



# Kelley Beekeeping

SERVING THE BEEKEEPER SINCE 1924

ISSUE 77: JANUARY 2017



2014 Minnesota State Snow Sculpting Competition: Tim Trost, Jim Krueger & Jared Trost

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# From the Queen's Court

by Melanie Kirby

It's a new year AND a new bee season! There is much to prepare for; including bracing for the emotional roller coaster of the unfolding seasons. I always get jazzed up come January partly because, if I am able, I try to go to one of the bigger national bee conferences. These conferences are always so well organized and facilitated. The venues vary across the country but the real draw is the people, or the peeps. Actually, it is better phrased as the "Beeps", as some of my good beekeeping friends call them—the Bee People.



I like to joke that it is at these events, when everyone present is a bee enthusiast, that our passion and "insanity" for working with bees is validated. And oh, it does feel really good to learn that you are not the only "crazy" one who loves everything about bees! There's actually a level of intense camaraderie present at these conferences. Which for me, is truly the ultimate gift of attending. There are different tracks for different interests. There are networking and socializing events. There is the awesome trade show where yours truly, Kelley Beekeeping, shares a magnificent display.

If you've yet to go to one of these bigger conferences, I highly recommend it. When I first started keeping bees over 20 years ago, I had no idea that there were so many facets to the industry. I didn't even know that there were bee conferences of this sort. And then, starting in 2007 ten years ago, after a decade in the apiculture realm, I recognized that I wanted to learn so much more. And these conferences offer the opportunity to learn about the realities, the science, the hopes and inspirations, and the lessons of keeping bees healthy and productive.

More efforts are going into habitat rehabilitation. More efforts are going into investigating nutritional needs of bees. More efforts are going into nurturing the next generation of beekeepers. And more efforts are being made for outreach and communication. In these exciting, challenging, and frightening times of the bee industry, we must all heed the call to learn as much as we can and to promote positive pollinator husbandry. The bees need us to speak for them.



## Kelley Beekeeping

SERVING THE BEEKEEPER SINCE 1924

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## CALL FOR PHOTOS

Want to see your bee-related photo on the cover of this newsletter? Send photos to [editor@kelleybees.com](mailto:editor@kelleybees.com)

## Queen's Court *cont'd*

They need us to put their needs, as well as our environment's needs at the forefront.

And the truthful flip side of that coin is that we need them, too. We need them to help us reconnect with our surroundings and to remember to stop and smell the flowers; to remember to be kind to our landscapes; and to be community resources for our neighbors. Bees remind us that as a society we can accomplish great things. If we can work together, rally together and



*Orchard blanketed in snow.*

find at least a sliver of common ground, we can be a conscious colony community striving for health and wellness for our current and future circumstances.

I've never been fond of new year resolutions (though I do make a mental list of things I want to work on). I've got big changes occurring in my professional life right now. And I'm very excited to share them with readers as these changes are based on some "resolutions" I decided for myself over the past few years. This year I have resolved to become a more nuanced asset for our beekeeping industry. As such, I will be doing more consulting work and also am working on a few books; including a field manual for queen breeding and rearing. I will also be returning to school—finally! After 20 years of focusing on beekeeping in the field, I have been invited to work on an advanced degree with Dr. Steve Sheppard's renowned team and lab at Washington State University.

I will admit that I am daunted about the whole "school" thing. Mainly because it has been two decades since I was formally in school (though I've been attending the school of hard knocks, the bee yard, during that time). But, I know that if I don't give it a shot, I'll forever regret not trying. And that, my friends, is the ultimate thing that the bees remind us: to never give up and to work hard. Because of that, I reckon, if my bees can inspire me to work for them, it's the least I can do. I hope you'll enjoy this month's newsletter. For it's because of the love for bees, and love of the green Earth, that we share this with you. We'll talk more about love for bees in next month's February newsletter. Until then, embrace the new bee season, and embrace learning. No doubt the bees will appreciate that.

And remember, by preparing for the bee season now, you will reduce the amount of emotional stress that might haunt you by procrastinating. Kelley Beekeeping has high quality equipment, instruction, supplies, and service to help you navigate the seasonal roller coaster ride. Get ready to buckle in! Visit [www.kelleybees.com](http://www.kelleybees.com) to place your order!

**Bee Strong!**  
**Melanie Kirby, Editor**

*Melanie Kirby is a professional apiculturist and queen breeder in the southern Rocky Mountains. Over the past 20 years, she has learned from bees and their keepers around the globe; and continues to do so. She is humbled by the bees' refined elegance for learning to live and promote life on our beautifully diverse planet. She is ecstatic to write about bees and beekeeping; and enjoys having a big cup of Earl Grey tea with a heaping spoon of pure, raw honey during the cold months. She can be reached at [Editor@KelleyBees.com](mailto:Editor@KelleyBees.com)*



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*If you have a question you would like to share, email it to [Editor@KelleyBees.com](mailto:Editor@KelleyBees.com)*

## **A•Bee•Cs**

### *Beginning Beekeeping*

**by Dennis Brown**



Hello Dennis,

We ordered Russian queens from a Russian Honeybee Association member for May 2017 delivery. But I have become concerned about the info I read on the RHBA website titled, "The truth about pure Russian honey bees," by Big Bee Valley Apiaries. Under the swarming section about active queen cells, Dr. Tom Rinderer stated about one of every five Russian colonies will have more than one laying queen without swarming. My concern is with the queen daughter. What if she mates with non-pure Russian drones and we end up having an aggressive hybrid strain. Have you experienced this? Should I be concerned of this happening?

Also, I asked for May delivery thinking this would ensure a well mated queen. Should I ask for the queens to be delivered earlier than May? Barbara Farguson

Hello Barbara,

That's a great question. Not known to many out there, it's believed that as many as 6% of all hives have two queens. This usually occurs when the hive is weak. The workers will produce another queen in order to build up the population in the hive. Hives can become weak from a failing queen. The bees will tolerate a second queen until the population builds up. Then the bees will kill the failing queen. Another reason for having two queens is that you are providing more room in the hive than the bees can protect.

If you stick to the management program I discuss in my book, you won't have to worry about running into this problem. The drone population towards the end of April in the south is high enough to have fully mated queens. So, if you live in the south, order your queens from a southern breeder during that time. If you live in the north, it would be best to order your queens towards the end of May. This could change depending on Mother Nature. In all cases of virgin queens mating in the open, there is a chance that the queen could mate with drones from a more aggressive strain. Especially in the south where the African bees are so relevant.

I have seen two queens in a hive many times over the years when running my 550 hives in my commercial days. When you run that many hives mostly by yourself, you can't give your bees all the proper attention you should. I hope this helps.

**Enjoy your bees!**  
**Dennis Brown**

*Dennis Brown is the author of "Beekeeping: A Personal Journey" and "Beekeeping: Questions and Answers." Contact Dennis at [www.lonestarfarms.net](http://www.lonestarfarms.net).*

# Just the FAQs

## Questions & Answers

by Phill Remick

### BEEKEEPING SURVIVAL TIPS FOR 2017

Another season buzzes by and you're poised for 2017 despite beekeeping's intense learning curve - very aware there is much more knowledge to be obtained for true seekers in the ways of the honey bee. I offer a few pointers which may encourage you in a proverbial "bee line" to your beekeeping future.



Be pragmatic with your objectives. Gauge your strengths and know your pitfalls. Scrutinize your apiary. Is it functioning properly or could it benefit from a few modifications? Consider the location of the hives in relation to homes, roads, fences, pools, stables or other properties where conflict may lurk. Another point for contemplation - is the yard designed with maximum distance between colonies to lessen drift and thus reduce potential for robbing and "mite bombs"?

Anticipate probable challenges. If the situation dictates, transport hives to a more workable locale. It's like George Carlin bluntly states in one of his routines related to people constantly complaining about the weather, "If you don't like the weather - move!" The same goes for beekeeping. Do what you must to be successful.

Take time to enjoy reading and subscribing to some of the many publications or groups devoted to the world of beekeeping. They are excellent resources for new beekeepers.

#### WHAT YOU SEE IS WHAT YOU GET - OR IS IT?

I suggest inspecting your colonies every 7-10 days. During swarm season, depending on number of hives, it can be beneficial to visit apiaries more frequently - just in case. Have a plan in place. Many new keepers venture into a hive without anticipating what the temperament of the hive might be. They are unaware of seasonal influences on the hive and the bee's resultant behaviors. Yes, there is a substantial time commitment required to thoroughly examine a honey bee colony. But you will learn to do it quickly so as not to disturb the nest unnecessarily for too long a time frame. Your highly experienced mentor can guide you in this endeavor. You do have a highly experienced mentor, don't you?

#### SAY "GOODBYE" TO NATURAL HABITAT AND "HELLO" TO INADEQUATE NUTRITION

Cover crops (the understory) established as pollinator-friendly forage, has vanished in many regions of our country, completely altering feeding opportunities and habits. But, you know that. Continue planting and encouraging others in the neighborhood to plant also!

As beekeepers we realize the importance of sustainable, adequate and balanced nutrition. This



includes the feeding of sugar, pollen and pollen substitutes. So be mindful of your hives food supply all year long.

### **THE COMMON DENOMINATOR: DESTRUCTION, VARROA STYLE**

Varroa destructor mites kill beehive colonies. These creatures vector several pathogens; among them Deformed Wing Virus.

