



# INTERNATIONAL HONEY MARKET

by RON PHIPPS

***“By 2020, if not before, the American Honey Market will be very different and much healthier.”***

***– Kelvin Adee, President of the American Honey Producers Association.***

## 1. TRADE WARS AND FRAUD

The summer of 2018 has seen the eruption of international trade wars. These wars involve a wide range of nations and changing tariffs, non-tariff trade barriers, opposition to violations of both international law and intellectual property rights law. Blatant incidences of food fraud in a growing number of categories have been in the news, such as seafood.

Since 2001, the U.S. has had high antidumping duties in place on Chinese honey, and only a few containers of Chinese honey have been imported each year since the imposition of those duties. Additional Trump administration tariffs on Chinese products would not be expected to directly affect honey imports into the U.S.

Professor Michael Roberts, from the Resnick Program for Food Law and Policy at the UCLA School of Law, has pointed out that efforts to detect and curb food fraud cost \$8 billion. Food fraud globally costs an estimated \$30-40 billion per year (John Spink, Michigan State University, 2014). Within the context of food fraud, honey is ranked third after milk and olive oil (U.S. Pharmacopeia). Prof. Roberts has written “Economically Motivated Adulteration is designed by nature not to be detected.” He has recommended that the honey industry “engage with US Pharmacopeia (USP), a scientific non-

profit organization that sets standards for the identity, strength, quality, and purity of medicines, food ingredients, and dietary supplements manufactured, distributed and consumed worldwide” ([USP.org](http://USP.org)). The USP has announced that a meeting of a honey expert panel will be held in 2018.

Intolerance of fraud is growing among authorities in charge of implementing laws. Equally import, consumers are increasingly sympathetic to beekeepers, whose livelihoods are dependent on food authenticity and ecological sustainability.

The international trade war involves increased rejections, and reciprocal tariff and non-tariff trade barriers. One large Australian retailer, Coles, removed honey that has Chinese components from their retail stores. The Chinese government rejected recent honey imports from Australia and Canada. Those rejections apparently did not cite any known regulation. In 2017 China imported honey valued at \$91,200,000 according to global trade statistics.

The collapse of honey prices from world exporters, and shifts in the patterns of honey exports, are directly linked to the prevalence of adulterated honey in the international honey market. This issue was addressed in the Apimondia Roundtable on Economically Motivated Adulteration held in October, 2018 and chaired by Prof. Norberto Garcia.

The challenge of establishing a definition of honey with the specificity required to help prevent both circumvention and adulteration has been an important topic in recent months. Adulteration and circumvention to mask true country of origin are inextricably linked in today’s global marketplace.

The trade wars cited are occurring within a context of tremendous international and national debt, including the national debt of the two biggest global economies (the U.S. and China), volatility of currencies, economic stress and a global sweep towards autocracy and rising tensions.

## 2. U.S. HONEY IMPORT TRENDS

Over the past 5 years, U.S. import volumes have increased on average 10,720 metric tons per year. The increase comes from Asian sources, at a rate of 11,365 metric tons per year, while imports from the Americas decreased by 3,495 metric tons per year. The total volume of imports increased from 141,000 tons in 2012 to 202,000 tons in 2017. Import prices from all sources reached an average high in 2014-2015 of \$1.59/lb. (\$3,500/MT), declined in 2015-2016, and then prices from Asian countries continued to decline through 2017 to an average of \$0.91/lb. (\$2,000/MT). Prices for conventional honey from the Americas rose by about 15% from 2016 to 2017. Prof. Garcia has pre-

pared this information and Charts 1 and 2 below.

“The honey-export explosion from the Eastern countries has resulted in at least three visible consequences on the international market: (i) downward pressure on pure honey prices as a result of the product’s oversupply, (ii) the disincentive to produce and export pure honeys by several traditional countries, which have shown significant decreases in their export volumes over the past 10 years, and (iii) the appearance of new important exporters, which may re-export those cheap imports,

straight or in blends, as locally produced (Garcia, *The Current Situation on the International Honey Market, Bee World*, 2018).”

