

Winter Preparation in Summer

*“What I saw was robbers,
loading up on honey. Cool!”*

-Dr. Thomas D. Seeley upon
discovering robbers in a dead out
from *The Lives of Bees*
(Princeton Univ Press 2019)

Are your bees ready for winter? Central OR beekeepers are faced with many challenges that need be overcome to successfully overwinter honey bee colonies. Most regions of Central OR don't experience a strong fall nectar flow, and winters can be unpredictable when it comes to rain, snow, and temperatures between fall and spring.



Having adequate food stores (honey and pollen) are paramount for healthy colonies to survive winter and emerge strong in spring. Depending on the region and the colony size, our bees need between 40-90 lbs (18-40kgs) of honey and plenty of pollen. Honey is needed to generate heat. Bees eat the carbohydrate-rich food source and vibrate their flight muscles to keep the cluster between 75-95° F (23-35° C) even when outside ambient temperatures are at 10° F (12° C) or colder. Pollen is consumed through the winter and early spring when the queen resumes egg laying after 1-2 months of rest. Feed bees heavy syrup (2:1 sucrose + water) as early as August continuing until September.

When nighttime temperatures start dropping into the 40s (4° C) the colonies stop taking syrup. If necessary you can switch to a "dry" feed, typically fondant or fine granulated/inverted sugar. Colonies with little to no pollen stored on the combs are given pollen substitute.

It is crucial to monitor for mites and diseases long before the onset of winter. The bees your colonies raise in late summer are the bees which raise the winter bees, so their health is of prime importance. Use either an alcohol wash or a powdered sugar shake on at least 10% of the hives in each apiary. I sample exclusively with the alcohol wash technique in my apiaries. This entails collecting ~300 bees (about a half cup) of bees from brood frames, submerging them in alcohol (>90% isopropyl or denatured alcohol works well) in a mason jar with a #5 screen mesh lid, and shaking mites loose then pouring liquid into something white (I use a pie plate). Mites are counted to estimate the varroa population in the colony. Ten or more mites ($\geq 3\%$ mite load) in at least one of the sampled hives should trigger treatment of the entire apiary. If only the afflicted colony is treated than neighboring hives risk mite infestation from drifting foragers or drones, followed by reintroduction of mites to the treated colony. Whatever your method of control is, have a plan for what to do when mites are detected. A colony infected with mites in summer, however strong, may crash by the onset of winter.

Another technique for managing pests is to reduce the size of the hive by removing unoccupied boxes. In many instances by autumn the bottom box is devoid of bees, a perfect winter hideout for field mice. Mice chew on frames, including the wood, and bring nesting materials (i.e. grass) into the hive. Removing this bottom box, which typically has a smattering of pollen but little else, reduces the chances of a rodent nest. Exchange drawn combs for frames still with foundation. Reduce entrances. Makeshift entrance reducers or mouse guards can be as simple as scrap wood or a piece of 1/4" hardware cloth folded and wedged in the entrance, respectively. Reducing entrances is also useful from summer onwards to help limit robbing/yellow jacket predation by giving the bees an easier entrance to guard.

Occasionally you may have a hive with a partially drawn super, much of which may contain honey. In my apiaries, if the hives have the 40-90lbs of honey they need for winter in the lower boxes, I may remove this partially drawn box altogether. When that is not the case I will share food frames from colonies that have a surplus until all the foundation and empty comb is replaced with honey/pollen frames. Some colonies may be small and in some instances I may reduce the hive to a single deep. Wild or feral honey bee colonies nest in cavities slightly smaller than the volume of a ten frame deep, and when they are relatively free of pests and diseases, and having adequate honey stores, they overwinter just fine. Ideally, however, most hives will winter in a single deep and western (medium), or double deep boxes.

Considering the bottom board, I don't have a preference between screened or solid bottoms. Screened bottoms allow water from rain or snow to drain freely while hives with solid bottoms benefit from being tilted forward slightly to avoid collecting water, especially solid bottoms with extended landings. Screened bottoms are more drafty so many beekeepers recommend closing them for the winter.

Upon the onset of autumn I recommend avoiding breaking the propolis seal between the covers. This seal helps prevent water seeping in the hive. It is unlikely the bees will reseal the cover in the cool days of autumn. Vivaldi boards, if used, should be placed on the hives while the weather is still warm to give the bees the opportunity to seal them with propolis.

Ensure your hives have strong queens by summers end. Requeen from local mite resistant stock if possible and/or necessary. Queenless colonies may be combined with other colonies so long as they are free of mites and diseases. Discourage robbing as much as possible of dead or weak colonies. Honey frames from dead outs can be shared with healthy colonies but be weary of distributing brood from colonies that are suffering from mite infestations or diseases. It is likely that spores from virulent bacteria and fungi (i.e. European foulbrood or chalkbrood, respectively) are present in dying colonies to varying degrees, so it is likely that sharing brood from these colonies could infect otherwise healthy colonies. Mites can be spread to healthy colonies from robbing or shared brood from heavily infested colonies. Remove dead outs from apiaries as soon as they're detected, and destroy any suspicious looking brood frames.

Adapted from Southern Oregon website.

<https://www.easybeesco.com/2019/07/winter-preparation-in-summer.html>