

Stahlman beekeeping notes for 2021

4 Issue for 2021: Winter Season – The last few weeks of January are the coldest period of the year. That may also apply to the early weeks of February!

There is an old saying in beekeeping, "Bees do not freeze to death in winter – they starve."

Although some of us are thinking about making increases in our hives, we need to think more about this week! We have been a bit colder this January than last January. As I write this article, we have cold weather with some high winds in the forecast. Good strong clusters of bees - as long as they have access to food – will not freeze to death.

I have a large number of bee books in my library. The one that I cherish most, is "The Beekeeper's Handbook" (fourth edition) authored by Diana Sammataro and Alphonse Avitabile. I have known Diana since her graduate days at Ohio State University. The information in this book is easy to understand and is well illustrated. I am taking the liberty to share some of the information she provides us under the title **Winter/Spring Management**.

She points out "The winter cluster expands and contracts as the outside temperatures rise and fall.

"Bees remain relatively active in the cluster, eating, moving about, rearing brood and generating heat by 'shivering' (contracting their wing muscles)."

Almost all bee books will have a list of things required for winter survival. During the fall prep for winter, we go thru a number things that must be done to help the bees survive the winter. But one thing really stands out –**Periodic inspections if warm enough to open hives**. Winter is not the season for the beekeeper to hibernate!

Diana has an illustration on Page 99 of her book listing a number of things bees do based upon temperatures

91 - 97° F wax secretion

93 - 94° F winter nest temperatures (egg and young bees) A large consumption of food stores!

85° F Brood less winter cluster

68° F queen does not fly

61° F drones cannot fly

57° F Cluster forms

42° F Bees cannot move: muscles freeze up (in her words – muscles are not hot enough)

I am in a bee yard almost every day especially in my back yard. I do see some worker bees flying even at 45° F. Bees in hives facing south (sun warms the front of hives) often can be seen flying while bees facing north show no activity at all.

Honey bees require periodic cleansing flights. Bees confined for long periods of time will take cleansing flights during cold weather resulting in a path in front of the hive of dead bees. If the ground is covered in snow, beekeepers are often alarmed by the number of bees on the ground.

Just remember a process is going on inside every colony. Bees are dying during the winter season. In warm area states, we see bottom boards free of a large number of dead bees. Every colony is replacing some of the old winter bees that were born in late summer/early fall. When I was growing up, one early spring task was cleaning dead bees from the bottom board and reversing the bottom board. I don't see much of that being taught these days especially since screened bottom boards are very popular and screened bottom board do not have a deep winter side and a shallow summer side.

When I walk thru my bee yard, I do examine the area in front of the hive entrance. A few will have an accumulation of dead bees directly below the bottom board entrance. Other hives will no evidence of dead bees in the area under the hive entrance.

A hive with an accumulation of dead bees at the hive entrance during the winter season is a sign of Varroa mites. Older healthy bees fly from the hive to never return or undertaker bees will try to fly from an entrance with a dead bee carrying them several yards from the hive before dropping them.

If dead bees are observed on the ground in front of a hive, that hive requires very early treatment for Varroa mites. Treatment with oxalic acid when there is no brood in a hive is a recommend treatment.

From the legal label on a package of Oxalic acid:

Directions For Use

Application Directions:

Oxalic acid is used to treat colonies during low brood periods, packages, or swarms. This product can also be used as a "clean up" Varroa treatment following the application of a different acanicide were Varroa infestations continue to be problematic.

Much of the material I have researched indicate whether the use of Oxalic acid with brood present benefits a hive. Oxalic acid does not kill Varroa in capped cells. Under research conditions the kill rate of Varroa is in the 30% range (affecting only the Varroa living outside of capped cells). In a study as late as 2015, it was found that a comparison between 10 treated hives with brood and 10 untreated hives with brood, the loss of brood area (eggs and larva) was larger in the treated hives than in the untreated hives by a considerable amount.

The summary of this report by F. Hajina and L. Harister titled "Indirect effects of oxalic acid administered by trickling method on honey bee brood. 2015

A high percentage of young (12.6% and 9.5%) and old honey bee larvae (10.6% and 5.6%) were removed from their cells by bees after the first and second oxalic acid applications, respectively. The surface of the open brood area was also reduced by 17.5% after the two oxalic acid applications and stayed low for about two months. For the same period of time the open brood area in 10 control colonies increased by 34.5%. The two oxalic acid applications removed $60 \pm 12\%$ of varroa mites adhering to adult honey bees, while the natural fall of mites measured in control colonies (for a period of 40 days) was $32 \pm 4\%$.

Combining the detrimental effect on brood development with the low relative effectiveness on varroa removal, oxalic acid application by the trickling method when open brood is present is not as safe as has been regarded in the past. Consideration needs to be given to the use of different sugar and oxalic acid concentrations in the treatment solution in order to minimize its adverse effects on open honey bee brood.