As Chart 2 illustrates, the downward trend in prices abruptly changed in 2016 and the price gap significantly widened from 2016 to 2017. Import markets have shifted in 2018 compared to 2017 (see Chart 3).

The organic market has continued to be strong, reaching a total volume of 62,751,490 pounds (28,460 metric tons) for 2017. Average prices for organic honey rose to a high of \$2.00/lb. (\$4,500/MT) in March of 2017, and

have come down dramatically over the past 15 months (see Chart 4).

### 3. MACRO ECONOMIC AND CURRENCY PATTERNS ARE SHIFTING

As the Federal Reserve maintains its current policy of gradual increases in interest rates and global central banks shift away from monetary easing towards tighter monetary policies, there is increased potential for higher and more frequent episodes of financial market volatility. Amidst a backdrop of unprecedented levels of global debt, rising interest rates, and significant non performing bank loans in China, increased financial market volatility will undoubtedly affect commodity prices, honey included. It has been noted in recent months that commodity prices relative to overall financial assets are at/near recent lows. Supply/demand dynamics, however, may provide a floor to agricultural prices for the remainder of 2018 and into 2019. The fluctuations in international currency rates are illustrated below.

### 4. HONEY AROUND THE WORLD

Argentina is estimated to have had a honey crop of about 60,000 metric tons, with a predominance of Extra Light Amber and darker colors. Drought caused crop failures in some areas such as the north, Entre Rios and parts of Buenos Aires. There is a carryover of about 10,000 tons and exports as of mid-summer have been about 30,000 metric tons with additional 5-10,000 tons already sold. Demand from Europe has been good. Higher inflation is predicted for the coming period, with prices in the field going up. The political, economic and currency instability shrouds Argentina in uncertainty.

Brazil as a whole has suffered political instability and currency fluctuations. The most salient feature of Brazilian honey exports has been the decline in prices and the narrowing of the gap between organic and conventional honey. Organic prices have fallen approximately 50%.

Prices of organic and conventional honey have abruptly declined, and the gap between organic and conventional honey has changed from 50% to 21% according to a snapshot of selected prices (Chart 4).

Canadian beekeepers report that the last 3-4 years have been very difficult for commercial honey producers, who are struggling to compete with low priced honey from Asian sources

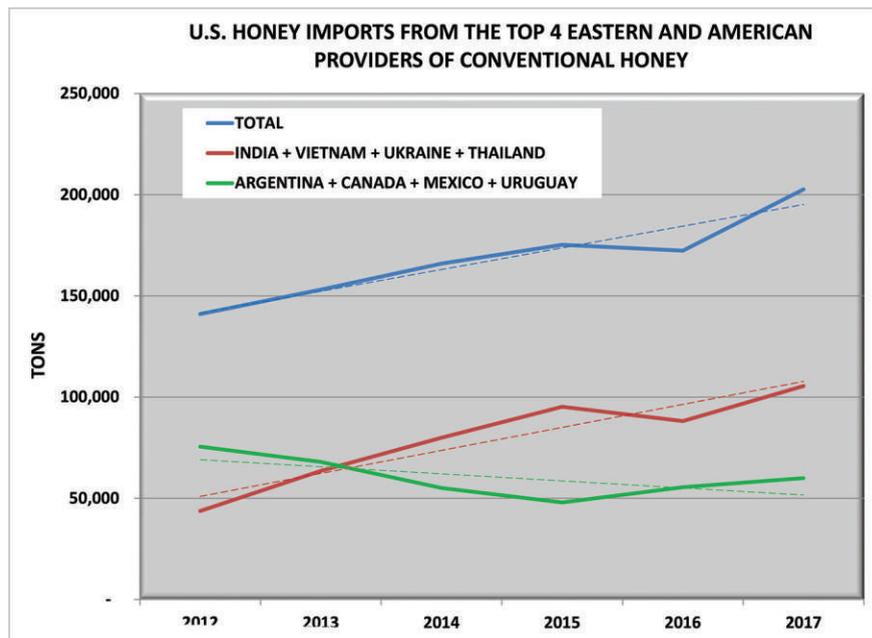


Chart 1. U.S. Honey Imports 2012-2017 (prepared by N. Garcia)

