectar gathering in the early season. But those sources that they work for pollen generally have nectar also. Empty cells within cluster boundaries will be filled with nectar on a priority basis. At the landing board you will see a higher percentage of foragers returning with split loads or nectar only. In the case of T-mite attrition causing abnormal cluster size shrinkage and an abnormal amount of empty cells, up to 90% of the foragers may be bringing nectar only. While this may not be relevant to the subject of this article, it is evidence of the importance to the colony of filling empty cells within the cluster.

The one-step manipulation should be performed well before the swarm season. If you have reliable forage availability in the field, do it two months prior to the appearance of new wax at the beginning of the main flow for your area.

Note that the manipulation generates at least the equivalent of two supers of empty comb as the starting point. Maintain two supers of empty comb throughout the build-up. When the colony starts storing in the lower empty, add another. You will need to stay alert on colony status later in the build up as colony growth accelerates. They can make surprising progress in a few short early season foraging days.

Success of this approach to swarm prevention relies heavily on an unrestricted brood volume. The colony must be permitted to increase their brood nest size throughout the swarming season. Leave the queen excluder in the barn. If you choose to limit brood volume by use of an excluder, the colony will start brood nest reduction (nectar congestion) below the excluder. This will put you back in the hive body reversal business.

Unrestricted brood volume generates some very tall hives. This management system will tax the undersized beekeeper. He should take heart in the knowledge that the increased hive height translates to more honey in the tanks.

We could go on and on, but we need to close this out. The following summary should do that:

Characteristics 1 & 2 were provided for swarm seasonal timing only.

Characteristic 3 (saving a reserve of honey or nectar to sustain the colony through the swarming season) is offset by encouraging overhead storage of nectar. This is accomplished by providing empty cells at the top of the brood nest.

Characteristic 4 (Reducing the brood nest with nectar prior to committing to swarm) is offset by the same manipulation.

Characteristic 5 is applied by keeping the bees preoccupied with prior season stores recovery, and diverting their attention away from swarming.

The colony shows no interest in swarm preparation. This is accomplished by maintaining empty cells above the brood nest and any accumulated nectar.

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Nectar Management One Step Manipulation