



INTERNATIONAL HONEY MARKET

by RON PHIPPS

INTRODUCTION

In June of 2023, there were international discussions about forming an Alliance for Authenticity which would address food fraud in general and economically motivated adulteration in honey in particular. In November, the word of the year for 2023 was chosen to be "Authenticity." The quest for authenticity has become an international quest which directly bears upon the survival of beekeepers in America and many other honey producing countries.

After May 2021, the initial phase of the antidumping filing in the U.S., there was a fleeting increase in prices to beekeepers. The low antidumping rates determined for Indian honey, plus the failure to impose critical circumstances for India, resulted in a huge surge of imports in 2022 from all countries (426 million pounds total) and a modest increase in import prices (\$1.59/lb. average for all countries not including New Zealand), which has completely dissipated in 2023, resulting in a frozen market. Large volume contracts at very low prices have consistently been offered for shipments very far into the future. The old adage, "Don't speculate and sell until honey is in the barrel," has been totally ignored due to the artificiality of a market in which multiple modes of adulteration have been employed and ineffective modes of detecting adulteration have been utilized.

U.S. AND IMPORTED HONEY PRICES

U.S. extra white clover honey is being bid at \$1.85/lb. in January 2024. The average honey price reported by U.S. beekeepers for 2022 was \$2.96/lb. (NASS statistics), so this represents a

decline of 37.5% in 12 months. Other prices of \$1.70-1.90/lb. for U.S. and \$1.35-1.40/lb. for Canadian have been circulating in the market.

The most up-to-date price trends for U.S. domestic and imported honey from the major countries of export are shown in Charts 1 and 2.

Chart 1 shows a steep plunge in prices for Dakota White beginning in 2023. Imported honey prices also fell.

This plunge is associated with an enormous surge in quantities; for example, imports from India for November 2023 were 18.8 million pounds at an average import price of \$0.71/lb. for that month only.

This means India is now exporting at prices comparable to the time preceding the filing of the antidumping petition. In 2020 the average Indian import price was \$0.63/lb. The price

increased as the antidumping filing was announced. Indian import prices averaged \$0.92/lb. in 2021. But that temporary relatively modest increase has completely eroded and is vanishing. American imports of Indian honey in October were 13,576,248 lbs., but the volume in November was 18,809,271 lbs. (which would annualize at 225.7 million lbs.) at a price of \$0.71/lb. The devastation of low prices combined with surging quantities has frozen the market for both domestic honey and honey from other foreign sources. It is creating a panic among exporters and importers as the Department of Commerce engages in its determination of whether to maintain, increase or dramatically increase antidumping duty rates while it conducts administrative reviews.