Now I must ask if you know your mite load per colony? Most experts agree 3 to 5 mites per 300 honey bees is the so-called "threshold" where treatment may be required. Do you monitor frequently enough to determine what to do if the results necessitate treatment?

Be prepared to spot a declining colony with Parasitic Mite Syndrome and watch for guanine in cells, indicating mites have lived there. Mite excrement is 95% guanine and looks like a little white glob left in the cell.

Learn how to monitor mites ASAP. All the colonies in your immediate vicinity depend on it. Don't endanger your neighbors' honey bees because of your lack of proficiency in the mite game. Take the time to learn about this threat and concern yourself with keeping mite propagation to a practical minimum.

### **TO TREAT OR NOT**

Many methods for mite treatment are strong options, although not total solutions. These sources have certain inherent pitfalls to be addressed and understood prior to implementation; and should be rotated for maximum effectiveness.

Familiarizing oneself by label reading is an ideal starting point. Use an alcohol wash, ether or sugar roll to ascertain mite load. Ask questions and continue reading what verified, national and international experts proclaim.

### **THE NAME OF THE GAME: GENETICS**

I believe requeening with Russians and VSH (Varroa Sensitive Hygienic) queens is the way out of the mite maze. Rearing mite resistant queens will require the beekeeping community to begin to act on a larger scale. I encourage you to discuss the options in the quest for this type of bee with everyone and anyone who is concerned. Perhaps someone in your club is actively pursuing such a queen-rearing approach. When you order queens, insist on VSH stock.

### **MOST "CIDES" SERIOUSLY IMPAIR OR KILL HONEY BEES**

Day in and day out, acaricides (miticides), fungicides, herbicides, insecticides, and all manner of pesticides place the honey bee and other crucial pollinators in peril. Frequently this occurs through an innocent miscalculation while mixing chemical concoctions. It could be chalked up to bad timing, sheer ignorance, or ambivalence.

## FAQs *continued*

How about sleuthing on your own? Start some online searches and gather information on these enemies of the insect and our planet. Then when someone says, "Oh, well organophosphates never hurt bees," you may be able to determine whether they are misinformed or making a valid point.

It's a fact that widely used neonicotinoid/systemic pesticides, often in the form of pre-treated seed (coatings) will sprout and emerge in place of the natural unencumbered pesticide-free variety. Who would ever dream (hallucinate) seeds would come "pre-treated" with poison?

Truth is stranger than fiction. As an aside, here is an informative site for your perusal on pesticides: <https://www.epa.gov/pesticides>

### THE WARP/RAP

There is a massive volume of information to consider when keeping honey bees. However many of these BEEKEEPING SURVIVAL TIPS FOR 2017 will stimulate the thought process.

Do your best to journal extensively. Document each hive and its related condition. Establish a mental road map of where your hives are, and where you want them to be.

Remember to observe bee hive behavioral and seasonal . They are an integral part for the key to cracking the code of the hive and surviving 2017!

HAPPY NEW YEAR!

*Phill Remick is a former commercial beekeeper teaching beekeeping and providing year round apiary consultation near Grand Junction, Co. Contact: [Phill@NewBeeRescue.com](mailto:Phill@NewBeeRescue.com)*





**X•Y•Zzz**

## *Advanced Beekeeping*

by **Melanie Kirby**

### **Queen Breeding 101**

Over the course of this 2017 year, we'll be flipping back and forth between the past and the future of bee breeding. As with any endeavor, reviewing the past in preparation for the future is essential as we can only figure out where to go from where we've been. For those who are unfamiliar with what bee breeding is and how one can participate in the process, we'll cover the basics and also begin discussing what is realistic and pertinent for promoting and nurturing healthy stock lines for all experience levels. For this second installment, we will begin by sharing a little bit of history from 1937 (80 years ago); and then share the first part of an article I wrote back in 2011 for The American Bee Journal on establishing a survivor bee breeding program in today's circumstances.

**W. J. NOLAN, Apiculturist, Division of Bee Culture, Bureau of Entomology and Plant Quarantine 1937, Excerpt from** <https://naldc.nal.usda.gov/download/IND43893553/PDF>

#### **OBJECTIVES OF THE BEE BREEDER**

WHAT are the immediate objectives of the bee breeder? He may attempt to standardize the various strains now existing that are of economic importance. He may even attempt to develop strains that are more gentle, more disease-resistant, capable of carrying larger honey loads, or capable of flying longer distances than strains now available. He may attempt to develop strains with tongues long enough to secure nectar from floral sources not now available to the honeybee. For some regions it would seem desirable to develop strains that fly at lower temperatures than do bees now commonly found in the United States. This is of particular importance to those interested in bees as pollenizing agents.

The breeder need not await the occurrence of mutations, or an exhaustive survey of existing strains, to find some definite character of economic importance with which to begin work. On the contrary, he is able to start at once toward his goal for a bee better adapted to present agricultural demands since not one, but several desirable characters have already been identified among the varieties of honey bee now used in the apiary. Other desirable characters may exist, while still others are to be expected from future mutations occurring either naturally or under experimental conditions.

What are the characters in the available germplasm with which work may begin immediately? They are related to disease resistance, color of comb cappings, size of body parts, consistency of color markings, disposition, swarming propensity, and the like. For instance, the breeding of a bee in which are incorporated the long tongue of the Caucasian; the gentleness of the Caucasian and the Carniolan; the white capping made by the common black bee and the Carniolan; the reduced swarming tendency



and resistance to common hive enemies and European foulbrood of the Italian; the uniformity of marking of the Cyprian; and the industriousness of the Italian or Cyprian would be a big achievement. Some commonly accepted worker characters, desirable and undesirable, and the races in which they are found are given below^:

Character	Race
Resistance to European foulbrood	Italian
Fighting wax moth	Italian, Cyprian
Hive cleanliness	Italian
Clinging to frame during manipulation	Italian, Cyprian
Running on frame during manipulation	Common black, European brown
White cappings on honey	Common black, European brown, Carniolan
Water-soaked cappings	Cyprian
Tongue length over 6.75 mm	Caucasian.
Tongue length under 6.25 mm	Common black, European brown
Long legs	Caucasian
Uniformity of markings	Cyprian
Yellow scutellum	
Gentleness	Caucasian, Carniolan
Viciousness	Cyprian
Reduced swarming tendency	Italian
Excessive swarming	Common black
Propolizing tendency	Caucasian

.....

Now a little bit from the not so distant past....

IN HER MAJESTY’S SECRET SERVICE\*

Melanie M. Kirby

When I first enlisted, I really had no idea what I was getting myself into. Boot camp sure was intense, but full-time enlistment?! Whew!...if I had only known....

I did, unknowingly, enlist in Her Majesty’s Secret Service. I was just a recent college grad with the prospect of travelling abroad and learning new things, how exciting! I began as just a laborer in the trenches, learning the terminology and how to react to stinging insects. I did not foresee this initial introduction to honeybees and beekeeping as the professional declaration it has come to mean for me. And little did I know that this laborer role would follow me. I am indeed a worker: I work for the Queen! She and her peers are demanding, persisting to attract me with their mysterious behavior and

reign on their colonies. So, after more than 20 years, I have truly committed myself to her and her sister queens' service. But what is so secret about that?...We'll get there.

This is written in the hopes of enlisting others. A call to arms, so to speak, for those brave and bold enough who want to be pro-active about their honeybee stock and management. It is a very sane story of resilience, fortitude, persistence and action. It begins with my perspective as an aspiring breeder, and ends with a case study of applied research.

Before beginning queen rearing on my own, I had the very blessed opportunities to work for three very different commercial queen rearing outfits for 8 years. I never intended to have my own bee business, nonetheless get sucked into the fascinating world of queen production. However, happenstance and fate had another plan for me...

I had a long list of questions: who were my breeders going to be and by what standards was I going to label their breeding quality? The selection process of production queens can be based on many things, specific or broad. Color is an example of a specific selection. Should we base performance judgments on color alone? What about depth of character and endurance? Should we focus solely on hygienics? On gentleness? What about "broad" and long-term performance?

I believed what I saw with my hives. They either performed well, or they didn't. I relied upon my immediate senses for selecting breeders; what I could see, smell, touch and taste. I still choose my breeders with my senses. I can see how well or not they perform. I can smell their distinct chemistry and whether it is "funky" or normal. I can touch and handle my bees with ease. And of course, I can taste the fruits of their productivity—the divine sweetness of honey! Combined, all of these senses helped me to determine how well a hive performs. But was that good enough?

It all comes down to the same simple paradigm. The hives, and more specifically their queens, need time to demonstrate their productivity and their resilience. They need time to establish their *Overall Lifetime Merit*<sup>1</sup>. Let us consider how OLT or Overall Lifetime Merit is manifested. And how will the OLT be monitored and tracked? How can the OLT translate to be utilized into a breeding and rearing protocol? To understand what this all means, let us begin with a story for the ages...

Longevity of queenbees and of hive organisms, in general, has diminished. We do not know why or whether it is reversible. But it is worth a try to find out. So let us look to define "longevity" and how it manifests, i.e. what determines it. Webster's Dictionary defines Longevity as (1) a long duration of individual life; (2) long continuance: permanence, durability." Let us then define longevity in this article as it pertains to the long duration or extended life span of a queenbee.

