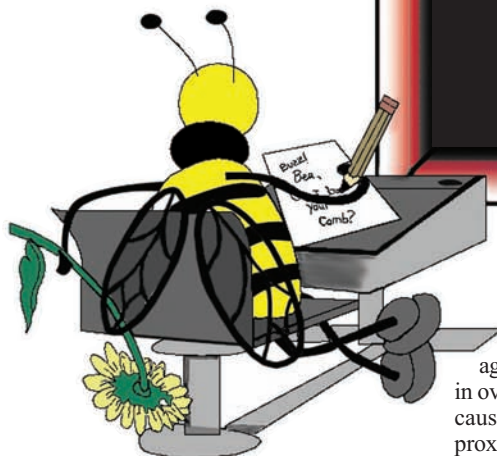


# The Classroom by Jerry Hayes

Please send your questions to Jerry Hayes,  
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Email: gwhayes54@yahoo.com



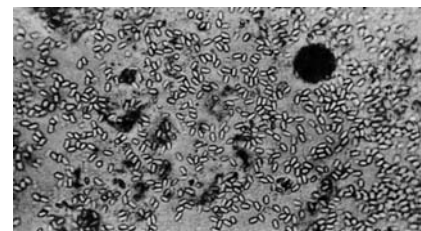
Second question: If it is a fungus, why does an antibiotic (Fumagilin-B) work at all, since antibiotics are effective on bacteria, not fungi?

Thank you,  
Morris

A

Hello Morris. You are correct that the causative organism is a microsporidian, either *Nosema apis* or *Nosema ceranae*. *Nosema* is one of those diseases, which has both protozoan- and fungus-like characteristics. It was classified as a one-celled protozoan before and now with more advanced taxonomic techniques, it is a micro (really small) sporidian (spore-forming) life form.

Fumagilin-B, the commonly recommended antibiotic to control this bee disease, is also used widely for patients with HIV/AIDS because it controls fungus growth in people with compromised immune systems caused by this disease. Remember, antibiotic means anti (against) biotic (life). The term antibiotic is a catchall for bactericides, virocidic, fungicides, etc.



**Nosema spores  
from *The Hive and the Honey Bee***

All of that to say—The causative agent for *Nosema* is now classified as a microsporidian. And, sometimes Fumagilin-B works and sometimes it doesn't. Now that should clear it up :)

## Chemical-Free Beekeeping



Hi Jerry, what I want to know is information you may have on keeping bees free of chemical use. Many Thanks.

Buddy

A

You are right Jeremy, lots of package bees from Australia have been brought in over the last several years to fill in the gaps caused by shortages of U.S. colonies. Approximately 1.3 million honey-bee colonies participate in almond pollination for this \$2 billion dollar crop. California can only provide about 500,000 colonies internally, so the rest have to come from outside the state. Almonds absolutely, positively have to have honey bees to pollinate or their \$2 billion value slips and growers obviously do not want it to slip. Can Australian packages come into the United States economically and contribute to almond pollination? The answer seems to be yes, which is a good thing for the almond industry.

However, some Australian honey-bee import critics speculate that Australian bees are weak genetically because they have not been challenged by varroa and other varroa-implicated health issues. They have not participated in the survival of the fittest scenario. According to some critics, Australian bees seem to succumb to various new parasites and diseases rather quickly in the United States.

The problem from my perspective is that if they survive long enough to possibly provide virgin queens and drones, these Australian honey bees can mate with our "survivor" bees and, of course, make them weaker genetically, compounding problems we already have. However, the \$2 billion dollar almond industry will not be denied. Nevertheless, if Australian honey-bee imports should falter for any reason, and U.S. colony availability continues to worsen, look for the Mexican border to open up to them to bring their AHB colonies to the California almond groves.

## Nosema... Fungus or Protozoan?

Jerry, in a recent communication with a member of the Washington State Beekeepers Association, I was told that *Nosema* is caused by a "fungus". This was a surprise, as I believed it was caused by a microsporidian. So, my first question: Cause of *Nosema*...fungus or microsporidian?

## Should I Buy Queen Cells?

Since queens seem to be dying shortly after I get them, I am considering ripe queen cells. But, I have read that one has to be very careful when handling them. The Postal Service is not designed to be careful. What are the chances of getting them from their breeding places to Illinois alive and well?

A

Dave Miksa in Florida raises about 100,000 cells each year for sale to mainly commercial beekeepers. They have developed a system to transport hundreds of queen cells by the buyer. It is important to keep queen cells at a certain age in a certain position, warm, humid and not jiggled, bounced or shaken if possible. That leaves the Postal Service, UPS, Fed Ex, DHL or any other commercial delivery service out of the picture. Drive to Florida, pick up your several hundred queen cells and drive back to Illinois with the queen cell transport box securely next to you in the passenger seat.



**JZ BZ  
Queen Cell  
Shipping  
Carton**

## Politically Touchy

What do you think about all of the Australian packages of bees coming in for almond pollination?



