The Mystery and Myth of Organic Beekeeping

Part 1 of Three Parts

by WILLIAM BLOMSTEDT

My beekeeping career began in New Zealand when I saw a sign that said "Honey for Sale." I was 19 years old, and feeling a little lost being so far from home, but when I saw those words in an office window something clicked and I walked inside the building to ask how to get in contact with the local beekeeper. A few days later I was immersed in a new world: looking into a hive for the first time, getting stung for the first time and living in a stinky little trailer for the first time. It was wild and weird, but over the course of the month I could feel the small, numerous hooks of interest digging into me, and they must have set deep for I am still on this *Apis* adventure today.

This was in January of 2005, and beekeeping on the South Island of New Zealand was still in its carefree age, like how American beekeepers still wistfully talk about the 1970s. There was no mite, only isolated cases of foulbrood and we worked hard to pull honey, extract and put empty supers back on the busy hives. I learned the basics from this beekeeper, who supported himself and his family from a few hundred hives in the surrounding area. He had some locations which were organic, while others were not, and his most important crop was the much-hyped organic manuka honey which sold for a fine price. Even today my taste buds are imprinted with that wonderful flavor from constantly licking it off my fingers as we extracted. The life of the beekeeper seemed beyond pleasant.

It was when I began working for beekeepers in the US that I saw this profession wasn't all stings and honey. I soon discovered the terror of varroa, the tragedy of American foulbrood, and the confusion of dumping chemicals and antibiotics in the hives. I had always thought of honey as a pure food, but my dive into the world of commercial beekeeping showed me I was quite wrong. Beekeepers have silently let this 'clean and natural' sentiment ride, but the recent Chinese honey laundering scandals and filtration/ultrafiltration controversy have brought the topic of honey purity into the light. The continued industrialization of our food system has caused much of honey production to rely upon synthetic chemicals to fight against pests, improve yields and increase profit. While the majority of consumers may rejoice at lower food prices, another group asks: What are the hidden costs? These are the people who began the organic food movement.

Organic Food

In April of 1995, the USDA National Organic Standards Board (NOSB) set the definition of organic agriculture as "an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on minimal use of off-farm inputs and on management practices that restore, maintain and enhance ecological harmony.[1]" Organic farming is growing food or raising livestock without using modern synthetic inputs, genetically modified organisms, irridation, industrial solvents or chemical food additives. For the majority of agricultural history, the production of food has been organic. Only with the introduction of synthetic pesticides and chemical fertilizers in the 20th century has there been a need for these specific terms.

The organic food movement began in the 1940s in response to the industrialization of agriculture, and over the past seventy years it has grown and mutated into the form we see today. Its began as a relationship between two people: the farmer and the customer. There was a certain trust involved as

The barrel label on Brazilian organic honey. Note IBD and USDA Organic label

Dark and light organic honey produced in Brazil

the former sold directly to the latter, and the customer often had the invitation to visit the farm to be assured of the organic practices. But as interest in organic products grew, supermarkets and corporations realized that this specialized food could fetch a higher price and the term began to gain weight. Now organic agriculture is a heavily regulated industry and not without its share of controversy. Since much of the food is mass produced, often in locations far away from the consumer, physical contact with the producer is no longer feasible for most consumers. Instead, other means of assurance have been created.

Many countries require producers to obtain an official certification in order to market their food as organic. This is done through a combination of government regulators and third party certifiers. In the US, certification is awarded after inspection of the production site, the adherence to a set of growing and packing standards and a hefty processing fee. When certified, a product is allowed to display a USDA Organic seal, assuring the authenticity of the product. But the USDA has also seized the term as its own; even if the food is produced to organic standards, it is illegal to label a product as 'organic' without being certified and a violation can lead up to a $11,000 fine.[2]

U.S. food can labeled organic only if it contains a minimum of 95% organic ingredients, but this seems to be based on farming methods and practices, not testing of the finished product. Section 6506 (a) of the Organic Foods Production Act of 1990 states that the National Organic Program (NOP) "require periodic residue testing by certifying agents of agricultural products that have been produced on certified organic farms and handled through certified organic handling operations to determine whether such products contain any pesticide or other nonorganic residue."[3] Even though USDA regulation states there is public access to results of residue testing, this testing is not being done because certifiers would have to pay for it themselves.

Our globalized food system has been forced to deal with various interpretations on organic criteria, but recent actions have brought the concept a step closer to a worldwide standard. As of June this year, the European Union and United States, the two largest organic producers in the world, allow products certified in either the US or European countries to be sold as organic in both regions.[4] Previously, growers and companies wanting to trade products on both sides of the Atlantic had to obtain separate certifications, which meant a double set of fees, inspections and paperwork. The two regions had similar policies, only differing on specific uses of antibiotics; the USDA allows antibiotics to control fire blight in organic apple and pear orchards, while the EU allows antibiotics in the treatment of infected animals. Though these exceptions must be labeled, other certified products can now move freely across borders. This union is especially helpful for small- and medium-sized organic producers in avoiding excessive certification costs and reaching new and bigger markets.