How does one come upon long-lived queens? How do they develop? And, what is their importance? The answers to these questions are not all too complicated; but the time and energy spent to understand these answers and their processes require focus and patience. How does one "find" a long-lived queen? The answer: Queen Marking. Mark your queen<sup>2</sup>. The international color coding



system is reflective of years and determines age. If you do not know how to mark your queens or are unable, then request it done by your producer. The average fee adds a \$1 to the overall price of your queen but such marking helps track so many things. Some producers, such as ourselves, include it as part of their service for the benefit of the recipient beekeepers; hoping that the recipients will track and share their experiences with their producers.

With a marked queen, one does not have to verify that it is she each and every single revision. But when preparing to share quality stock via queen production or splitting, verification of the year is important. Especially if selecting for the broad-spectrum trait of longevity. **LONGEVITY IS THE UMBRELLA TRAIT.** It encompasses many specific traits collectively over time. The best testers of queens and their progeny is Mother Nature and Father Time. If a hive is performing well, then why re-queen? Why not let them continue and see how long their Majesty reigns? You might, or might not, be surprised by the answer.

While the practice for many has been to requeen yearly to keep vitality in production of bees and hive products high, there are other techniques for keeping hives productive and healthy. Long-lived queens have proven themselves and their progeny by withstanding various seasonal transitions; environments (for migratory beekeepers); as well as permanence or sustainability; and how well they have adapted to their specific locations. So how is it that they have withstood the dynamic interface of Mother Nature through Father Time?

Long lived queens which exhibit pest/disease resistance, hygienic behavior, gentleness, and production are true gems worthy of sharing their quality genetics. Their hardiness cannot solely be based on their age. Let us look at where they are located. Location is important as it explains the environment, the forage, the obstacles, and the positives that play a role in developing a hive and allowing for queen "maturity".

The environment of a particular hive and its Majesty can be composed of a variety of layouts including valley, pasture, farm land, mountains, desert, woods, coast, plains, etc. Each of these environments is exposed to a variety of uncontrollables; namely, weather fluctuations and other impacts man, and nature inflicted. The environment dictates what sort of diet is available and whether it is subject to compromise. In the real world, which is indeed one large living laboratory with numerous variables (controlled and uncontrolled), the diet of the bees and their queen determines their overall nutrition.

Their overall nutrition can affect their whole immune system. Contaminated locations yield nutritionally deficit bees and queens. And thus, the overall ability of the hive organism to fight antigens (known as their immunocompetence), can be devastated. This means that the queen and her bees will fail to establish their OLT. And, with no OLT, with no merit, then what are they being bred and reared for?

Research shares that immunocompetence is directly related to diet (along with environmental conditions and management). Antigens are defined by textbooks as: "...usually proteins or polysaccharides.

This includes...bacteria, viruses, and other microorganisms.” This means that specific environmental conditions plus diet/nutrition or lack thereof determines how well a queen and her progeny can deal with a bacterial or viral infection. And if they can’t keep healthy, how can they combat pests? This not only affects their current behavior, but it is also hereditary.

...To Bee continued next month!

*\*First published in the June 2011 American Bee Journal*

<sup>1</sup>Overall Lifetime Merit is a term borrowed from the Cattle Industry. However, it is very applicable to queen bee breeding and in establishing longevity and performance over time.

<sup>2</sup>Any paint applied to a bee can have adverse reactions. We have chosen to use “Painters” which is made by Elmer’s out of Canada (Elmer’s kiddie glue company). Painters come in solid, “electric” and glitter colors. It is labeled as being non-toxic and no odor. Can be found in craft sections of major stores for just a few dollars.

*Melanie Kirby is a longevity based bee breeder at 8300’ in the southern Rocky Mountains of northern New Mexico: [www.ziaqueenbees.com](http://www.ziaqueenbees.com). Along with partner Mark Spitzig, their small operation offers Enchanted Empress Breeder Companions for interested queen rearers and breeders. As dedicated honeybee stewards knowing that their efforts are but a drop in a very large bucket, they look to share and swap quality stock. For more info email: [ziaqueenbees@hotmail.com](mailto:ziaqueenbees@hotmail.com)*



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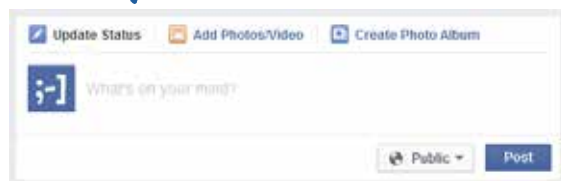
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# *Understanding and Evaluating* Satellite Remote Sensing Technology in Agriculture

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According to AgFunder, investments in agriculture technology reached \$4.6B in 2015, supporting an influx of technology providers in agriculture – particularly as it relates to optical remote sensing of crops.

In order to best evaluate the different offerings, one must understand the variability in remote sensing processes. In the end, different insights can be produced with access to the same data source.

### **SATELLITE REMOTE SENSING**

The use of satellites as a remote sensing tool for land observations is nothing new – in 1972, NASA launched Landsat 1. NASA is now operating Landsat 8 and more than 300 other Earth observation satellites are in orbit with almost half providing optical imaging.

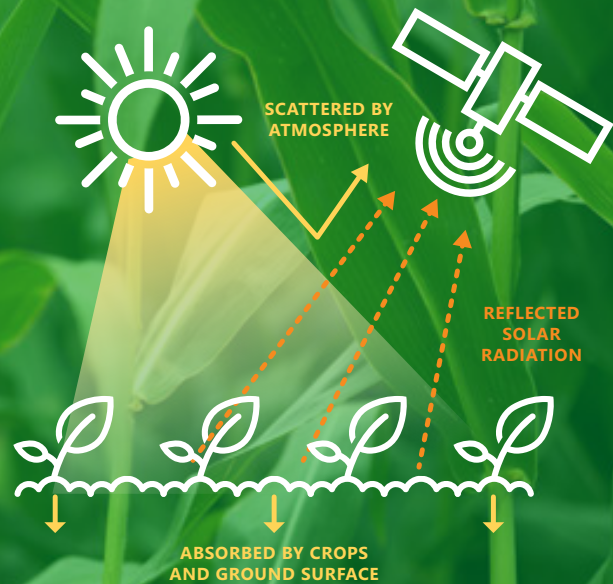
#### *So, how does it work?*

Optical satellites acquire images from solar radiation reflected by the Earth. Because satellites utilize different sensors and technology, the information available from each satellite varies.

While using satellite data doesn't require an in-depth understanding of how the technology works, having working knowledge of a few key concepts helps to better understand what is feasible with the technology and how it can meet your agribusiness needs.



*Optical satellites acquire images from solar radiation reflected by the Earth. Because satellites utilize different sensors and technology, the information available from each satellite varies.*



### PIXELS AND RESOLUTION

Understanding the multiple forms of resolution is important when evaluating satellite imagery.

It is common to oversimplify imagery by referring to it as high, medium or low resolution. This creates confusion and misconceptions based on general photography knowledge in which resolutions is simply measured by the number of pixels in an image, whereas in satellite imagery what is often being referred to is the spatial resolution.

*Distinguishing between pixel size and spatial resolution is important, as they are often confused, and not interchangeable.*

As with any digital image, satellite imagery is also made up of pixels. The image is acquired by sampling the light reflected by the surface and recording the measurements in a matrix of pixels which creates a grid. The ground sampling distance (GSD) refers to the distance between each pixel of this predefined grid.

However, when talking about resolution, satellite data providers are often referring to the spatial resolution,

which refers to the smallest object that can be identified on the ground. This varies based on the position of the sensor relative to its target, atmospheric diffractions and other factors. Meaning, spatial resolution – and therefore the quality of the information provided – varies from the image center to the swath edge.

For example, MODIS images have a GSD of 250 meters. Therefore, each pixel represents an area of 250 meters x 250 meters, or 6.25 hectares. The spatial resolution of MODIS at NADIR (point right below the satellite) equals 250 meters, but off-NADIR it can be more than 500 meters within the 250 meters x 250 meters pixel.