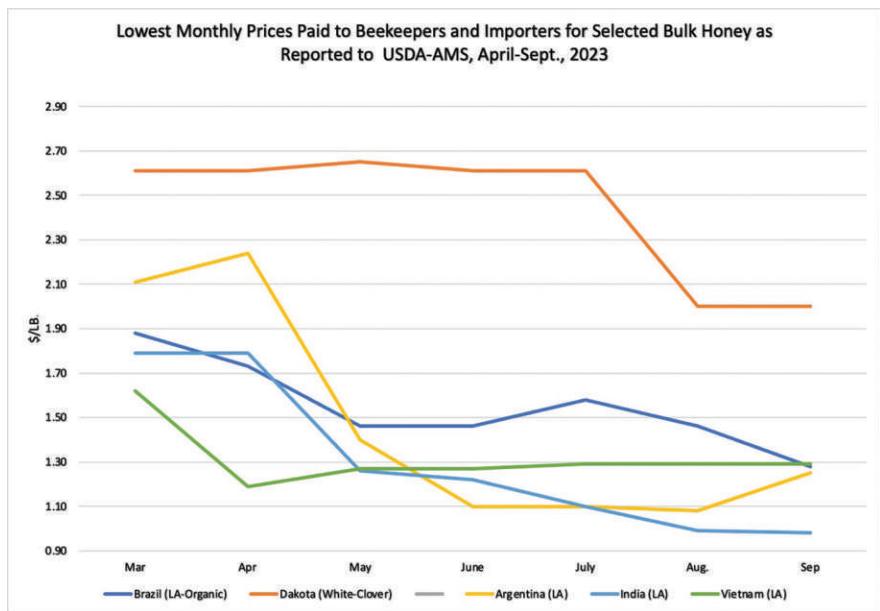


Chart 1

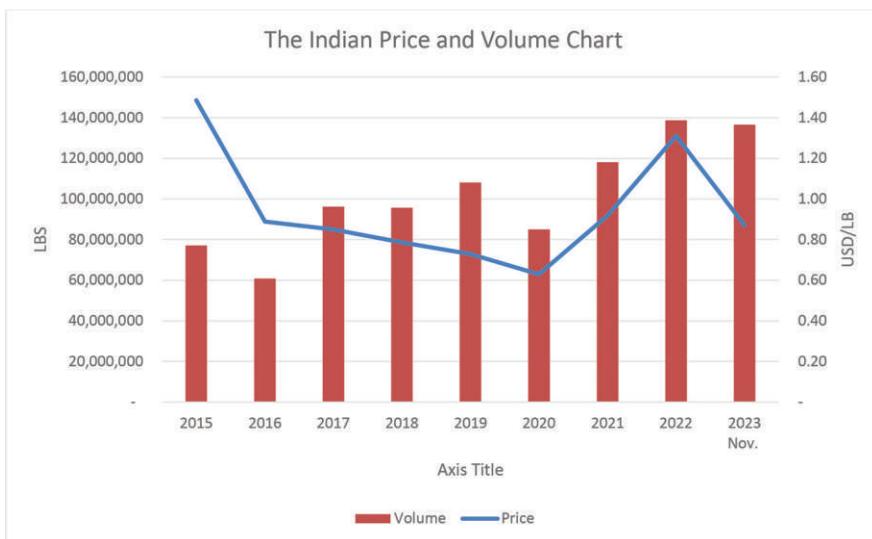


Chart 2 US Imports of Indian Honey 2015-Nov. 2023 Price and Pounds. Source: U.S. Bureau of Census Data

U.S. imports from Canada averaged \$2.27/lb. in November, 2023. White prices were down to \$1.35/lb. by January. Adulterated honey can be produced at minimal cost, allowing those who participate in the collusion to sell at virtually any price and still make profits. There are profits for adulterators and, as one international writer described it, austerity for beekeepers.

Prices for imported organic honey declined dramatically from \$1.81/lb. in 2021 to \$1.46/lb. in 2023, and volumes from India increased in 2023. There are very romantic tales from India of rock climbers and monkeys scaling steep cliffs to harvest virgin organic honey. But closer to reality is the observation of many factories utilizing Chinese resin technology which can remove antibiotics and residues, offensive aromas and dark colors, to create the deceptive appearance but not the reality of authentic organic Indian honey.

Dr. Daberkow comments that nearly all honey prices presented have been falling since March 2023. Domestic Dakota prices fell over 20%, and the low prices for Indian honey fell over 45% in 60 months.

DRAMATIC IMPORTED HONEY PRICE CHANGES AND THE ANTIDUMPING ADMINISTRATIVE REVIEW

There are reports of a panic among some exporters and importers since late 2023, as an aggressive U.S. government Administrative Review was underway to determine whether the preliminary antidumping rates were correctly calculated with accurate and adequate information regarding cost

of production, or whether the information provided was misleading. The approach of the Department of Commerce (DOC) toward each respondent country is very different, with complicated questionnaires going to Argentina but not to India.

This is an ominous time for exporters and importers as the collapse of honey prices is occurring at a time when global food inflation has created international political unrest. The antidumping rates may be increased — even dramatically increased — and the difference between the preliminary and the final rates for the first period of administrative review could be high. Increases in the antidumping rate for some, and imposition of additional retroactively increased assessments, could dramatically change the landscape of the international honey market.

In December 2023 and January 2024, there was a concerted and desperate effort to maintain the low antidumping rates that the DOC had assessed. The steep plunge in imported honey prices documented in this report makes maintaining those low rates even more improbable. Beekeepers, through a series of efforts, have conveyed that their survival as the guardians of global pollinators has a decisive and huge impact on global food security, global food prices and ecological sustainability.

The Masters of Market Manipulation have created a situation such that the collapse of pricing is most likely to increase the antidumping duty rates, including the possibility of retroactive imposition of the differential between the estimated and the actual rates.

