

# Overwintering in Southern Michigan

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*This an outline from a class I present a few times each fall. I've tried to embellish the notes without getting—hopefully—too wordy!*

*Remember, this is our approach / insights. Other beekeepers have other approaches ...*

## Introduction

An overview of winter in the hive—because you need to understand what's happening in there and accommodate / anticipate it.

- Drones kicked out (August--October) – so if you see lots of dead drones in front of the hive, don't be alarmed
- Queen slows down laying, stops about December
- Bees form a cluster about the queen, keeping her at 88 – low 90s all the time
- Heat is generated by shivering, leading to warm moisture
- Warm moist air rises, softening the honey above, but when that warm moist air hits the colder top of the hive, it condenses and drops back down. Therefore, the hive needs adequate ventilation to keep it dry in there and / or a way of handling that moisture.

To survive winter, a colony needs:

1. Sufficient stores
2. Sufficient number of bees for generating warmth
3. Appropriate accommodations
4. Luck ...

## 1. Sufficient stores

In SW Michigan, it is recommended a minimum of 100 pounds of honey (8- or 10-frame); or 30-40 pounds (nuc)

- Deep frame of honey weighs about 9 pounds
- Medium frame – about 5
- Shallow – about 4

Where is your colony at?

- Light
- Maybe OK
- Good shape! ☺

If it is *maybe OK* or *light*:

1. You *probably* can't just add honey: a million pounds of honey doesn't matter if you don't have enough bees to heat the hive

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Compiled by Charlotte Hubbard; [www.hubbardhive.com](http://www.hubbardhive.com)

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2. Determine why they are lagging (swarm, health issues, requeen); address if possible ... although it is getting rather late for that

If it is *light*:

1. Combine—if you have a strong hive and IF they are healthy (two weak hives tend to make a big weak hive ...)
  - a. The magical newspaper combine method “how to” is at [www.hubbardhive.com](http://www.hubbardhive.com), under ‘Publications’
  - b. Better to have fewer hives in fall and split come spring
2. If you can’t combine, move them into a nuc if possible / practical (ie, your spouse will let you spend more money on bees)
3. Regardless, they get special treatment:
  - Provide excess frames of honey from other colonies?
  - Reduce the entrance NOW for ease of defending
  - Feed NOW until they go into cluster (October-ish)
    - Honey is always best ... you can set it in shallow containers above the inner cover (as long as you have an extra box around it) for them to carry down
    - 2:1 sugar syrup
    - Internally if possible
  - Insulate heavier—covered later
  - Provide emergency feed—covered later

### 2:1 Syrup

- 2 parts (by weight) sugar (ie, 5 cups)
- 1 part (by weight) water (ie, 2 cups)

The sugar will not dissolve in from-the-tap hot water. Thus, bring water to a boil, remove from the heat, and slowly add and stir in the sugar. Do not add the sugar while the water is on the heat source as it may cause the sugar to caramelize—which causes digestive issues for bees.

## 2. Sufficient number of bees for generating warmth

Varroa are THE BIGGEST CAUSE of winter loss:

- Feed on brood and adults
- Brood decreasing, so feeding more on adults
  - Shorter life
  - Declining vigor

What to do about it:

- Test (I recommend a powdered sugar roll). Great examples at:
  - Poster: [https://www.extension.org/mediawiki/files/e/e1/VarroaMites\\_155.pdf](https://www.extension.org/mediawiki/files/e/e1/VarroaMites_155.pdf)
  - Video: <https://www.youtube.com/watch?v=dU06KJTxHR8>
  - Instructions: [http://honeybeehealthcoalition.org/wp-content/uploads/2015/08/HBHC-Guide\\_Varroa-Interactive-PDF.pdf](http://honeybeehealthcoalition.org/wp-content/uploads/2015/08/HBHC-Guide_Varroa-Interactive-PDF.pdf)

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- What's the threshold? (New research has lower numbers than many older publications). At this stage, "population decrease"<sup>1</sup>:
  - Less than 2% (repeatedly) -- acceptable
  - 2-3% -- caution
  - Greater than 3% -- dead hive walking unless you can get them under control
- Some treatment options:
  - Honey staying on? MAQs (nice video at <http://www.littlehouseonthebighill.com/beekeeping/index.php?detail=257>)
  - Honey off—Apiguard, or Apivar
  - Follow the label!