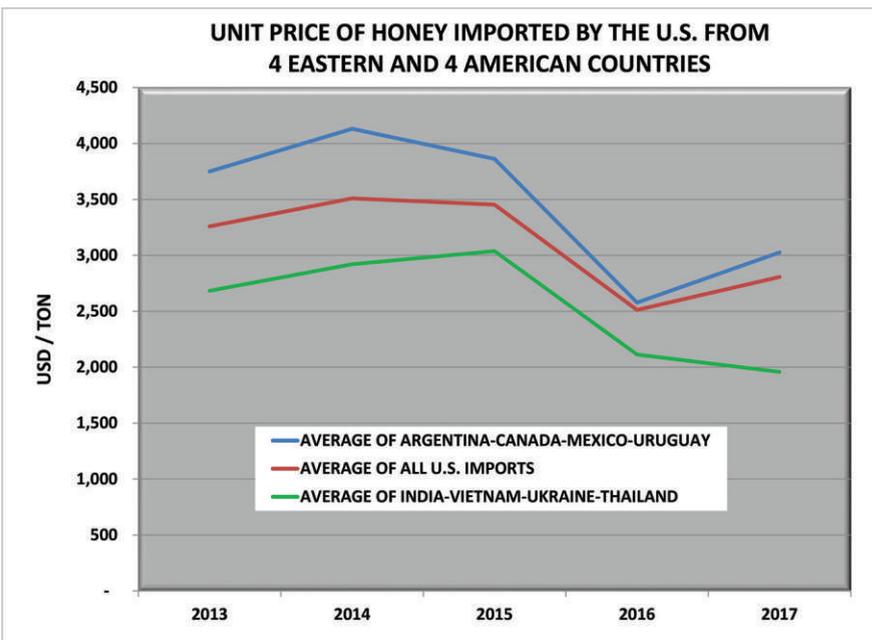


Chart 2. Unit Price of U.S. Honey Imports 2013-2017

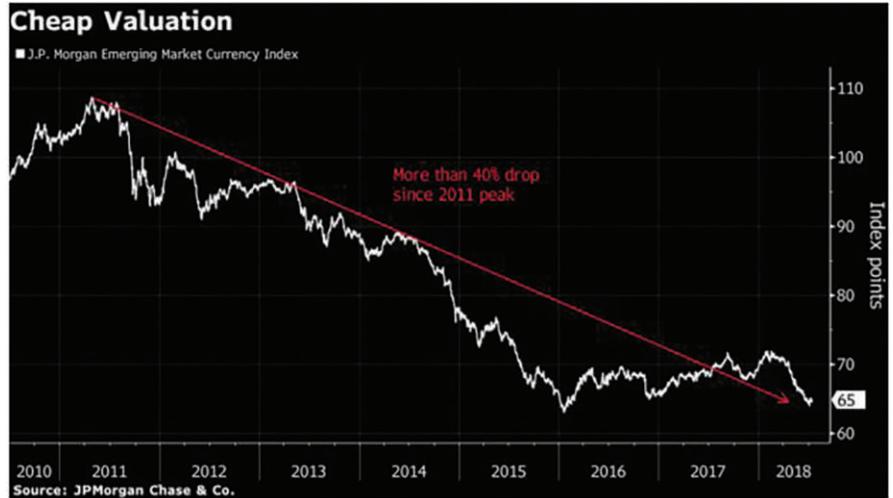
and Ukraine. The white colors they produce, in the range of 10-30mm, have typically sold at a premium.