The DOC announced:

On September 8, the Government of Vietnam filed an official request that Commerce consider it a market economy citing the country's economic reforms made in recent years. ... The Department of Commerce will carefully review the information submitted by the Government of Vietnam concerning its market reforms, and will complete a review as expeditiously as possible, in accordance with U.S. law. Commerce has 270 days to complete this review, which includes a public comment period before a determination is made.

A decision should be made by June 2024 which will affect all exports from Vietnam under antidumping orders, including honey. This decision will clearly be influenced by geopolitical and macroeconomic considerations, including China's economic and political aggressiveness.

In November 2023, the U.S. International Trade Commission (ITC) upheld its critical circumstances finding on Vietnamese honey imports, with the effect that antidumping duties may be assessed retroactively. Preliminary antidumping duties were assessed beginning in August 2021 at high rates. The court's decision stated:

[R]aw honey imports from Vietnam from all Vietnamese producers/exporters are subject to Commerce's affirmative critical circumstances determination. These imports increased from 48.0 million pounds in the pre-petition period to 87.9 million pounds in the post-petition period, an increase of 83.2 percent. The 87.9 million pounds of subject imports in the post-petition period are equivalent to 19.1 percent of apparent U.S. consumption in the interim 2021 period. The volume of subject imports from Vietnam in four of the six months of the post-petition period (July, August, September, and October 2021) significantly exceeded the volume of subject imports from Vietnam recorded in any prior month of the POI. In addition, subject imports from Vietnam increased rapidly in each of the first four months of the post-petition period, reversing a downward trend from December 2020 to April 2021.

China was the largest honey exporter to the world in 2021. The EU reported a 12% decline in Chinese

honey prices in 2023, to \$0.69/lb. In contrast, Argentina's exports to Europe averaged \$1.27/lb. in 2023.

If there are not limitations put on quantities of imports and floors on prices of imports, as happened during the China antidumping case in the 1990s, the consequences to beekeepers and the industries that depend on pollination services will be grave. As the history of the Suspension Agreement of the China antidumping case shows, the increases in antidumping rates were circumvented by manipulation of the values of the imported honey. For example, if the duty rates went up by 50% but the declared prices went down by 50%, the collapse of prices would not be addressed.

Canadian beekeepers in late 2023 were reviewing proposals for initiating their own antidumping order, as imported honey volumes were seen to be contributing to a collapse of Canadian honey prices.

CONTRADICTIONS BETWEEN GLOBAL HONEY PRODUCTION AND ADVERSE CONDITIONS

The general situation in the world reveals a contradiction between adverse conditions for the production of honey and an inexplicable rise in the quantity of "honey" circulating internationally. Large quantities are traded at low prices. In the November International Honey Market report we showed charts revealing the terrible heat waves, droughts and floods that have plagued the world's largest exporter of "honey," China, and the world's largest exporter to the U.S., India.

The UN in India reported:

The mean temperature over Asia for 2022 was the second or third warmest on record and was about 0.72°C above the 1991–2020 average. The 1991–2020 average was itself about 1.68°C above the WMO 1961–1990 reference period for climate change. Drought affected many parts of the region, reducing water availability. The economic losses in 2022 as a result of the drought in China, for example, were estimated to exceed US\$ 7.6 billion.

Availability of water for bees and for the crops that they pollinate is critical. We previously reported the reduction of acreage for almonds in California due to water scarcity and the precipitous decline of the water table.

The presence of *Tropilaelaps* mites in Asia was documented and aroused concern. (See Chart 3.) The mites have long been present in China and U.S. beekeepers were alerted to the possibility that they could affect colonies in the U.S.

PRODUCTIVITY PER HIVE

According to the National Agricultural Statistics Service (NASS) reports from the past several years, U.S. honey production declined by 15%, with reported volumes of 147,000,000 lbs. in 2020 and 125,000,000 lbs. in 2022. The number of colonies declined slightly from 2.7 to 2.6 million over 3 years. Productivity per hive declined from 54 to 47 lbs./hive.