A

I think using a variety of integrated pest management (IPM) techniques can get you away from many chemicals generally used in beehives Buddy. Hygienic queens, screened bottom boards, drone removal, powdered sugar dusting every 3-4 days, rotating 3 frames or so of comb out yearly, and continuous surveying will keep you on top of most varroa and disease issues. These techniques are certainly not perfect, but pretty good. You may still have varroa population booms at times that have to be knocked back with Apiguard or Mite Away II.

Removing the infected comb and destroying it can control bacterial disease like American foulbrood (AFB). Sometimes antibiotics have to be used as a tool. The key point is that you have to know your bees and be a good manager and that requires you to keep tabs on what is going on inside the colonies. This is certainly possible, but proves hard for most people. But, you are not *most* people, so you can do it!

## Q Confused About Sugar Dusting



I may have missed an episode on sugar dusting bees for varroa. Please, could you explain where you stand on this issue? I refer to the abstract of your paper in the *Journal of Apicultural Research*, which concludes that powdered sugar dusting did not significantly reduce varroa levels and your continuing advice in this column, which appear to contradict one another. Thank you.

Regards,  
Ben Rees  
United Kingdom

A

Ben, I am old enough, and you may be old enough as well, to know that there are vast swatches of gray in this world and relatively few firmly black and white, yes-or-no answers. When you focus on worldly "science", it is a process that is always in flux with new information arising to update previous data, which at one time was thought to be the final answer or at least pretty close. So, I guess you are right that I have seemed to contradict myself.

Dr. Amanda Ellis, who led on this research in our lab, did great work and gave some insight into powdered sugar dusting within the parameters of the research over a year's time. The data presented in the *Journal of Apicultural Research* paper was that when you *treat every few weeks* that it certainly knocks off phoretic mites, but the varroa adjust and increase reproduction. So, over a year's time, even though these treatments remove lots of mites, the mite count

has not significantly changed. Would it have grown more if the mites had not been removed? But, the population certainly seemed to hold its own.

We have done some preliminary trials using powdered sugar dusting *every 3-4 days* to remove phoretic mites as they continuously emerge from reproducing in cells. This does not give them a chance to re-enter cells and reproduce. They cannot catch up biologically or reproductively. After doing this for 4 -5 weeks, we have covered all brood cycles and mite levels are very, very low. Is this labor-intensive method practical is the question? Probably it is for some, but not for the majority.

I think removing mites from your colonies of honey bees is a good idea. And, removing mites using powdered sugar is a sane idea that works under application methods as noted above. The more you do it, the better the long-term results are. I would rather someone try using powdered sugar as often as possible to remove mites and hopefully postpone a "chemical" treatment than simply go to "chemicals" first. So, thus arises my apparently contradictory stand. I hope it makes sense!

## Q The Birds and the Bees



I am not a bee expert in any sense of the word, but in doing a bit of searching on the Florida Agriculture site, I downloaded and read your February column "The Classroom"—very good, very informative! The reason for my correspondence is two-fold:

1.) Several years ago, before the honey bee decline was widely noted and documented, I noted hundreds of dead honey bees in my pool skimmer, on a daily basis in the late summer through December. I never gave it much thought, but now I wonder why? And, because I had never observed this occurring in 30+ years, it seemed rather peculiar. Then, came all the media coverage relating to the decline in bee populations? Was the virus manifested by the bees attempting to learn how to "swim" or did they die as a result of their weakened condition?

2.) Now, I have another problem—too many bees! I am a "humming birder", and as such have sugar water feeders up in the winter months (September through March). In 30+ years I never had a problem with bees until this past November and it continues. In my contacts with others who also host "over wintering" hummingbirds, they also report the same problems I have and they are not within a 3-4 mile radius of my Florida home. I don't wish to act rashly in trying to control them, but can you shed any light on why we experiencing such an increase in their numbers? In years past we always had the bees in fewer numbers and they were not a problem. The large number

of bees was a problem prior to the freezes and the loss of the majority of our flowering plants, so I don't think the colder winter is the primary reason!

Many thanks for your time.

Joe Miasaszek  
Lakeland, FL

A

I am not a bee expert either after these many years. Anyone who says they are is a liar.

1) Honey bees are attracted to swimming pools (perennial question) because of their need for water to drink, of course, and the chorine salts in the water, which helps them tell their sisters where the correct water source is. When they get there, they fall in and drown, sometimes in the hundreds or thousands. Not unusual. Basically, this tells you that there are honey bees relatively close by.

2) We have African bees displacing genetically based managed honey bees in the feral environments in Florida. The "wild" bees that were so prevalent years ago disappeared due to introduced parasites, and diseases. There was a gap and now that environmental gap is being filled in by the defensive, aggressive African Bees. Central and South Florida is home to a growing wild population of these bees.

They like hummingbird feeders for the nectar-like food resource, just as well as the hummingbirds do. Put mesh guards on the "feeding tube" so that the bees cannot access the sugar syrup, but the hummingbirds, with their longer beaks, can use the feeder. Also, be sure none of the feeders leak or drip and this will discourage foraging honey bees. You have provided free food for the hummingbirds and any other creature that can get to the free food.