Peter Bross, President of the Hungarian Beekeeping Association, has described how the presence of adulterated and mislabeled honey has negatively impacted the Hungarian beekeepers. He cited how Hungary's prized, pure and authentic high quality acacia is much more expensive to produce than the fake acacia honey that has crept into Hungary's domestic market through imports. Other countries suffer similar market depressions due to food fraud in the form of exported "pure Eastern European acacia honey." A similar story can be told of New Zealand's manuka honey.

In June beekeepers in Hungary and Eastern Europe reported zero demand, even though the price was low, and expressed concern that in Europe there is no traceability. This has opened the door to mislabeling of country of origin within Europe.

Reports from beekeepers in Ukraine indicated that agricultural use of chemicals is causing dramatic bee losses up to 75%. Domestic honey availability is expected to be very low. At the same time, reports indicate that Europe is suffering terrible heat waves and Ukraine suffered drought conditions in May and June. Ukraine exports of honey to the world in the first half of 2018 were 17,000 metric tons, down 43% compared to the previous period.

Vietnam ranked 2<sup>nd</sup> in Asia in honey exports in 2017, but volumes fell rapidly although prices were at the lowest level on the world market. Costs of transportation are high and inflation is a problem for beekeepers, who report lack of profits from honey production. Dependence upon the U.S. market is a concern of Vietnamese beekeepers, who would like to dramatically improve the quality of their honey and develop the European market. The Vietnamese Beekeeping Association recognizes that they must change their methods of production if they are to open the European market. Some Vietnamese exporters have said that their honey is extracted at high moisture and is immature. "We could wait for the honey to fully ripen before extracting it, but then the cost of production would be much higher and result in prices higher than the American market is willing to pay." In late July quantities available were limited.



Currency Index for Emerging Markets

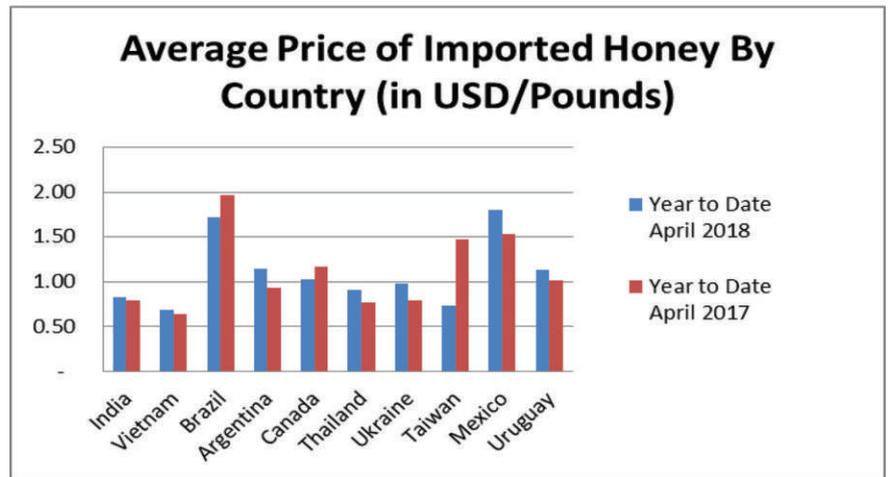
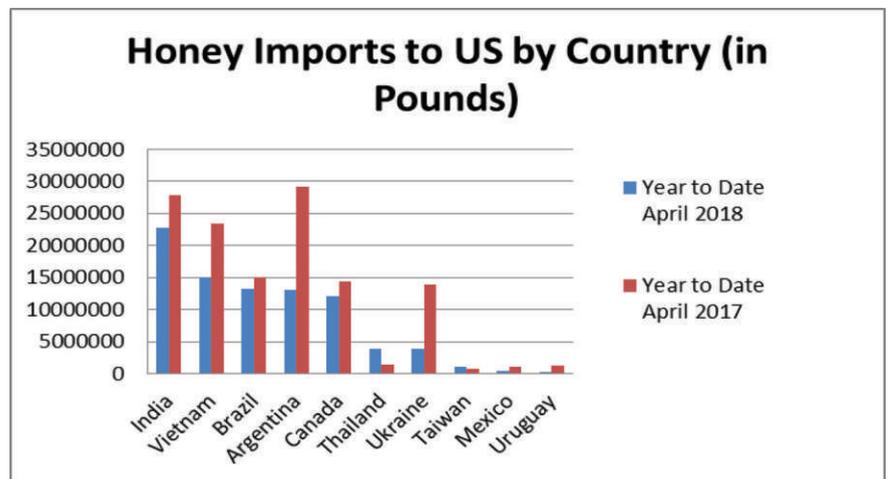