**If you're not going to do anything, treat! Most** hives have some mites—err on the side of caution. Otherwise raiders attacking that dying hive will spread the mites and diseases the mites vector.

### 3. Appropriate accommodations

By the end of **September**:

1. Move honey for the winter above the cluster (generally the middle of the box, but sometimes they prefer a side)
2. Remove excess honey
3. Remove queen separator (!)
4. Install critter guards

In **October**, depending upon weather and how fast fall comes:

1. Think about reducing the entrance, especially if weak
2. Double-check the hole in EACH of upper hive bodies (bees can survive cold, not wet-cold AND hole is needed for the 1Q bio-breaks—we go with 5/8" on the east or south side, depending upon hive orientation)
3. Inner insulation for challenged hives? (We replace unfilled outer frames with sheets of half-inch pink Styrofoam ... but NOT until a warm day in October as ants love to nest between the Styrofoam and outer wall, and make bees cranky. And make sure you remove it asap come spring.)
4. Provide emergency feed—for ALL:
  - More honey (best). Consider leaving on 1-2 honey boxes if you have them—you can always extract it come spring.
  - Candy boards—lots of recipes on the internet and most involve cooking ... which I don't do. ☺
  - Mountain Camp Method—I have a detailed handout at [www.hubbardhive.com](http://www.hubbardhive.com), under 'Publications'
    - Easy
    - Reusable if they don't use it—for brownies ☺ or bee syrup in the spring
    - It works! ☺

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<sup>1</sup> *Honey Bee Health Coalition's Tools for Varroa Management*

5. Skirt much of the bottom such that prevailing winds can't gust up under. We leave the east / south portion open ... and (gasp!) leave the screened bottom board open (unless a severely challenged hive.) That's what we do. Lots of disagreement amongst beekeepers whether to use the slider boards or not.
6. Add an absorbency chamber OR a condensation deflector that promotes venting.
  - This "absorbency chamber" is a box my Hubby designed. It is about the height of a deep box, with a screen mounted internally, about two inches up from the bottom. That allows room for the Mountain Camp Method ... and then absorbent chips go over the screen. (We use about two inches of gerbil bedding.) The long, top sides of the box are cut down about half an inch, allowing air to flow across the top and out to keep the chips dry. (The telescoping top cover protects that opening from driving rain and snow.)
  - The "condensation deflector" is something like a top cover Styrofoam liner that keeps the warm, moist air from hitting a super-cold top cover. Make sure you have a vent method so that condensation can drain out and not drop back down on the bees.
7. Wrap some / most of the hive—challenged hives get more wrapping, including Styrofoam
8. Add windbreaks if necessary -- straw bales, lawn chairs, junk cars, pallets ☺

Absorbency chamber hive configuration

1. Top cover with Styrofoam liner
2. Vent / absorbing box
3. Mountain Camp (within vent / absorbing box)
4. Hive bodies
5. Bottom board

(Right, inner cover not used.)

Winter survival requirements (humans):

1. Worry about your bees
2. Miss your bees
3. Assess – reflect – plan
4. Clean up and repair equipment
5. Figure out what you need ... and order it
6. Subscribe to my blog: [www.hubbardhive.com](http://www.hubbardhive.com)
  - Honey, Bear in Mind – seasonal tips and hints
7. Follow me on FB under Charlotte Hubbard, Beekeeper and .... – I'll give more seasonal tips.
8. Invest in yourself AND bees – read, attend classes, watch videos. I'd like to recommend my book 'Dronings from a Queen Bee' for fun reading about bees. Available at my website; all profits go to my late husband's favorite charities that feed the hungry in SW Michigan.