Do You Get Black Locust?

Walt Wright

Is it the bees, or the trees that decide?

Several times I've pointed out that in my area black locust nectar is not stored in the supers. Black locust blooms here in the storage lull just prior to the beginning of the white wax flow. But the relationship between the bees' development schedule and the trees development schedule is not the same for all areas. Black locust is a case in point.

But first, I need to fix something from the April '04 article on nectar collection. In it I omitted the difference typically seen in second year colonies (those from a split last year). The difference is that second year colonies will often add nectar at the top when established colonies are in the storage lull just prior to the main flow. Some experienced beekeepers are aware that last year's splits are this year's best producers, but they don't know why. It is sometimes attributed to the presence of a young queen but I don't believe that. The characteristic of adding a couple supers of nectar by the second year colony while the established colony adds none at the top gives a split a head start on production.

I don't know why they do that as there doesn't seem to be an obvious advantage to the overall survival format. It may simply be a carry-over from the increased motivation of first year establishment, but that seems far fetched as all new bees are in the second season. If this turns out to be a dependable characteristic, it might change the management strategy of beekeepers interested in maximizing honey production.

With that out of the way, let me proceed into the storage lull versus accumulation of black locust nectar/honey, recalling that most of the following is not necessarily applicable to second year colonies, but mostly established colonies.

Richard Bonney was a very savvy bee man and one of my favorite contributors to this magazine. Several years ago he speculated on these pages that black locust was always "rained out" at his location in northern Massachusetts. Since the literature is devoid of any description of what is happening in a beehive in the Spring, he had no way of knowing that it had nothing to do with wet weather, but I concluded that his bee and tree development schedules were similar to mine in Tennessee.

In correspondence with a Michigan expert about his 50 year old scale hive data, there was substantial disagreement on the reason for the 25-day notch in weight gain. The chart shows where the scale hive weight was recorded at five-day intervals. Weight gain is shown in the positive direction and weight loss is shown in the negative direction. Connecting the data points adds some confusion because where the chart crosses the zero line is not necessarily a data point on the zero line. It would have been much easier to read if it had shown cumulative weight gain and loss. Although poorly done the graph does show the early flow in May, the storage lull in early June and the peaks of the main flow in June and July. Note that a few rainy days will distort this data significantly. The weight gain went to zero, and even went negative through the period centered about June 10. He claimed that there were no sources or flowers during that period.

I made an appointment with him for June 1 and traveled to Michigan on May 31. The intent of my visit was to show him in his own hives what was happening at that time in the season. On the last 30 miles to his residence, black locust was everywhere along the interstate highway. It appeared to be just past peak bloom. He had told me in advance that his area produced supers of black locust in years that the bees get suitable flying weather during bloom.

The visit was timed to the beginning of the early June storage lull indicated on his scale hive data. There are enough hive indications of reproductive swarm cut off that there was a good chance that he could be convinced that I was not a redneck crackpot, and I desperately needed an expert to take a serious look at my observations. The visit failed to stimulate his interest. But that is not relevant to black locust timing. The point is that if that season was representative of typical bee/tree development schedules for his area, he would indeed get black locust in supers. Black locust bloomed there before the storage lull. Had reproductive cut off not started the storage lull, the dip in weight gain would have been later, if it occurred at all. Other sources could fill the gap.

It should be noted that the foragers are not on vacation during that lull. At the landing board the hive often appears quite busy, and they are actively working black locust. You can tell a forager working black locust because she has a powdered look from entering the flower envelope. Both pollen and nectar foragers have this characteristic dusting of the black locust beige pollen.

Here's what happens. When black locust blooms during the storage lull the incoming forage is used to feed the colony. Incoming nectar is managed for both population and brood volume because both are peaking during this period. Further,