Chart 3. U.S. Honey Imports Jan. to April 2018 v. 2017

News reports indicate that New Zealand's largest manuka honey producer, Comvita, may soon be sold to a Chinese government owned business. News of the possible sale emerged in the middle of April when Comvita revealed that its 2018 honey production and profits will be less than previously announced.

The U.S. government authorities announced investigations in 50 states of Chinese acquisitions of companies either direct or through surrogate venture capital firms related to strategic resources, intellectual property, etc.

Beekeepers in North and South America, Europe and Australia, consistently report that at the current

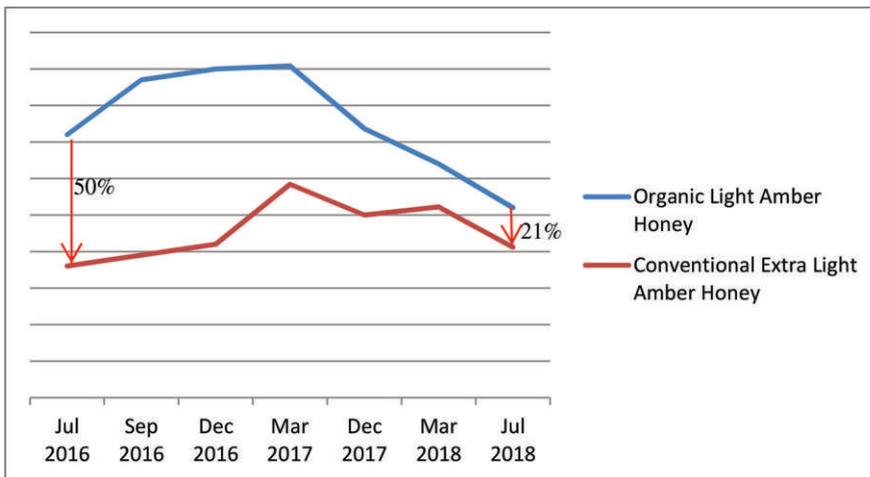


Chart 4. Organic vs. Conventional Honey Import Price Trend

low price levels, in a market where they must compete with adulterated honey, they cannot maintain and increase production. Remunerative price levels would allow them to increase production.

#### 5. COMPLETING THE CIRCLE

In a previous International Honey Market Report, we defined illicit modes of production, including 1) the extraction of immature honey, 2) the use of resin technology, 3) the blending of extraneous sweeteners, 4) the blending of conventional honey with organic honey, and 5) the intrusion of extraneous pollens. These illicit modes of production associated with correlative modes of adulteration constitute honey fraud. Also described were scientific technologies, including advanced technologies such as NMR, which can detect honey adulteration in its several modes. In addition, there must be much more robust, vigorous and intrusive traceability regimes than are provided by mere documentation. Fraudulent documents have facilitated adulteration and circumvention. A vigorous regime of traceability entails independent inspections which are conducted with utmost professionalism, integrity and openness of modes of production. There has to be a more continuous traceability and documentation since, as has been shown by prior scientific inspectors, once the inspectors are gone, adulteration has resumed. Some of the modes, such as the Chinese resin technology are highly mobile, compounding the problem.