A recent report, published in the American Honey Producers Association (AHPA) newsletter, indicated that "honey yields in the U.S. have been declining since the 1990s, with honey producers and scientists unsure why this happened, but a new study by Penn State researchers has uncovered clues to the mystery of the missing honey. ... The scientists accumulated data from the past 5 decades throughout the U.S. ... and found that the changes in honey yields over time were connected to 'herbicide applications and land use changes which result in fewer conservation programs which support pollinators.'" Annual weather anomalies have also contributed to changes in yields. The use of herbicides and severe climate events underlie the loss of productivity. "Studies reveal that in both warm and cold regions' honey yields are increased when the soil conditions are healthy." Gabriella Quinlan, the lead author from the National Science Foundation, found that climate became increasingly tied to honey yields in all the data after 1992.

Two to three decades ago, American honey producers experienced yields in some areas of 150-200 lbs./colony. In special areas such as Alberta, Canada, those yields could be 300-400 lbs./colony. The contemporary research underscores the anomaly which we pointed out in previous reports between increased honey exports and declining conditions for honey production throughout the world.

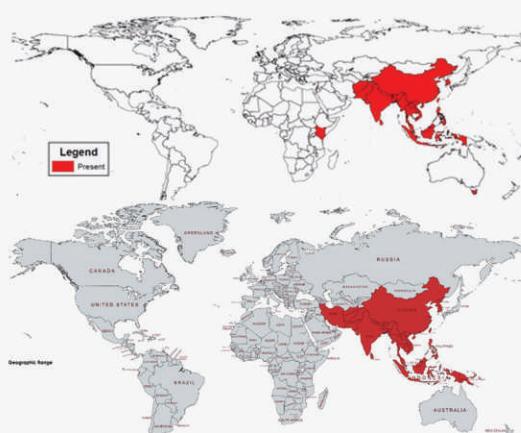
This should be understood in a global context as well. The Indian Express reported in April 2021 regarding honey productivity and letters being written by Indian beekeepers to authorities regarding use of hybrid seeds and lack of forage for bees:

While farmers of Punjab have been fighting for respectable prices for their crops at Delhi's borders for the past over four months, bee keepers of the state are fighting another battle for several years now. The yield of honey per colony has gone down manifold around 2-3 times. The reason, according to them, is that flowers of hybrid seed crops like sarson (mustard), sunflower, and berseem (fodder) etc., do not carry much nectar, because of which they are facing heavy losses.

Beekeepers have been writing to the Punjab government as well as Punjab Agriculture University

GEOGRAPHIC RANGE EXPANSION

Tropilaelaps Distribution



Since then these parasites have expanded their geographic range, so at the time they were considered to be a parasite only present in Asia, and in the 19 eighties, I believe when these parasites were first really beginning to gain some level of attention there was a paper post

Chart 3

(PAU), *Ludhiana*, to address this issue by developing varieties which carry good amounts of nectar too. They also blamed decreasing area under flowering crops.

Argentina

Since honey crops in North America have not commenced, this report will mention only Argentina which is experiencing macroeconomic and geopolitical changes that are symbolic of larger international contradictions and conflicts.

The Argentine political and economic situation has attracted world interest. Argentina has been plagued by enormous national debt, debt to China and the IMF, and inflation. The preceding government negotiated debt relief with China which involved new investments and new ownership of strategic resources. The recent political campaign in Argentina resulted in the victory of Javier Milei, who put forward an agenda of curtailment of growing economic dependency on China. Control of Argentine resources by Chinese government investors and organizations is expected to be reduced.

Because Argentina is a large producer of authentic honey from floral sources which are preferred by U.S. consumers, it plays a significant role in U.S. imports. As this report is being written, major producing areas are benefitting from ample rains, caused by the winter-spring El Nino phenomenon. The honey crop is expected to be better than in recent years. Argentina exported 89,838,000 lbs. to the U.S. in the first 11 months of 2023.

Argentine honey exporters are also protesting the antidumping rates assessed by the U.S. Department of Commerce. Whether those rates remain stable, increase or decrease will obviously have a significant effect. That effect will be greatly influenced by any changes in rates assessed on Indian honey. The impact involves "comparative advantage."

DEVELOPMENTS FOR THE ALLIANCE FOR AUTHENTICITY

The Alliance for Authenticity recognizes that honey adulteration is an international problem, which is being addressed by the UN FAO, the European Commission, the U.S. government, and the governments of many importing and exporting countries. The Alliance is seeking to create a multi-layer and international coalition which will include global beekeepers,

honest packers and importers, retailers, trade associations, consumer rights protection organizations, agricultural industries (such as almond, blueberry and cranberry producers), environmental groups, independent academic scientists, and government laboratories. In December 2023, there were discussions at the AHPA, and at UCLA's interdisciplinary forum hosted by Prof. Michael Roberts and Prof. Janet Tomiyama.