And a quote from Bee Culture Magazine:

Any treatment applied indiscriminately can harm your bees and this is certainly true with oxalic acid. The approved use of oxalic acid in the hive - using the documented procedures and cautions - will be just fine. But don't deviate from that, since overuse can indeed be harmful to your bees.

I know that there are individuals fully supporting the use of Oxalic acid, but I am not one of them except when I use it on package bees prior to putting the package of treated bees into a hive. I will address that topic when it is time to install package bees.

I might also report a study in Ohio titled Oxalic Acid Treatment against Varroa Destructor by Tom Rathbun published in the Ohio State Beekeepers Association Newsletter for the first quarter of 2021.

The Use of Vaporized (sublime) Oxalic Acid Treatments against Varroa Destructors Found in Honeybee Colonies and the Potentially Harmful Side Effects

This report can be found on the Ohio State Beekeepers web site in the 1st quarter newsletter for 2021.

A summary: the results showed that there was minor singeing damage done to the hairs of the flagellum in the third treatment compared with the first untreated sample obtained. No other external body part of the honey bee was noted to have any damage.

Discussion and Limitations: The use of Oxalic Acid under the governing application label when administered is safe to use on the honey bee colonies. The limitations of the amount administered is unknown. If too much Oxalic Acid would be applied damage to the Bees would be more apparent.

Conclusion: The study of this research did not extend beyond the three-week treatment to see if the honey bee was able to repair any damage caused by treatments or if further damage would be found after long term exposure. While observing the flagellum segments of the non-treated sample of honey bees and observing the hairs of the flagellum of the third treatment, the flagellum was found to have minor damage done to the hairs on the segments. The removal of the colony's queen prior to any OA treatment is recommended based on this study's findings. In doing so, there is hope of preventing any damage to the queen's flagellum and the possibility of being superseded. While there was evidence to support the negative effects of OA treatment in honey bee hives it is still believed to be the best defender against the Varroa destructor in late fall application.

References Adjlane, N., Tarek, E.-O., & Haddad, N. (2016). Evaluation of Oxalic Acid Treatments against the Mite Varroa destructor and Secondary Effects on Honey Bees Apis mellifera. Journal of Arthropod-Borne Diseases, 10(4), 501–509. Ales Gregorc, Ivo Planinc (2000) Acaricidal effects of Oxalic Acid in honeybee (Apis mellifera) colonies. Bloetscher Barb, Ohio State Entomology Department, Ohio State Department of Agriculture, Apiary Division. Mariano Higes, Aranzazu Meanu, Miguel Suarez, Jesus Llorento (1998) Negative long-term effects on bee colonies treated with oxalic acid against Varroa Jacobson I Oud. Nanetti, A., Büchler, R., Charriere, J.D., Fries, I., Helland, S., Imdorf, A., Korpela, S., Kristiansen, P. (2003) Oxalic acid treatments for varroa control (review). Apisacta, 38, 81–87. Rademacher, E., Harz, M., Schneider, S. (2017). Insects, 8, 84.

Weather and beekeeping Calendar of when to carry out specific tasks

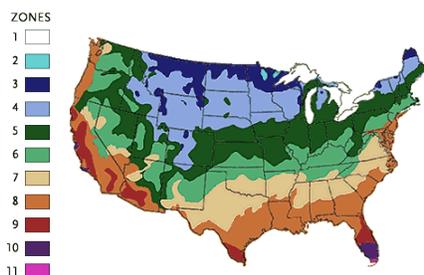
I will be discussing late winter management task in issues. I received some feed-back from a dear friend, Jim Thompson. Jim is an EAS Master beekeeper and at one time worked for the A.I. Root company, has written a number of articles for Bee Culture Magazine, is a collector of old bee equipment and books.

He suggests that beekeepers adjust beekeeping task to a local calendar that would indicate the date of blooming plants in the area the beekeeper lives. Plants are a good indicator of proper timing for a beekeeper to carry out specific tasks.

The map I could find showing the 11 agriculture zones is shown below. It was copied from: [plant hardiness map.gif \(472x327\) \(pbs.org\)](#) which will give you an idea of the hardiness map for plants. It is possible to search the web for maps concerning weather [right down to you zip code](#). Experienced beekeeper may already have determined that certain things need to be done and can plan well ahead of time for them.

Thanks Jim Thompson for bringing this to my attention.

The USDA recognizes 11 planting zones in the U.S.



One can easily find information on growing days, and general information about when to plant various crops.

Information on flowering periods is available by checking with local state university extension offices and web sites.

I live in a state with three identifiable zones. Each zone may have a micro climate zone within the broad colored identified zone.

I would suggest that each beekeeper keep a calendar this year showing dates and timing of pollen bearing plants in the area where they keep bees.