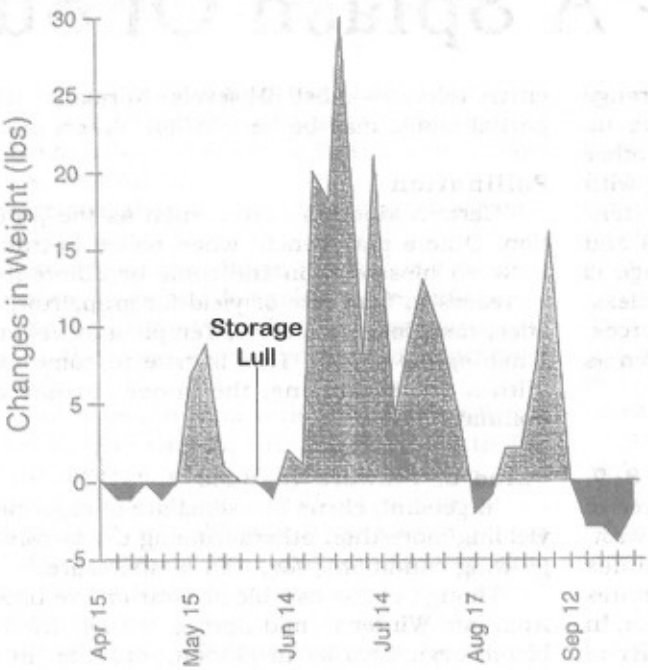
understand that generating wax makers during the period creates the need for nectar used as the raw material for wax, but does not fully explain the failure to add nectar at the top. In two weeks or less the colony will be doing both. Failure to store nectar at the top appears to be deliberate. Go figure.

Two areas in Maryland provide an interesting study in the variance in bee and tree development schedules. Considerable time is spent in suburban D.C. for personal family reasons. There is some time for contacting local beekeepers, an outlet for my passion for going among the ornery little boogers. John, of Ellicot City, was located about 20 miles north of Washington and closer to Baltimore. His name had shown up in bee magazines as a contributor/letter writer. When visited, he told me that his major honey crop was black locust. I was skeptical so another visit in another season was timed to coincide with the period of late general green up. On that visit, with most trees nearing full leaf out, he pointed to some bare trees on the horizon and said they were black locust. Conclusion: For his area, black locust would bloom *after* the storage lull when the white wax flow started.

Those of you who pay attention to field forage will already know that black locust is slow to leaf out in the Spring. The blooms appear on essentially bare branches and leaf-out gets under way as the bloom begins to fade. One of the reasons black locust is so showy is that the bloom does not have to compete with leaf foliage. In my area of Tennessee, even the bloom trails leaf-out of other hardwood trees such as oak.

Meanwhile, 30 miles south of Washington, in southern Maryland, beekeepers wondered why the bees "just quit" on black locust. The bees stopped adding black locust in the supers while it was still in bloom. The beekeepers seemed to like my explanation of the internal operations of the colony that produce the lull in overhead nectar accumulation between reproductive swarm cut off and the start of the "main flow". In their area, black locust bloomed just before, and into the storage lull, as it does in Michigan.

For the two Maryland locations about 50 miles apart, the bee development and the tree development schedules are quite different. The southern Maryland location is surrounded by the tidal waters of Chesapeake Bay. The Atlantic Ocean is warmed by the gulf stream moving up the coast. Without understanding all the details, we conclude that it would be safe to guess that the tree development schedule is influenced by the warming waters of the Chesapeake more than the bee development schedule.



Michigan Scale Hive Data, Circa 1954

I am convinced that the development schedule of bees is influenced by the early season forage availability. The local mix of sources affects the build up rate. For two seasons in a row, build up and the development milestone indications were a week late at my location. The first season the sources were out there, but the bees had almost no flying weather. The second season late Winter freezes retarded almost all their normal build up sources. The indestructible maples (we have several) actually failed to bloom at all. Slow build up was obvious both years. In the late freeze season, we still didn't get black locust in the supers. Both the bee and tree development schedules were retarded by over a week.

There are two lessons in the above discussion on black locust. Whether you get black locust gain in supers, or not, is dependent on the relationship of bee and tree development schedules in your area. And those development schedules show seasonal variations. The bees' development schedule has the added influence of local forage mix available during build up.

The second lesson concerns a subject not discussed. The reference literature often points to "day length" as a possible reason for predictability of colony actions or activities. Day length and sun angle are responsible for the gradual change from Winter to Summer, and to that extent it affects seasonal changes in the colony. But the bees react to changes much closer at hand. Climatic conditions in any given season have much more impact on colony development than the position of the sun.

Consider for a moment the effects of elevation on development schedules. Both bee and tree development is retarded at higher altitudes. Although the day is longer at the mountaintop than in the valley by virtue of improved sun angle, development is slowed by colder air. Last frost dates vary by three weeks from my area to Gatlinburg in the foothills of the Smokies. Variation to the summit is much more. You can drive down the mountain from the top and watch Spring unfold from bare trees to full leaf-out at the resort areas. Short distances with significant change in elevation affect bee development schedules accordingly. Let's put the "day length" theory to rest, along with some of the other guesswork of yesteryear. BC

Walt Wright experiments with his bees at his home in Elkton, TN.