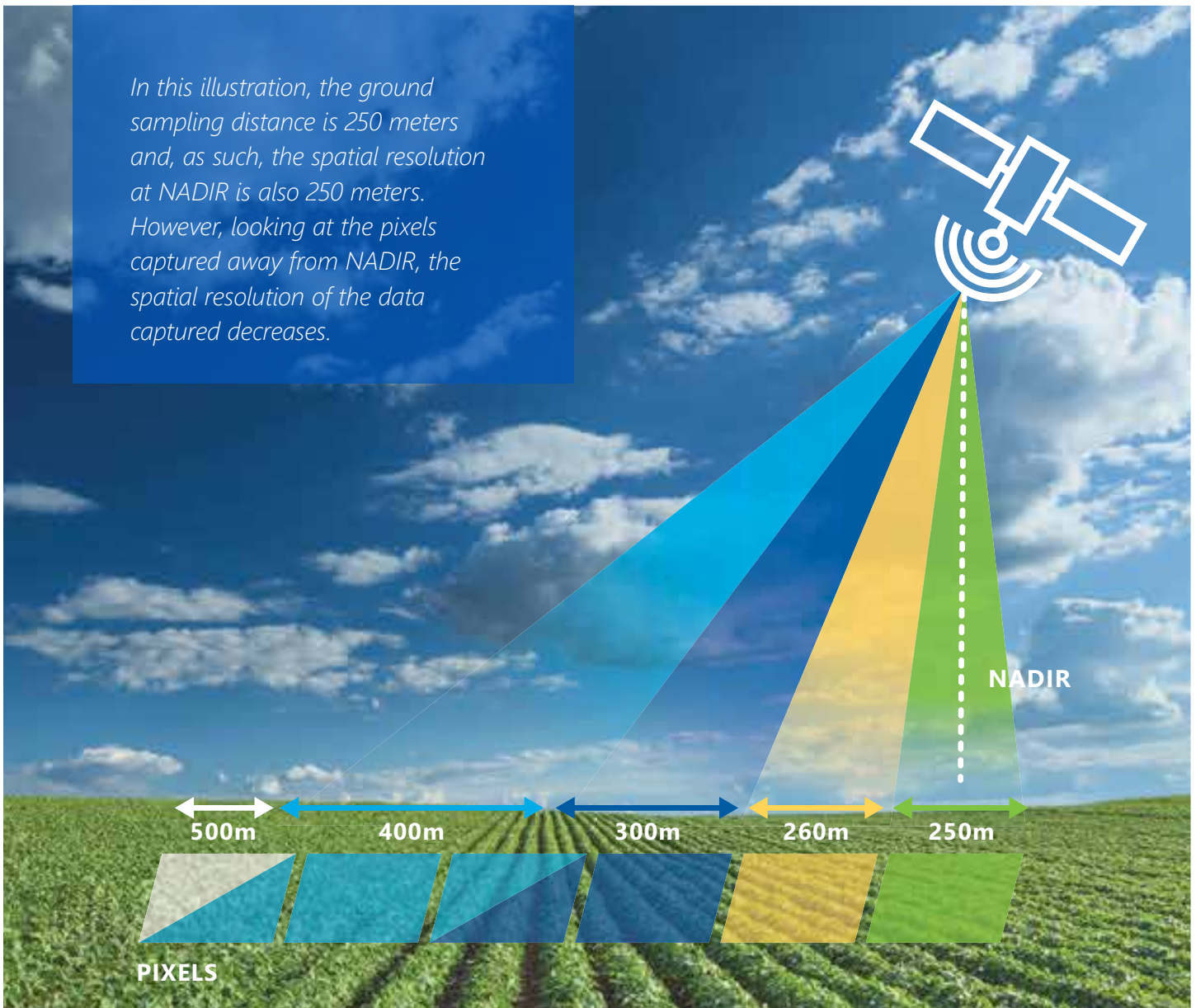
The same is true with higher resolution satellites and even more so when a satellite points its sensor at a wide angle, off-NADIR. For example, RapidEye satellites (Planet) can point up to 20° off-NADIR to observe target areas further away from its direct path, which impacts the normal spatial resolution of 6.5 meters.

*While spatial resolution is important, temporal resolution is just as critical and often misunderstood.*

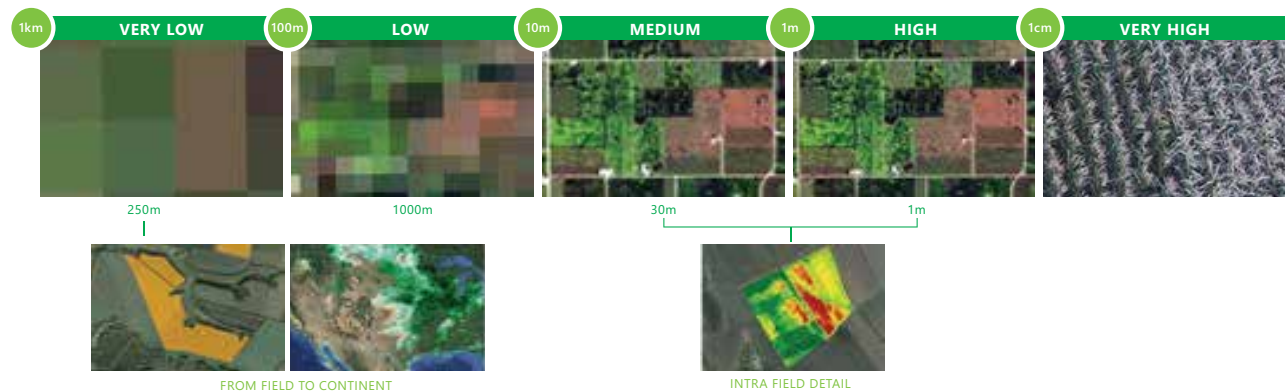


## Bee Science *cont'd*

*In this illustration, the ground sampling distance is 250 meters and, as such, the spatial resolution at NADIR is also 250 meters. However, looking at the pixels captured away from NADIR, the spatial resolution of the data captured decreases.*



### SPATIAL RESOLUTION





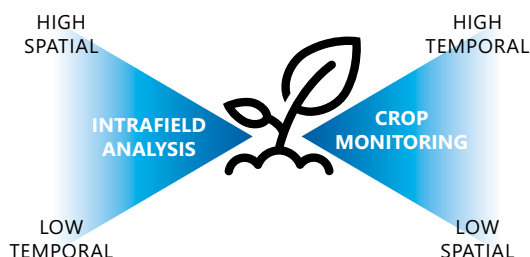
An Earth observation satellite provides the greatest value in its ability to record a sequence of images over time. The amount of time between image acquisitions, or time revisit, represents the temporal resolution. The closer the intervals of time, the higher the temporal resolution. The higher the temporal resolution, the greater the monitoring capabilities.

However, the time revisit is not the only component of temporal resolution because it only reflects the potential imagery acquisitions. It is important that the data actually gets acquired and downloaded to the ground segment – this is the difference between systematic acquisition and tasking. Many providers claim to offer daily revisit despite the fact that they are not acquiring data systematically. Instead, they task their acquisitions by:

1. *Choosing where to acquire imagery by pointing the sensor at a target, or*
2. *Limiting the number of pixels acquired to their download capacity.*

This makes it impossible to get daily information everywhere and serve all the customers equally.

In agriculture, true monitoring requires daily image acquisition, or high temporal resolution. This helps ensure the delivery of sufficient cloud-free images. If images have low temporal resolution, such as every five days, there is a greater risk of missing information as cloud coverage would create a ten-day information gap (assuming it's cloudy 50% of the time). Alternatively, intrafield analysis can be done with less frequent reviews – such as weekly – or low temporal resolution.



Tradeoffs are often required between spatial and temporal resolutions (volume of pixels that will be downloaded to the ground segment). As users of remote sensing data, understanding how the various resolutions affect the information being provided is important in comparing offerings based on your data needs.

Considering the various optical earth-observation satellite constellations available today, none are able to deliver true global monitoring, which means the use of several satellite constellations is required in order to deliver a consistent service to all customers.

*Understanding and Evaluating* Satellite Remote Sensing Technology in Agriculture

4

### **Field Monitoring versus Intrafield Analysis**

*The difference between field monitoring and intrafield analysis is similar to the difference between watching a movie and viewing snapshots. You cannot tell a complete story with the snapshots but they allow you to review details in that moment of time more carefully. Knowing what you are trying to achieve with the data will help you better identify your needs. Variable rate application of most inputs can be achieved with snapshots of a field. Understanding how a field is performing compared to other fields or seasons requires true field monitoring.*

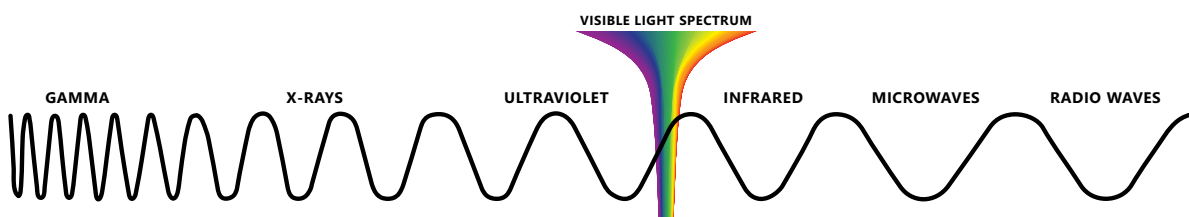
### Multispectral vs. Hyperspectral

The difference between multispectral and hyperspectral is the number and width of the spectral bands. Hyperspectral sensors have hundreds of narrow bands which access more details of the plants characteristics, yet require a high effort of calibration. This limits the capacity to detect or repeat the detection of phenomena. Few satellites use these sensors and most have a narrow swath, making the frequency and capacity of image acquisition very limited. The same is true for drones that utilize hyperspectral sensors.

Multispectral sensors have three to 20 narrow bands. If you think of the two in regards to charts of information, hyperspectral would produce a line chart where multispectral would produce a bar chart. The multispectral sensors offer very valuable information in monitoring crop health. Due to the volume of information available from the numerous satellites that use the multispectral sensors, the frequency, swath and capacity of image acquisition is much more abundant and reliable.