These bee foragers are not a physical hazard to you, but they do indicate a nest or colony possibly close by. Take a look at our web site found at: [www.doacs.state.fl.us/pi-plantinsp/apiary/apiary.html](http://www.doacs.state.fl.us/pi-plantinsp/apiary/apiary.html). Under the section entitled Diseases, Pests and Unwanted Species is lots of information about African Bees that you should know about.

## Comment: Dangerous Gifts?

Your answer in the Classroom about "carbonated honey" made me laugh. Last season I tried to copy a successful beekeeper I know and I extracted some of my uncapped honey. I guess I did not handle it properly and it fermented. It has a sharp fermented taste and smell and swelled out some of the plastic bottles that I stored it in. However, before realizing my mistake, I had given away some of it as gifts. Man, I hope they eat it before it blows up! From now on, it's just completely capped and cured honey for me ☺



Signed,  
Mr. too embarrassed to say

## Q BEESPACE



Metal frame spacer

I ordered some frame spacers from a bee supply company in the Northeast and in the catalog right next to the picture of the spacers they have a blurb about not using them with new foundation. There wasn't any other explanation. You have been around the block a few times, and a lot of us readers out here have been very successful by listening to your advice. You couldn't be wrong.

Thank you,  
Mark

## A

Well Mark, I was wrong once that I know of :) so be aware that it can happen again! I agree with the advertisement that you read that says the goal is to have the foundation "drawn" out as perfectly as possible. And, that is more possible if frames are spaced properly, knowing perfection is elusive. Bee space is important, so that frame and comb orientation is within appropriate distances and frames maintain movability. Ten frame "boxes" are designed for ten frames that are, in turn, designed for the proper distance called "bee space". When you put nine frames or eight frames (as is normally done with spacer kits) in a 10-frame box, then this important "bee space" can be changed and the comb building may not be as uniform as one would like. However, the reason nine or eight frames are spaced in a 10-frame box is so the individual cells on the comb are lengthened. Therefore, when the comb is full of honey and capped, it is easier to uncapped.

There is always a chance that the comb will not be perfect when the factory spacers are installed and comb drawn in that environment, but they are minimal. Remember that installation of the beeswax foundation must be straight and perfect in order to have straight and perfect comb. If the comb ultimately is not what you want, you can use a hive tool or knife to sculpt it and give the bees another chance. Bees are more apt to build comb when they have lots of carbs (honey or sugar) to produce wax from their wax glands. I think I would start with the nine-frame spacers and see how your bees respond. It should be fine.

## Q PRUNING THE COMBS?

I am reading the past issues of *American Bee Journal* (available at <http://bees.library.cornell.edu/>) and in the April 1861 issue under Monthly Management, it says, "Now, when the weather becomes settled and fair, and the workers are returning in crowds with pellets on their thighs, is the proper time for *pruning* the combs." What

is "pruning the combs" all about? I've never read anything like that before!

Thanks,  
Steve  
New York

## A

In 1861 they used the term "pruning" just like they would have used it to describe the "pruning" or removal of limbs and branches on a fruit tree. However, in the beekeeping world it meant removing old comb. There was knowledge even 150 years ago that comb was a valuable resource and to preserve it and keep it as long as possible was efficient. They also knew that **old comb** was a reservoir for potential disease and could affect honey color if these dark combs were used for honey storage. So, they had systems of old comb removal called "pruning", something we now often term "comb culling". This was removal of whole frames of old comb and/or cutting out the old comb from frames. And *voila* one has "pruned" the old comb from a colony.



## Q DOES FUMAGILIN-B WORK?

Would you feed Fumagilin-B routinely in the spring? Is it effective against *Nosema ceranae*? Thank for the service you give to beekeepers.

Gregory Stoddard



## A

*Nosema*, both *apis* and *ceranae* varieties, are sensitive to some degree to Fumagilin-B. Basically, you want healthy bees going into winter. These bees are physiologically different than "summer" bees.

I am a much happier person when things are black or white, but this is not the case with most things in life. The problem with *Nosema* is that not all bees are infected in a colony at the same time. It appears at irregular intervals or not and it can cause health problems or not, depending on the time of the year it appears strongly.

Unless you survey your bees and get a spore count (at this time a million spores per bee is considered not good), you don't really know when to treat and if your treatment will be effective. Most people/beekeepers just treat and hope the stars are aligned and it all works. There is a saying in business that 50% of advertising is a waste. They just don't know which 50%. The same goes for *Nosema* treatments.

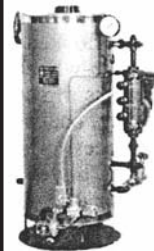
## GREGORY RESPONDS

Thank you for the time and consideration you have given my question. I reread the answer you gave to a question in the February Classroom. I, too, feed Fumagilin-B every spring. To me, it is like the Varroa conundrum. One either makes the effort to do the mite count, drone comb replacements, etc., or stop keeping bees. Beehavers are extinct. As Yoda in the Star Wars movie said, "Either do, or not do, there is no try."

I hope to thank you in person someday and I would love to have your autograph on my copy of your book.

Best Regards  
Gregory

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