

## Nectar Flowing in Northern California. Thermal Imaging Hive Strength.

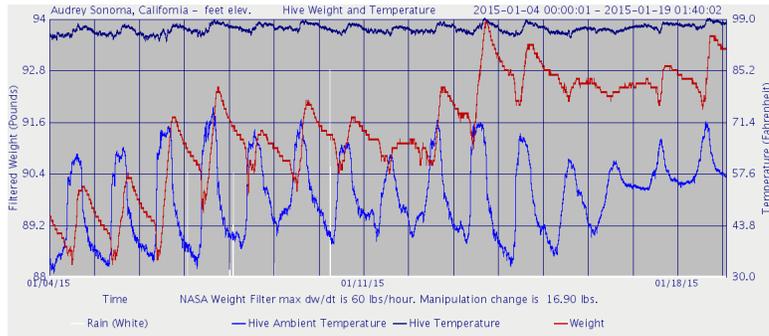
A six pound gain in the last two weeks was recorded by hive Audrey in Sonoma, California, see Graph 1. A four pound gain was recorded by hive LandhausHains, Redwood City, see Graph 2.

Chris reports: “[Audrey’s] been very busy in the warm afternoons. Loads of pollen coming in, but given heavy rains last month, I suspect plenty of nectar coming in, too. Have witnessed orientation flights on several afternoons.”

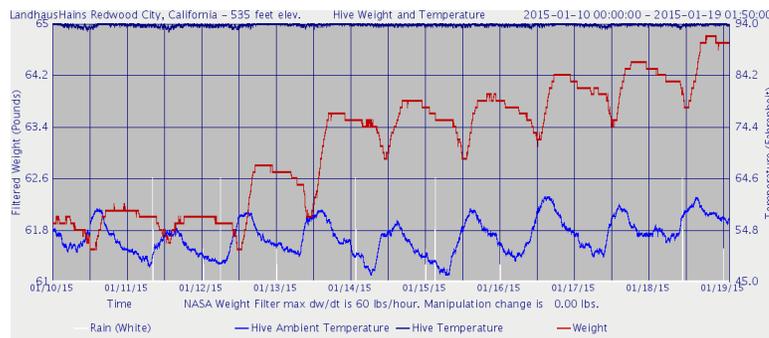
Notice the rapid weight loss each night probably due to evaporation. Contrast that evaporation rate to the weight loss seen each night at hive LandhausHains in Redwood City. (Graph 2.)

Close ups of the same two days, January 13<sup>th</sup> and 14<sup>th</sup>, are shown for each hive in Graphs 3 and 4. One interpretation is that Graph 3 is a nectar flow and Graph 4 is a pollen flow.

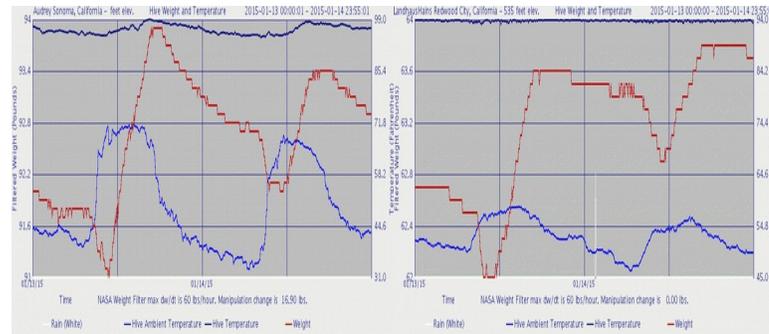
### Thermal Imaging Hive Strength



Graph 1: Audrey, Sonoma, California, USA



Graph 2: LandhausHains, Redwood City, California, USA



Graph 3: Rapid Evaporation Graph 4: Little Evaporation

### Can Thermal Images Reveal Hive Strength?

As the cost of thermal imaging systems comes down, is it possible inexpensive hand held units could be used to determine colony strength in the winter without opening the hive?

Continued on Page 2.

**Don't hesitate to move the scale to a stronger hive should a colony go bad.**

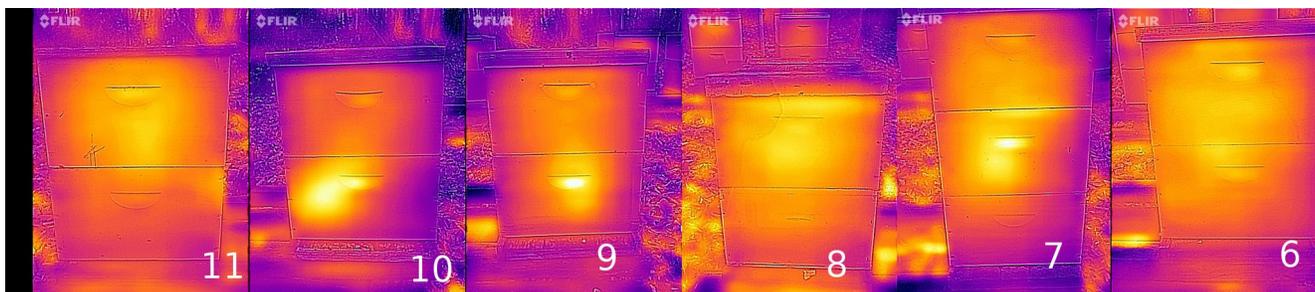
More scale hive management instructions are at <http://hivetool.net/management>

### Thermal Imaging Hive Strength cont.

A Flir Thermal Imaging Camera (\$250) for an iPhone was used to take pictures of 17 colonies in Tiger, Georgia at 8 am on January 6. The temperature was about 30 degrees. The hives were inspected January 17<sup>th</sup>. They were all medium small strength so weak and strong hives could not be compared.



5. Small. Sealed brood.	4. Small.	3. Small.	2. Small.	1 Medium. 5 frames.
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11. Small but OK.	10. Small but OK.	9. Small but OK.	8. Nice. Good.	7. Small .	6. Small.
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17. Tiny combined with 16	16. Nice.	15. Nice.	14. Some brood	13. Dead .	12. Very small.
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Next time:

1. Test a yard that has strong and weak hives.
2. Image from the top, bottom and all four sides of several hives to test a 3-D view of the cluster.
3. Image before sunrise to make sure the sun isn't causing false readings due to surface warming.
4. Try some of the other colorization modes on the Flir camera (just show the hottest spot.)
5. Check if the Flir can lock in a colorization temperature map so all images use the same thermal colorization scale.
6. Hives 12, 13 and 14 were next to each other, almost touching. Plenty of space should be left between each hive.