### THE SPECTRUM

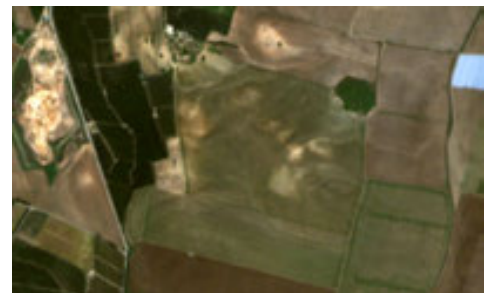
Radiometers on satellites measure wavelengths of electromagnetic radiation being reflected by targets on Earth – known as the spectral response – based on the electromagnetic spectrum. Different objects have different spectral signatures, which provide information on what is being observed.



Each satellite has its own set of spectral bands corresponding to the wavelength domains (i.e. blue, green, red) which they use to measure the spectral response. It is important to note that wavelength domains are ranges and each band is strictly defined for a satellite but varies from satellite to satellite.

For example, the red channel for Landsat 8 is characterized by wavelengths between 640 to 670 nanometers but the red channel for Sentinel-2A is characterized by wavelengths between 650 to 679 nanometers. The image to the right illustrates how two satellites with similar GSD capture data differently for the same area.

Due to this, satellites do not see the same exact colors for a given surface. This means data being collected from multiple sources needs to be carefully cross-calibrated to maintain consistent monitoring and analysis.



Rapideye (GSD 6.5 m resampled to 5 m)



Sentinel 2A (GSD 10 m resampled to 5 m)

## FROM WAVELENGTHS TO CROP HEALTH

The wavelengths and intensity of the spectral response provide the information needed for vegetation indices calculations. Vegetation indices provides an indication for the relative density and health of vegetation for each pixel in a satellite image.

Over the past 20 years, a wide array of vegetation indices have been described in scientific publications. The primary index for crop monitoring is Normalized Difference Vegetation Index (NDVI) published in 1979. Due to its robustness and the small number of input bands required, this index can be calculated from data acquired by basically all of the optical satellites, enabling cross-calibration and comparisons across satellites and locations.

NDVI is sensitive to both biomass and chlorophyll activity and provides a data range from -1 to +1. Since there is more reflected radiation in near-infrared (NIR) wavelengths than in visible wavelengths, the closer to +1 indicates healthier vegetation. If there is little difference, the vegetation may be stressed or dead – or the data captured is of bare soil.

Plants use energy contained in optical sun light to grow – photosynthesis, performed by chlorophyll. The red band is absorbed only by chlorophyll whereas the blue band is absorbed by other components of leaves such as carotenoids (making blue less correlated to chlorophyll content). So, the more red being absorbed, the more chlorophyll is active in the leaves.

Plants cells, which are full of water, act as a mirror to infrared. When osmotic pressure is high, most of the infrared is reflected by the plant. Therefore, the more infrared that is reflected by the plant, the more biomass is in good health.

$$NDVI = \frac{(NIR - RED)}{(NIR + RED)}$$

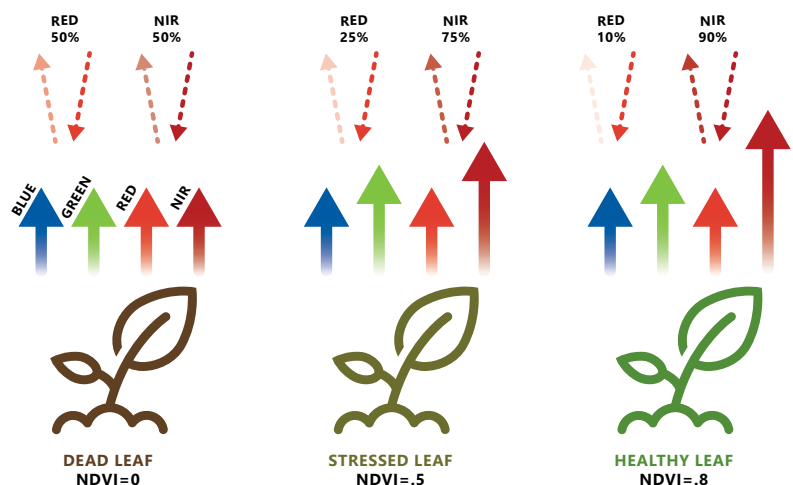


Landsat 8 - 30 m NDVI



Sentinel 2A - 10 m NDVI

These images show how NDVI data is visually displayed in a field. Notice the variation between the two data sets – which are taken of the same field on the same day – due to the different spatial resolutions.





Another index, known as the Enhanced Vegetative Index (EVI) was optimized to improve variability assessment in high biomass regions, making it more responsive to canopy structure variations.

$$EVI = G \times \frac{(NIR - RED)}{(NIR + C1 \times RED - C2 \times BLUE + L)}$$

In addition to the data required for NDVI calculation, some satellites also capture visible to shortwave infrared (SWIR) data, which provide vegetation water content information. This data is used in calculating the Normalized Difference Water Index (NDWI) and helps monitor changes in the water content of plants.

In the end, each pixel captured by the satellite provides a wealth of information that can be used in a variety of calculations to provide multiple data points. The more cloud-free pixels you are able to capture, the more information you have available and the better the resulting data will be.

### THE POWER OF PROCESSING

When it comes to agricultural application, satellite imagery is not suitable in its raw form. The information captured from the satellite sensors must be processed before it can be used for analyses such as NDVI.

There are a number of factors that affect imagery captured by a single satellite that must be corrected, including (but not limited to):

- *The atmosphere*
- *Cloud cover*
- *Shadows due to sun blockage*
- *Varying spatial resolutions based on the distance from the NADIR*
- *Varying angles of sunlight based on the curvature of the Earth*
- *Viewing angle of the sensor*
- *Topographical distortions*
- *Environmental effect*

For example, when a RapidEye satellite points to an object observed 20° off-NADIR, the thickness of the atmosphere changes and affects how the reflected light is being passed through. This has an impact on the signal measured. A similar affect can be noticed when looking at a sunset – the sun appears larger and more red at sunset than it does at noon.

This is important because reflectance measurements need to be corrected from acquisition conditions in order to allow for comparison within a single field over time, or between multiple fields in the vicinity, and properly detect changes in crop health.

Most of these distortions can be removed automatically, given the right algorithms and metadata, but others can be a rather labor intensive process. This is what makes the difference between a pretty, colorful map and actual data that users can capitalize on.

#### **Free Satellite Images**

*Satellite imagery is readily available today through the internet – so why pay anyone for the service? While some satellite imagery can be accessed free of charge, the data is raw. The ability to properly process the data is where providers add value.*

### **More Satellites = More Pixels = Better Data**

*Each satellite provides access to a unique set of information through the pixels it collects. The more satellites used, the more pixels of information available. More information available means more inputs for the data being produced, resulting in better data.*

*In order to obtain this better data, you need to be able to cross-calibrate the information collected from different satellites and process it correctly – otherwise you will be comparing apples to oranges. While you might be evaluating hundreds of thousands of hectares, each pixel impacts the data output you receive.*

### **CONCLUSION:**

As more companies enter the agriculture market as imagery providers, understanding the basic functionality of the technology becomes increasingly important. We want to empower agribusinesses to best evaluate the different services available and assess them against their individual business needs.

Determining the need for monitoring versus analysis support—or both—is an important first step as this will help in evaluating these key takeaways:

- Pixel size and time of revisit are not an adequate representation of resolutions in satellite imagery—simple descriptions such as high, medium and low resolution or daily revisit are too vague. Ask questions to understand the spatial and temporal resolution being offered.
- The more satellites a provider uses, the more pixels they have available—and this translates to better data. Ask questions to understand how many satellites are available and how they are being used by the provider to best assess the quality and quantity of the data they will be able to provide.
- Processing capabilities are major differentiating factors—and experience counts. Ask questions to understand how a provider is processing images in order to supply you with the best possible results.

*In making more informed decisions, you will be able to better support your long-term business goals.*



GEOSYS serves as a veteran in remote sensing technology with nearly 30 years of experience using satellite data in addition to aerial and drone pictures. Due to the need for scalability and quantity requirements, satellites serve as the company's main source of data. With roots in agronomy, GEOSYS operates globally by providing local data to stakeholders across the agriculture value chain.

[geosys.com](http://geosys.com)

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# **Beekeeping 'Round the Globe**

## **International Apicultural Congress 45th APIMONDIA**

### **Istanbul - TURKEY / September 29th-October 4th, 2017**

Dear Bee Friends,  
We wish you a Peaceful 2017!

With kind regards,  
The Apimondia Executive Council

The Apimondia 2017 Scientific Committee  
and the Local Organizing Committee  
welcomes the submission of original  
contributions for oral and poster presentation at the Congress.



*Let's bee where the continents meet...*

Deadline for Abstract Submission is May 1st, 2017.