A massive glut of sugar stockpiles is growing worldwide, making sugar the worst-performing commodity of 2018, down 25%. The cause may be health concerns about the impact of

consuming products with sugar. Production of sugar is booming, especially in India and Thailand. In July, the price of raw sugar futures fell to \$0.11/lb. The surplus is expected to last for some years. The presence of abundant cheap sweeteners, like sugar, engineered rice syrups and beet syrup facilitate economically motivated adulteration.

Completing the circle means a highly insightful integration of modes of production, modes of adulteration, advanced modes of scientific detection and more vigorous traceability regimes.

Efforts to complete the circle have recently been expressed during the World Honey Congress, which included a session on economically motivated modes of adulteration. This session was chaired by Prof. Norberto Garcia, and participants included members of the European commission, the U.S. Department of Agriculture, Dr. Michael Roberts and other leaders. Following that Congress, the scientific committee has mobilized international experts in numerous disciplines to complete the circle. Prof. Michael Roberts in his excellent White Paper recommended that the solution to the problem of adulteration may be addressed by the USP. The formation of a honey group has been announced.

The fundamental problem for the honey industry is that the modes of production that have been utilized create a situation in which "there is no ceiling to quantities, no floor to prices, and no future for honest hard-working beekeepers." The collapse in honey prices is rooted in market manipulation, the adulteration of honey, food fraud, label fraud and customs fraud.

#### 6. NMR TESTING

"NMR profiling is a very powerful tool to uncover adulteration of honey...As the database continues to grow, the power of the potential analytics improves... and helps protect the buyer of honey from unpleasant surprises. (Dübecke 2018)." The database of primary samples has grown to 19,000 samples. The profiles of blends are being investigated and adjustments are being made to capture the tweaks in the modes of adulteration.

Comparing Dr. White's Carbon SIRA test and the current NMR technology, the SIRA test had 100 authentic samples, 99 of which were U.S. honey, at the initial stage of development and used 1 variable (C13); NMR currently has 19,000 honey samples in the database and provides information about 38 variables.

The past five years have witnessed the most extensive collaboration and dialogue in history among government laboratories, private laboratories and independent academic scientists regarding modes of detection of food fraud in general and honey fraud in particular. Because NMR is the most sophisticated technology with the largest global database and measures the largest number of variables and parameters found in honey, NMR can detect the key modes of adulteration. There is a conflict between those who want to maximize its use as a key component in the toolbox and those who want to deny, disparage, dismiss or at least delay its implementation. It is relevant to note that the Chinese website Alibaba openly describes Chinese manufactured resin technology as useful to "get rid of the barriers from U.S. due to the restrictions on antibiotics."

#### 7. FOOD FRAUD

In Prof. Roberts seminal work on *Food Law in the United States*, he cites in his chapter Economically Motivated Adulteration, "The substitution of any substance in whole or in part...[which] typically occurs when a substance is replaced with something less valuable, an example of which is where beet sugar is used instead of honey (Roberts, 2015)." In his presentation to Apimondia, Roberts described a long history of adulteration of honey, stretching back in time to the Roman Empire. The modern forms of honey adulteration cited earlier are more insidious and sophisticated.

Recent analyses are linking food fraud with food safety. The European Commission has detected potentially carcinogenic resin residues in honey and wax that have been subject to resin technology.

If the productivity per hive in developed countries like Argentina and the U.S. has declined as a function of environmental degradation, how much more severe such declines would be in India and China, both of which have the most toxic air, water and soil conditions in the history of human civilization. Of course, if illicit modes of production and sophisticated modes of adulteration, like "honey hive factories," extraction of immature honey, blending of sophisticated engineered extraneous sweeteners and resin technology are utilized, then productivity per hive becomes a question of total irrelevance.