But this agreement can be seen as a continuation of the organic corruption. In the past fifteen years the idea of organic has gone mainstream and the original concept has seemingly spiraled out of control. In the past there was an assumption that organic food was grown with concern for the environment and sold at a local market, but as corporations realized organic's financial potential, the term was merely woven into the existing industrial agriculture system. World organic food sales jumped from $23 billion in 2002[5] to $54 billion in 2009[6] and will likely continue to grow. Now "Big Organic" has infiltrated all corners of the supermarket: from Rice Krispies to processed food bars to frozen TV dinners. Even McDonald's in the UK offered organic milk at one point. This bastardization of the term has led many of the original supporters to turn their back on 'organic,' and develop alternative methods of describing food.

Why Organic in the First Place?

For those concerned solely about the cost of their food, the organic debate may be a moot point. Looking at organic and non-organic vegetables side by side, often the non-organic will look bigger, better and cost less. Also, in a taste test one would likely not be able to tell the difference between the two. So, why buy organic food?

Many people associate the term organic with "safer" or "healthier" or even "tastier", but there are studies which show that there is not a significant difference between organic food and conventional in any of these categories.[7] Fewer agrochemicals (though still some) are found in organic products, but the amount of chemicals in conventional food are still well below generally accepted limits. Studies have shown that environmental contaminants like heavy metals are generally found at the same levels in both types of food.[8] Also, organic food has not been shown to be any more nutritious. Much of the hype seems to comes from anecdotal evidence, testimonials and a general, growing fear of chemicals. The combination of these three seem to overwhelm any scientific evidence put on the table.

The strongest argument for organic agriculture is the lighter impact it has on the environment. Organic farming is more likely to sustain diverse ecosystems and it promotes ecological practices like crop rotation and the mitigation of soil erosion. It does not use synthetic chemicals which have the potential to harm the water, soil, wildlife. Organic farming is also safer for farm workers, who do not have to be exposed to the agrochemicals.

How Does This Relate to Honey and Beekeeping?

Firstly, what is organic honey? You might see it on the shelves of your local store,

Cearapi organic honey advertisement

often selling for a much higher price than regular honey. Can honey even be organic? It's sad that we even need to ask this, but in this age of the chemical treadmill and closely regulated labels, it is a prudent question. The answer is yes, it is possible to produce organic honey, but after that simple answer things get complicated. Obviously, in an organic hive one cannot use synthetic varroacides, antibiotics for foulbrood or use a chemical like BeeGo to harvest the honey. But once these main offenders are out of the way, there are many conditions that are up for debate.

When you pick up a jar of organic honey from the shelf of your local health food store, Whole Foods or even Wal-Mart, (which currently stocks a few different brands of organic honey), if you turn it around you will likely see that the honey was produced in Mexico, Brazil or another foreign country. Confused, you might look at the front once again, but you still see a USDA organic label on the jar. How, you might ask, is it possible that something can be certified organic by the USDA if it isn't produced in our country?

The USDA has a policy of equivalence, meaning that products from other countries can be sold as organic in the US if the USDA considers their system of certification to be equivalent to its standards. The USDA audits international certifiers, and once approved, the seal of these certifiers carries the same weight as the USDA Organic label. This seems to make sense until we come upon a bizarre twist; there are currently no standards for USDA certified organic honey.

Both the EU[9] and Canada[10] have standards for organic honey, but the US has yet to issue an official standard for an organic apiary. In 2010, the NSOB approved its proposed organic honey standard[11] and sent it to the National Organic Program (NOP) for review. Supposedly the NOP director, Miles McEvoy, reacted positively and indicated that it would soon be posted for public comment, but this still has not happened.[12] This may be because there are some fundamental flaws in the standards that were addressed in a critique written by Mr. Arthur Harvey, a blueberry farmer, beekeeper and an organic certifier.

Though a number of suggestions were offered by Harvey, he focused on two major issues which need to be resolved before a certified organic standard can be put forward. The first is determining the distance a hive should be located from conventional farming or another pollution source. Depending on who you ask, the foraging distance of a honey bee can be as low as 3 kilometers or as high as 10. Karl von Frisch showed that bees could "dance" a distance as far as 11-12 kilometers, but certainly they will forage from the food sources nearest to their hive. The truth is that the range of a foraging honey bee depends on the region, nectar source and season, and specifying one size for all environments will not work. Consider the incredibly diverse geography of the US; in lush, flower-filled Hawaii bees may never have have to forage more than a kilometer, while in the desert of Arizona bees may have to travel to the maximum of their range to look for nectar or water. It may be that each state will have to assess its geography and identify their threats of pollution to create their own foraging range standard.