#### **MAIN TOPICS FOR ABSTRACT SUBMISSION**

##### **BEEKEEPING ECONOMY**

- Legislation and supervision
- Food safety
- Marketing and branding
- Risk management and insurance
- Sustainability, accountability and standardization
- Financing (promotion, fee, productivity and added value)
- Optimization of migratory beekeeping
- Global economical crisis and beekeeping sector
- Intersectoral coordination in beekeeping economy
- Education and broadcast in beekeeping

##### **BEE BIOLOGY**

- Productivity in beekeeping
- Biodiversity
- Biotechnology
- Bee ecology
- Bee feeding
- Bee physiology
- Selection and breeding
- Bee behaviour
- Pesticides



## 'Round the Globe *cont'd*

### **BEE HEALTH**

- Bee microflora and the role of endosymbionts on bee health
- Role of environmental factors on bee health
- Radiation and bee health
- Treatment methods without residues in bee health
- Current status of CCD
- Role of pesticides and other toxic substances on bee health
- Immune defense and proflaxis (biological, mechanical, physical and chemical)
- Legal regulations on bee health
- Hygienic impact of bee disease agents on bee products

### **POLLINATION AND BEE FLORA**

- Guidelines for the establishment of honey forests
- Bee pollination and ecosystem
- Use of bees in preventing erosion
- Pollination and agricultural production
- Ecological problems effecting bee flora and offers
- Approaches in protecting meadows
- Legal regulations on the use of bees as pollinators
- Natural pollinators in the ecosystem
- Protection of nectar producing plants (natural and cultivated)

### **BEEKEEPING TECHNOLOGY AND QUALITY**

- New technologies in the beekeeping sector
- Quality and hygiene in bee products
- Standardization of bee and bee products
- Conventional and organic beekeeping
- Technological and conventional approaches in beekeeping
- Beekeeping equipments and innovation

### **APITHERAPY**

- Definition of apitherapy and the criterias of applicator(apitherapist)
- Use of bee products for health
- Use of bee products for treatment
- Use of bee products for cosmetics
- Standardization of bee products
- Clinical studies on bee products
- Role of apitherapy in conventional and integrative medicine
- Legal regulations in apitherapy

### **BEEKEEPING FOR RURAL DEVELOPMENT**

- Beekeeping in rural development
- Beekeeping archaeology
- Forestry and beekeeping
- Traditional beekeeping





## 'Round the Globe *cont'd*

- Protection of local bees
- Stingless bees and beekeeping
- Bee tourism
- Registration system of beekeeping
- Beekeeping in developing countries

### **DEADLINE FOR DISCOUNTED RATES OF API-EXPO is DECEMBER 31st**

Exhibition area plan is available on the web page and applications are going on. More than 2.000 sqm area are reserved at the moment.

### **NEWSLETTER**

Premium Zone A ( space only )

Zone B (stand booth – min 9 sqm)

Zone C (stand booth – min 9 sqm)

350 Euro + %18 VAT per sqm

3,500 Euro + %18 VAT

2,500 Euro + %18 VAT

Booked by December 31st, 2016

450 Euro + %18 VAT per sqm

4,500 Euro + %18 VAT

3,500 Euro + %18 VAT

Booked after December 31st, 2016

### **CONTACT**

Congress Web Page : [www.apimondia2017.org](http://www.apimondia2017.org)

Congress Secretariat : [secretariat@apimondia2017.org](mailto:secretariat@apimondia2017.org)

ApiExpo Team : [apiexpo@apimondia2017.org](mailto:apiexpo@apimondia2017.org)

Registration Team : [registration@apimondia2017.org](mailto:registration@apimondia2017.org)

Scientific Committee : [scientific@apimondia2017.org](mailto:scientific@apimondia2017.org)

Phone : +90 212 343 80 03

Fax : +90 212 343 80 23

<http://apimondia2017.org/>

Space allocation will be made on a “first come, first served” basis. Space allocations will be made in the order in which application forms with payment are received.

On-line abstract submission system for 45th Apimondia International Apicultural Congress is available on the congress web page - [www.apimondia2017.org](http://www.apimondia2017.org)

**ABSTRACT SUBMISSION HAS STARTED**

## Apitherapy

### Wisdom, Love, Health and Bees:

#### Dr. Stefan Stangaciu



Speaking of the wider world of beekeeping, it was at the Apimondia World Beekeeping Congress in Kiev, Ukraine in 2013 that I got to meet with Dr. Stangaciu face to face. Interestingly enough, I had actually taken his Level I online Introduction to Apitherapy course 10 years prior. But on this particular day in 2013, the conference had just wrapped up and I stayed an extra day to take a technical tour to an apitherapy resort. I was staying at a hotel near the town center. So of course, that morning I was in a bit of a rush to get to the tour bus in time which was across town. Being that I have yet to learn Russian, I relied on the hotel to make a taxi reservation for me the day before. As luck would have it, the taxi driver was running late. And to make matters worse, he ended up getting a speeding ticket which delayed us even more. I was about to jump out of the cab and hail a different one when the cabbie, who was listening to bass heavy electronic music from Amsterdam, assured me that I'd make it to the tour bus on time.

Well, I did make it on time, just as the bus was pulling out of the conference center parking lot. I ran up to the doors and rushed inside the bus knowing that everyone was probably anxious to get going. Comically, everyone yelled, "Hey, it's Melanie Kirby!" I was rather astounded that they all seemed to know my name but then quickly realized that since I was the only one who hadn't been seated, the tour guide made them all aware of who this late person was, "Melanie Kirby from the USA." The group was jovial. And I, perspiring somewhat from rushing to catch the tour bus, nestled myself into the only available seat next to a gentleman who seemed, for all sense and purposes, like a cultured world citizen.

Of course, my chatty self, which really turns into a talking tornado when I'm around other bee enthusiasts (and when I'm nervous), began a conversation with the gentleman in the seat beside me. We talked about all sorts of bee stuff before we got to who he was and where he was from. And when I did hear his name, my mouth dropped. I couldn't believe that I was lucky enough to sit next to the founder of [www.apitherapy.com](http://www.apitherapy.com), Dr. Stefan Stangaciu himself. He smiled at my expression and asked, "Have you heard of me?" I sheepishly replied, "Yes, I have...in fact, I enrolled in your your Level I online Apitherapy course back in 2000. I'm the one who had just finished her Peace Corps service in South America, though you may not remember." And he said, "You were in Paraguay, correct? I do remember."

Well, that truly impressed me considering how many students he has trained over the years from around the world. This ice breaker conversation turned out to be just the beginning. He and I talked about all sorts of bee and apitherapy lore. Time flew as we cruised through the woods of this beautiful eastern European country. I'll share photos and the story behind the apitherapy resort we went to visit in a future issue of this newsletter. But for now, this story will focus on Dr. Stangaciu and his efforts in Romania and beyond, to share the healing properties of bee products through integrative and complimentary medicine.

—Melanie Kirby, Editor

## Apitherapy *cont'd*

### Dr. Stefan Stangaciu's Apitherapy Centre in Romania

Established in 2008, Dr. Stangaciu's Apitherapy Centre in Romania is based on the principles of organic, bio-medicinal beekeeping and integrative medicine.

From his website, [www.apitherapy.com](http://www.apitherapy.com), Dr. Stangaciu shares a variety of information on bee hive medicines; from medicinal bee plants to diseases, treatments and instruction. He speaks Russian so his translation to English is legible, though sometimes the wording may be different.



*Dr. Stefan Stangaciu's Apitherapy Centre in Romania*

### F.A.Q.'s by Dr. Stefan Stangaciu

Apitherapy is the science and art of using beehive products to prevent and/or heal hundreds of human and animal diseases.

The beehive products are extraordinary- not only in keeping us healthy, but also by providing us vitality, strength and beauty.

Slowing or even reversing ageing through beehive products is possible!

**What are the best bee products and the best Apitherapy protocols to improve health, beauty and strength?** The best bee products for us are the ones that clearly can improve our health, strength or beauty. To know how to choose the best bee products, we need to adhere to the following guidelines: **The best bee products are the fresh ones, collected and processed in the areas where we live.** These products can usually ensure the maximum of nutrients and active compounds that our body needs. If the local bee products are not available in adequate amounts, we can order other ones; but ideally also from our region. The reason is that the bee products are collected by the bees from plants and trees that are perfectly adapted to the climatic conditions where we also live. For instance, the plants that live in the mountains secrete more bio-flavonoids than the plants that are at sea level; due to the higher radiation level in the mountains. As a result, the honey and propolis made in the mountains better protects the people that also live in the mountain area than the products made/collected at sea level. The same kind of example is valid also for the people suffering from pollen allergies (hay fever–Heuschnupfen). If bee pollen is collected from the same area where the patient lives, and is administered in very small doses at the beginning with slow increase of the administered amount after meals, the chance of desensitizing the patient of that allergy is higher. The explanation is in the fact that the pollen allergens that are present in the atmosphere of that city/area will be present

## Apitherapy *cont'd*

for sure in very small amounts in the bee pollen collected by the bees from the same area as well; but with greater probability will not be present in the same amount in the bee pollen collected more than 30 Km away.

Once we decided to use local bee products and we can get them in adequate amounts, we need to ask our local medical doctors and pharmacists what are the best administration forms to use. Your doctors may need to ask the local pharmacists to prepare specifically for each patient (if necessary) the exact preparation/product that can reach the affected area faster. If we have conjunctivitis (eye inflammation) for example, we should use mainly eye drops and not other preparations/products...