## 8. CURRENT GLOBAL CLIMATE AND AGRICULTURE

Concerns with global food security remain tense not only because of international trade tension and trade wars but global environmental conditions. This year we are witnessing unprecedented floods in Japan and growing stress upon the majestic forests of Lebanon cedars, known to the ancients, whose ranges are retreating to higher and higher elevations and whose rates of reproduction are declining. Forest fires have raged in Sweden reaching the Arctic Circle. The heat and drought are drying up the grasses which are essential to feeding the cattle in Sweden's dairy farms during Sweden's long winters. Columbia's Lamont-Doherty Earth Observatory has warned of unprecedented breakup of icebergs in Greenland, imperiling villages and foretelling rising sea levels.

As this report is being prepared, magnificent Yosemite Park has wildfires, Athens, Greece is surrounded by wildfires, records for high temperatures have been broken in Death Valley, and the west coast is suffering a new round of wildfires. The frequency and severity of extreme rain is breaking records.

We are currently in the middle of a scorching hot summer with heat records being set around the world. On July 5, it reached 124 degrees Fahrenheit in Algeria: an all-time record both for the country and the entire African continent. The following day, Los Angeles set an all-time record at 111 degrees. This past Sunday, Japan

logged its hottest temperature ever amid a heat wave that's killed 77 so far (Slate).

In the U.S. southwest, where a "heat dome" has dropped over several states, the National Weather service also recorded a new maximum temperature yesterday when the mercury touched 52.7 C in Death Valley, CA, shattering a record that had stood for 102 years. (CBS)

The current heat wave builds upon a trend in recent years that continues to impact global agriculture in myriad ways, in some cases boosting yields in the short-term but in the long-term the increased volatility and severity of weather events has undermined both productivity and introduced a crippling level of instability into an already historically volatile industry. The acceleration of this trend has pushed global agriculture to a tipping point in 2018.

All of these events are obviously relevant to ecological sustainability but they are also relevant to global food security and the ability of beekeepers to have adequate financial incentives to produce honey. If productivity per hive declines, agricultural conditions continue to experience increased severity, frequency and volatility of weather disasters, then the low prices for authentic honey will render the production of natural pure honey economically inviolable.

## 9. HONEY AND POLLINATION



*Richard Adee, Professor Emeritus of American beekeeping.*

After the January, 2018, convention, several speakers were invited to visit the Adee Honey Farms to see the wintering of the bees in the Central Valley. As the world's biggest beekeepers, their operation is crucial and complex. The discussions included the contradiction, which Prof. Garcia and I have pointed out, that world exports of honey increased dramatically, but colony numbers have remained stable, and productivity per hive of authentic pure honey has

dramatically declined. Bret Adee described how the industrial practices of agribusinesses, with synthetic fertilizers, pesticides, and herbicides, have harmed the rich communities of organisms in the soil. In addition, the long journeys involved in modern migratory beekeeping, the reduction of wild foraging areas for wildlife, and the resulting monodiets, have greatly increased the stress on bee populations. The losses of bee colonies and increased expenses of keeping bees have made the low prices for honey a factor that diminishes the incentive to produce honey. If the honey prices were attractive, then the need for migratory beekeeping practices would be reduced.

This would help to revitalize the domestic beekeeping industry, where low returns have caused beekeepers to abandon the industry. The collapse of honey prices has caused beekeepers in developing countries like Vietnam to leave beekeeping, as they struggle to repay their debts, often compelled to sell their hives.

## CONCLUSION

As Dr. Stan Daberkow, Economist Emeritus of the USDA, has shown, the price of honey on the retail level has grown slightly while the cost of raw material inputs has plunged. This means the current market is one in which there is economic incentive for the few. According to a marketing index, consumers' perception of value decreases when prices are low, but increases when prices are higher. The wise path is to create perception of value through a positive marketing program. Apimondia has created a committee to promote the creative marketing of honey on a global basis. The members include Jodie Goldsworthy, Chris Hiatt, Norberto Garcia, Etienne Bruneau, myself and others. We want to develop and promote the health halo of honey. Adulterated or fake honey is inconsistent with developing that positive agenda.