The sertão landscape in Brazil—vast areas of untouched landscape for organic honey production

An estimate of a bee's foraging range is better than no standard at all and the NSOB recommended a 3.4 kilometer buffer from sources of potential contamination, but a lack of extensive foraging data and the 'one size fits all' attitude make this distance merely a guess. One of the reasons that there has been a lack of research is the fear of finding too many chemical residues in conventional honey. Instead of the research helping the industry by showing organic honey as residue-free, it may scare the public when honey, this product which is seen as safe, clean and natural, is shown to contain a multitude of chemicals from both the surrounding environment and what beekeepers put inside the hive.

Another problem with applying these standards is the lack of qualified apiculture inspectors. These officials will need apicultural training, which is currently rare in the NOP system, and there will need to be a many-fold increase in technical knowledge within the organization. To complicate matters, this is not a time when budgets are flush with money to give out to programs such as this. Perhaps expertise can be drawn from state bee inspectors, but they are also suffering through the lack of government funding. A full talk about USDA organic standards and apiaries by two certifiers

Honey sold at a local market in Crato, Brazil

Arthur Harvey and Stan Hillenbrand can be found online at the link below.[13]

This is not to say we should give up working on these organic standards. Though two years have passed without a comment from the NOP, it is important to pay attention to this issue so the NSOB does not impose a standard without the input of the beekeeping public. Hopefully, further research is under way to get a better understanding of how far bees travel to find forage in different geographies. As for now we will continue to get the majority of our certified organic honey from other countries under this equivalence policy. But what is equivalent to no standard at all? It is whatever standards the national or international certifiers create, whether they have experience in apiculture or not. In the next part of this series I take you to Northeastern Brazil to look at the organic honey production and exportation in that region. But here I leave you with this quote from the National Organic Standards Board Livestock Committee Organic Apiculture Recommendation, which will one day hopefully be put into action:

"The commercial organic honey industry is well in place, despite the lack of organic standards specific to organic apiculture. Refined standards, which provide much needed clarification on practices specific to honeybee product production, will ensure the continued success and growth of the U.S. organic honey market. While the many certified producers have honored all the requirements of the existing regulation, there has been some variation in certifier expectations and interpretation. Finally, the EU and Canada have detailed apiculture requirements as part of their organic standards. In order to facilitate effective trade with other countries, and to effectively compete in the international market, it is important that a U.S. organic apiculture standard be implemented."[14]

1 http://www.nal.usda.gov/afsic/pubs/ofp/ofp.shtml Retrieved 7/10/2012

2 http://www.mda.state.mn.us/~/media/Files/food/organicgrowing/organicexemption.ashx Retrieved 7/23/2012

3 http://www.farmlandinfo.org/documents/38361/Federal_Organic_Food_Production_Act.pdf Retrieved 7/24/2012

4 http://usda.gov/wps/portal/usda/usdahome?contentid=2012/02/0051.xml&navid=NEWS_RELEASE&navtype=RT&parentnav=LATEST_RELEASES&edeployment_action=retrievecontentRetrieved 7/23/125 "The Global Market for Organic Food & Drink". http://www.nal.usda.gov/afsic/pubs/ofp/ofp.shtml Organic Monitor. 2002. Retrieved 7/10/201

6 "Industry Statistics and Projected Growth" Organic Trade Association http://www.ota.com/organic/mt/business.html Retrieved 7/10/2012

7 Bourn D, Prescott J (January 2002). "A comparison of the nutritional value, sensory qualities, and food safety of organically and conventionally produced foods". Crit Rev Food Sci Nutr 42 (1): 1–34. DOI:10.1080/10408690290825439. PMID 11833635

8 Magkos F, Arvaniti F, Zampelas A (2006). "Organic food: buying more safety or just peace of mind? A critical review of the literature". Crit Rev Food Sci Nutr 46 (1): 23–56

9 http://www.beesource.com/point-of-view/organic-honey-standard-european-union/ Retrieved 7/11/2012

10 http://www.csi-ics.com/organic/pdfs/CSI_Canadian_Organic_Standard.pdf Retrieved 7/11/2012

11 National Organic Standards Board Livestock Committee Organic Apiculture Recommendation. October 27, 2010 http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5087792 Retrieved 7/11/2012

12 Harvey, Arthur (ArthurHavey) "Re: Organic Honey." Jan 23, 2012. http://pets.groups.yahoo.com/group/Organicbeekeepers/message/102383 Organic Beekeepers Forum Yahoo Retrieved 6/6/2012

13 http://vimeo.com/10211570

14 National Organic Standards Board Livestock Committee Organic Apiculture Recommendation. October 27, 2010 http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5087792 Retrieved 7/11/2012