Here is a table for orienting oneself in asking your local doctors/pharmacists for a more specific preparation/product and administration method:

System/Organ/Tissue to be treated	Best pharmacological forms	Administration method
Nervous system	Oral forms: fresh collected bee products, or at least fresh frozen, in any form that can be swallowed (honey-pollen mixtures, tablets, capsules, powder, granules, tincture, syrups, in form of liquids, juices, etc.); bee venom in solution form for injection on acupuncture points; ointments and/or creams to stimulate the blood flow in the head and vertebral column area.	Per oral (products that can be swallowed).  Injectable bee venom solution and/or live bee stings applied on the painful spots and/or on the acupuncture points/meridians.
Endocrine system	Same as above. The preparations that can be kept under the tongue for minimum 4-5 minutes should be preferred.	Same as above, but acupuncture points to be stimulated will differ according with the location of the endocrine gland that is currently treated.
Immune system	Same as above + propolis based suppositories.	Same as above, but acupuncture points to be stimulated will be specifically elected by the specialist in apipuncture.
Face	Creams, ointments and/or masks with all bee products + oral forms + bee venom solutions for micro-apipuncture.	Local application following the cosmetic related rules, ideally on the facial related acupuncture points; swallowing the oral forms after chewing and/or sucking of the freshly collected (frozen) raw bee products.



## Apitherapy *cont'd*

Eyes	Eye drops + ointments and creams + oral pharmacological forms that can be swallowed.	Eye drops in the conjunctival sac + ointments and creams that can be applied on the eye lids and on the surrounding acupuncture points + oral forms that can be swallowed.
Nose	Nose drops + solutions for inhalations with honey, propolis extract and essential oils + sunflower or olive oil based propolis-honey mixtures + ointments + oral forms + bee venom solution.	Dripping the nose drops solution in small amount + inhaling the vapours from the solution specially made for inhalation + superficial inserting the creamy-oily mixtures in the nostrils (not too deep) + stimulation of the local acupuncture points with ointments/creams and/or micro-injectable bee venom for micro-apipuncture + swallowing the oral forms (ideally, except the capsules, after sucking them for minimum 3 minutes).
Ears	Sunflower or olive oil based propolis-honey mixtures + solutions for inhalations with honey, propolis extract and essential oils + ointments/creams + oral forms + solutions bee venom solution + ear candles.	Inserting gently the creamy-oily mixtures in the external ears entrance, in very small amount + stimulation of the local acupuncture points with ointments/creams and/or micro-injectable bee venom for micro-apipuncture + inhaling the vapours from the solution specially made for inhalation + swallowing the oral forms (ideally, except the capsules, after sucking them for minimum 3 minutes) + specific application of beeswax ear candles.

## Apitherapy *cont'd*

Mouth	Various honey-pollen-propolis-royal jelly mixtures + water extract of propolis + propolis tincture + chewing-gum + tooth paste with propolis + oral forms + bee venom solution.	Local application inside the mouth + swallowing of the oral forms + acupressure and/or micro-apipuncture on the local bioactive points + injectable bee venom on distant acupuncture points that are related energetically with the mouth tissues.
Teeth	Liquid forms + injectable soft propolis extract + crystallized honey (small amount) mixed with propolis extracts, royal jelly and fresh bee pollen + oral forms.	Ask your dentist to apply on and under the gums surrounding the affected tooth/teeth mixtures of bee products, according to the local condition + swallow the oral forms + stimulate the teeth related acupuncture points.
Head	Propolis and/or bee venom ointments + oral forms	Stimulate the head and neck acupuncture points with the ointments + through micro-apipuncture + swallow the oral forms (after sucking them for minimum 3 minutes, except for the capsules).
Neck	Same as above.	Same as above, but use the neck related acupuncture points.
Back	Bee venom and propolis creams and ointments + raw honey + beeswax, propolis cataplasms + bee venom solutions + bee stings + oral forms.	Stimulation of the painful spots + the acupuncture points + honey massage + local application of warm beeswax-propolis cataplasms + eating raw, fresh (frozen) bee products.
Chest	Bee venom and propolis creams and ointments + raw honey + beeswax, propolis cataplasms + oral forms.	Same as above, but no injections of bee venom solutions, due to the higher sensitivity of the skin (exception: micro-apipuncture) + eating raw, fresh (frozen) bee products.

## Apitherapy *cont'd*

Abdomen	Same as above.	Same as above.
Upper and lower limbs	Bee venom and propolis creams and ointments + beeswax, propolis cataplasms + injectable bee venom solutions + oral forms.	Same as above; the best acupuncture points are located on the "Yang", more hairy areas.
Foot soles	Bee venom and propolis ointments + beeswax, propolis cataplasms + oral forms.	Use of creams and/or ointments on the reflexologic areas (reflexotherapy = Fußsohlenreflexmassage).
Cardiovascular apparatus + Blood	All oral forms + ointments + injectable solutions + bee stings + suppositories.	Swallowing of the oral forms after minimum 4-5 minutes of chewing and/or sucking; stimulation of the acupuncture points with ointments, injections and/or (micro) bee stings +/- use of suppositories or ointments in cases of hemorrhoids.
Digestive Apparatus	All oral forms, used according with the distance to the distance to the "target" + injectable bee venom solutions + suppositories.	Liquids or freshly made "cocktails" for treatment of mouth, esophagus, stomach and small intestine; capsules, solid propolis "beans" and suppositories for the large intestine, rectum and anus areas + stimulation of the acupuncture points according to the location of the affected organs.
Respiratory Apparatus	Solutions for inhalations + creams/ointments + cataplasms + injectable solutions + chewing-gum with propolis + oral forms, especially butter-propolis extract in cases of tuberculosis.	Inhalation through the nose; stimulation of the nose, chest and back areas (between shoulder bladders) with the ointments and/or injectable bee venom solutions + swallowing the oral forms.



## Apitherapy *cont'd*

Uro-genital Apparatus	<p><i>For women:</i> Suppositories + vaginal suppositories + creams and ointments + vaginal solutions with propolis and/or royal jelly + injectable solutions + oral forms, especially propolis extracts + fresh frozen royal jelly.</p> <p><i>For men:</i> Suppositories + creams and ointments + injectable solutions + oral forms, especially propolis extracts + pollen preparations and products.</p>	<p>Local use of suppositories (intra-rectal) + local stimulation of the acupuncture points with the creams and/or ointments + solutions to be used by women intra-vaginally.</p> <p>Ingesting of the oral forms.</p>
Osteo-articular and muscular system	Bee venom and propolis ointments + injectable bee venom + bee stings + oral forms + propolis-beeswax warm/cold cataplasms.	Local stimulation of the affected tissues and acupuncture points including through micro-apipuncture + gently “inject” the bee venom and propolis ointments through methods specific to physiotherapy (like electro- and phonophoresis) + application of the cataplasms according to the local signs and symptoms + swallowing of the oral forms, especially propolis extracts.
Skin	Raw, fresh collected honey, propolis, royal jelly and pollen in various extracts and cocktails + ointments and creams + oral forms + (micro) bee stings + shampoos, soaps and lotions with bee products according to your skin type and/or disease.	Local application according to the symptoms and signs of the affected area. Medicinal honey for deep wounds and Propolis Tincture for superficial dermic and epidermic lesions.

### What are usually the best doses?

The ones that bring relief, which immediately improves our long term health, strength and beauty. It is always recommended (except for emergencies like burns or scalds) to use the bee products initially in very small doses (to test for a possible allergy or intolerance), than to increase gradually until a clear improvement occurs (see the quantity/time relationship).

### **What are the best pharmacological preparations and/or products for me?**

The ones that reach faster and in enough amount the affected tissues, organs or systems in your body. Always ask your local health practitioner and your pharmacist what could be the best forms. Use also, as guidelines, the above table.

### **What is the best way to administer the bee products for my health, strength and beauty?**

Ideally is to administer as many as possible pharmacological forms (see above), to be sure that you will reach the affected area with enough nutrients, oxygen and active healing compounds.

### **What are the best doses and administration methods for children and old people?**

For children under 3 years  $\frac{1}{4}$  of a dose of an adult. For children between 3-8 is better to use  $\frac{1}{3}$  of the adult dose and for the children between 8-12 use half ( $\frac{1}{2}$ ) of the adult dose.

### **What is the best time/quantity relationship for me when I use bee products for health? How much time and in what amount shall I take the bee products?**

For those diseases that have less symptoms than usual (like blood diseases or cancers in initial stages) the level of "smile" can be obtained through specific laboratory analysis. After complete healing/improvement pauses can be taken, according to the medical advice.

### **Are there any adverse reactions when I take the bee products together with other remedies or practice simultaneously Apitherapy with other healing methods?**

Usually not, but in some cases the use of bee venom therapy is restricted for those taking heart related drugs. Also, rheumatic and multiple sclerosis patients are usually advised to refrain from taking steroidal and non-steroidal anti-inflammatory drugs during bee venom therapy. In cases when your medical doctor prescribes you mandatory drugs, you can use "soft" bee products like honey, bee pollen, royal jelly and propolis. And once the situation has improved, with the agreement of your doctor, you can start also bee venom therapy.

### **What persons can practice bee venom therapy?**

Only the licensed medical doctors (MD) and the Naturopathic Doctors (HP) can inject various bee products extracts and/or bee venom in solution form. Any person can though, use propolis and bee venom ointments but must respect the leaflet recommendations.

### **How can we improve the efficacy of bee products through other remedies and/or healing methods?**

#### **Is my diet and lifestyle important in Apitherapy?**

Any other method or remedy that can improve the absorption of the bee products related nutrients and/or active compounds should be used.

Also, any other healing method that detoxifies the body, mind and spirit should be used. Once the necessary nutrients, the water and the oxygen have reached the affected area in perfect quantity and quality, the regeneration/improvement of that area should start. In this phase, a very good local or general systemic relaxation (sleep) can make wonders. Learn and use any technique of relaxation, such as Yoga and Taiji Quan recommended by your local psychotherapist in order to get faster the

## Apitherapy *cont'd*

results you wish. All our living cells from our body need, besides nutrients, water and oxygen, also a warm enough environment. So learn to use daily massage and calisthenics (gymnastic) techniques. Our health depends on 50% from our diet, 40% from our lifestyle and only 10% from the treatments we take. So be sure to also have a very good diet, specific to your body needs and to your constitution. Here, the specific advises of your nutritionist (ideally specialized in Ayurveda) can help tremendously.

### **What are the major counter-indications and limits of bee products?**

Allergies (especially to bee venom); intolerances (especially to honey and pollen); and excessive (non-controlled) use of honey in cases of diabetes type 1. If the dose is correctly selected and the administration method is proper, even the people having normal counter-indications to the use of bee products can use them. But of course, **ONLY** under strict medical control.

### **Where do I find more specific information?**

Feel free to contact Dr. Stangaciu through email: [drstangaciu@gmail.com](mailto:drstangaciu@gmail.com), Facebook (Stefan Stangaciu) or Skype ([dr.stefan.stangaciu](https://www.skype.com/name/dr.stefan.stangaciu)). And visit his website: [www.apitherapy.com](http://www.apitherapy.com)



## **Bee Thinking About**

### **Events with Robert Mondavi Institute for Wine and Food Science**

We're kicking off the new year with plenty of sweet treats for you.

<http://honey.ucdavis.edu/>

#### **Mead Making Bootcamp**

Thursday, January 12, 2017

#### **Beginner's Introduction to Mead Making**

Friday, January 13, 2017 - Saturday, January 14, 2017

#### **The Feast: A Celebration of Mead and Honey**

Saturday, February 11, 2017

6:00 - 9:00 p.m.

#### **Save the Date for Our Other Events**

##### **World of Honey-Northern CA**

Wed, February 1, 2017

6:30 - 8:30 PM

We will be tasting a central NY wildflower, Mesquite from the Northeast, Purple Vetch from California, Sweet Clover from the Midwest and Sourwood from Georgia.

##### **California Honey Festival**

Sat, May 6, 2017

Inaugural honey festival in Woodland, CA.

##### **2017 Bee Symposium**

Sun, May 7, 2017

The Center's third annual conference on bee health which explores best management practices to help sustain the bee population for the future.





# 2017

NORTH AMERICAN BEEKEEPING  
CONFERENCE & TRADESHOW

BUILDING A  
*Sweeter*  
FUTURE



JANUARY 10-14, 2017  
GALVESTON ISLAND  
CONVENTION CENTER  
GALVESTON, TEXAS USA



"Building a Sweeter Future" is the goal of every beekeeper. Join the American Beekeeping Federation (ABF), the American Honey Producers Association (AHPA) and the Canadian Honey Council (CHC) in Galveston, Texas, for the 2017 North American Beekeeping Conference & Tradeshow and we'll build that future together.

#### FEATURES OF THE CONFERENCE INCLUDE:

- General sessions by industry and research leaders
- Presentations for Beginning, Serious Sideliner and Commercial Beekeepers
- A vibrant tradeshow with over 120 vendors with the latest innovations in beekeeping
- Networking with 1200+ participants from all over the world to exchange beekeeping tips
- The 2017 American Honey Show and much more!

**REGISTER TODAY! [NABEEKEEPINGCONFERENCE.COM](http://NABEEKEEPINGCONFERENCE.COM)**

#### HOTELS:

Galveston Island Convention Center and the San Luis Resort Properties  
5222 Seawall Boulevard | Galveston, TX 77551

*Guest room rates range from \$99-\$119 (plus tax).*

**JOIN THE MOVEMENT, GET INVOLVED  
AND BEE EDUCATED. REGISTER TODAY!**

	EARLY REGISTRATION <small>by 10/31/2016</small>		REGULAR <small>11/1/2016 - 12/16/2016</small>		ONSITE <small>after 12/16/2016</small>	
	PAYING MEMBER	NON- MEMBER	PAYING MEMBER	NON- MEMBER	PAYING MEMBER	NON- MEMBER
Single Registrant Full Conference	\$250.00	\$310.00	\$300.00	\$360.00	\$350.00	\$410.00
Family Full Conference <small>(2 adults &amp; any children)</small>	\$375.00	\$435.00	\$425.00	\$485.00	\$475.00	\$535.00
Single Registrant Day Rate	\$125.00	\$155.00	\$150.00	\$180.00	\$175.00	\$205.00
Family Day Rate	\$190.00	\$220.00	\$215.00	\$245.00	\$240.00	\$270.00
Student/Educator Rate	\$50.00 per day (must provide current student ID)					

*Paying member = Current ABF, AHPA and CHC dues-paying members. Rates are in US dollars. Non-member rates include a basic one-year membership to both ABF and AHPA.*

#### SCHEDULE AT A GLANCE

*(subject to change)*

##### Tuesday, January 10

All Day: Board and Committee Meetings

##### Wednesday, January 11

All Day: General Session

Noon: Tradeshow Opens

Evening: Welcome Reception & Honey Queen  
Candidate Entertainment

##### Thursday, January 12

All Day: Track Sessions for Beginning, Serious  
Sideliner and Commercial Beekeepers

All Day: Tradeshow

Lunch: Auxiliary Lunch/Meeting\*

Evening: Social Activity – Moody Gardens Rainforest\*

##### Friday, January 13

Morning: Kids and Bees Program

All Day: General Session

All Day: Tradeshow

Lunch: Foundation for the Preservation of  
Honey Bees Lunch/Meeting\*

Afternoon: ABF Business Meeting

Afternoon: 2017 Honey Show Live Auction

Evening: AHPA Banquet\*

##### Saturday, January 14

Morning: Commercial Beekeepers Breakfast/Meeting

Morning: AHPA Business Meeting

All Day: Concurrent Hands-On Workshops

Evening: ABF/CHC Banquet with the Coronation  
of the 2017 American Honey Queen and  
Princess\*

*\*Additional Charges / Registration Fee applies*

# DON'T MISS OUT!

**Kelley Beekeeping is  
looking for resale partners!**

**Ask yourself these questions:**

*Is your local beekeeping community  
strong and active?*

*Do you teach beekeeping classes?*

*Would you like to run a business that  
aligns with your passion?*

**If you answered YES,  
we may have  
an opportunity for you!**



**Contact Us Today**

**Email:** [aconstant@kelleybees.com](mailto:aconstant@kelleybees.com)

**Or Call:** 800-233-2899 ex. 213



**Missouri: EMBA 10th Annual  
Beekeeping Workshop**  
February 11, 2017  
Maritz Theater, Fenton, MO  
Info: [info@easternmobeekkeepers.com](mailto:info@easternmobeekkeepers.com)  
or call 314-669-1828

**We'd love to share news of your upcoming events. Please send the event name, date, website and/or contact information by the 10th of each month for inclusion in the following month's issue. [Editor@KelleyBees.com](mailto:Editor@KelleyBees.com)**



## UPCOMING EVENTS

### **Pennsylvania: The Western PA Beekeeping Seminar**

February 17 & 18, 2017

Doubletree by Hilton

Monroeville, PA 15146

Info: Penn State Extension <http://extension.psu.edu/beaver> or call 724-774-3003

### **Indiana: Beekeepers of IN present 15th Annual Bee School with Sue Cobey, Greg Hunt, Tim Tucker...**

February 25, 2017

Decatur Central High School

5251 Kentucky Avenue

Indianapolis, Indiana 46221

Info: <http://indianabeekeeper.com>

### **New York: HoneyBeeLives' Organic Beekeeping Workshop**

February 25-26, 2017

Sustainable Living Resource Center

Hudson Valley, NY

Info: [www.HoneybeeLives.org](http://www.HoneybeeLives.org)  
or call 845-255-6113

### **Illinois: Mettawa Bee Seminar- Bee Nutrition: The Next Step**

March 18, 2017

W.W. Grainger Corporate Headquarters

100 Grainger Pkwy

Lake Forest, IL

Info: <http://www.mettawabeeseminar.com>

### **Wyoming: WY Bee College**

March 18-19, 2017

Laramie County Community College

Info: [www.wyomingbeecollege.org](http://www.wyomingbeecollege.org),  
or call Catherine at 307-633-4383

### **Indiana: Rutgers' Bee-giner's Beekeeping: The Basics**

March 23-25, 2017

Rutgers Eco Complex

1200 Florence-Columbus Rd

Bordentown, IN

Info: <http://www.cpe.rutgers.edu/courses/current/ae0401cb.html>



## March 2017

### **Vermont: Bennington County Beekeepers Club 2017 Beginners Workshop**

March 2, 2017

VT Veteran's Home

325 North Street

Bennington VT

Info: Contact Jeanne Davis Email:  
[jdavisbwheat@comcast.net](mailto:jdavisbwheat@comcast.net)  
Tel: 802-823-7955



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We'd love to share news of your upcoming events. Please send the event name, date, website and/or contact information by the 10th of each month for inclusion in the following month's issue. [Editor@KelleyBees.com](mailto:Editor@KelleyBees.com)