Experts have estimated that if additional scientific methodology had been used in the European 2023 honey study, the percentage of products suspicious of adulteration would be higher than reported.

A recent report indicated that 91% of U.S. honey at retail in the U.S. was pure and unadulterated. Samples were primarily of honey labeled as Product of USA. However, 59% of samples indicated adulteration in products that were not exclusively American honey. Furthermore the method of assessment was a test designed for bio-engineered inexpensive sweeteners. The problems with that test are twofold: 1) the database is very small and frozen and 2) it ignores the use of modes of adulteration such as harvesting immature honey and the use of resin technology.

China is well known as the epicenter of the development of modes of food fraud. That food fraud has not only been criticized internationally but also domestically within China. Of growing concern is the fact that the Chinese government is taking a very aggressive stance and wants to play a decisive role in standards governing international food. Such a role is inconsistent with China's behavior in the food sphere.

During the AHPA's annual meeting there was a vigorous discussion of how some trade organizations are potentially engaged in violations of antitrust and commercial disparagement laws. Restrictions on free trade violate U.S. antitrust law. Various beekeepers and packers described how those violations on antitrust law were imposed on businesses. Recently a jury ruled against the National Association of Realtors, determining that the group had colluded to keep commissions artificially high to the detriment of home buyers, and assessing multimillions in penalties.

It is interesting that on Mount Rushmore there are carvings of four Presidents — Washington, Lincoln, Jefferson and Theodore Roosevelt.

Roosevelt's position among these heroes of American democracy is partly a result of his establishment of the Food and Drug Administration, with its mandate for protecting the purity and safety of the American food and drug supply, 2) his establishment of antitrust law to prevent private monopolies from setting prices and/or standards, and 3) his landmark initiative to protect the environment and set aside National Parks for the public such as Yosemite, Yellowstone, Glacier National Park, the Grand Canyon, the Great Smoky Mountains, etc.

All three fundamental national priorities promoted by President Roosevelt are integrated in protecting the pollinators and their guardians. The pollinators are essential to global food security and ecological sustainability. Teddy Roosevelt's enormous contributions to these issues is symbolic. His former "summer White House" in Oyster Bay is now a popular restaurant appropriately named "Wild Honey."

These developments only supplement the increased international scrutiny against adulteration of honey. That scrutiny includes ongoing lawsuits before the federal court in California's Central Valley involving alleged violation of RICO statutes. There has been an increased number of meetings in the U.K. and EU to discuss issues of honey authenticity, such as the Honey Authenticity Network. Germany, France, Romania, Croatia, Spain and Hungary are also mobilizing in the quest for achieving honey authenticity and responding to the information released by the European Commission in early 2023. Collaboration between the European Commission and other governments is being developed.

It is well known that China is the largest exporter of "honey" in the world, with 343,824,000 lbs. valued at \$277,000,000 exported in 2022. China is a large country with many beekeepers and a great diversity of botanical sources that are capable of producing high-quality honey, including clover, linden, milkweed, alfalfa and acacia. In 2023 there were reports claiming that China makes more money per capita from its "honey" exports than any other country.

There is a story of a Chinese honey exporting group that visited French beekeepers. The French complained that the market is so weak that they can't produce and sell honey without losing money in competition with

China. The Chinese response was, "The problem is you don't know how to make honey in the modern way. We can make large quantities and make large profits, even with current prices." The underlying reality is that this is because China is not exporting genuine honey. They have become the epicenter of food fraud and honey adulteration — including extraction of immature honey, utilization of factory dehydrated honey, blending bio-engineered sweeteners, subjecting dark, contaminated and/or unpalatable honey to resin technology (which is illegal per the FDA for any product marketed as honey), and apparatus for illegal feeding of bees during the production period. It has become crystal clear that industries in which there is widespread and sophisticated adulteration or corrupt practices cannot effectively police themselves.

A FRESH, MODERN APPROACH WITH ENHANCED TRACEABILITY AND MORE COMPREHENSIVE TOOLS FOR DETECTING ADULTERATION

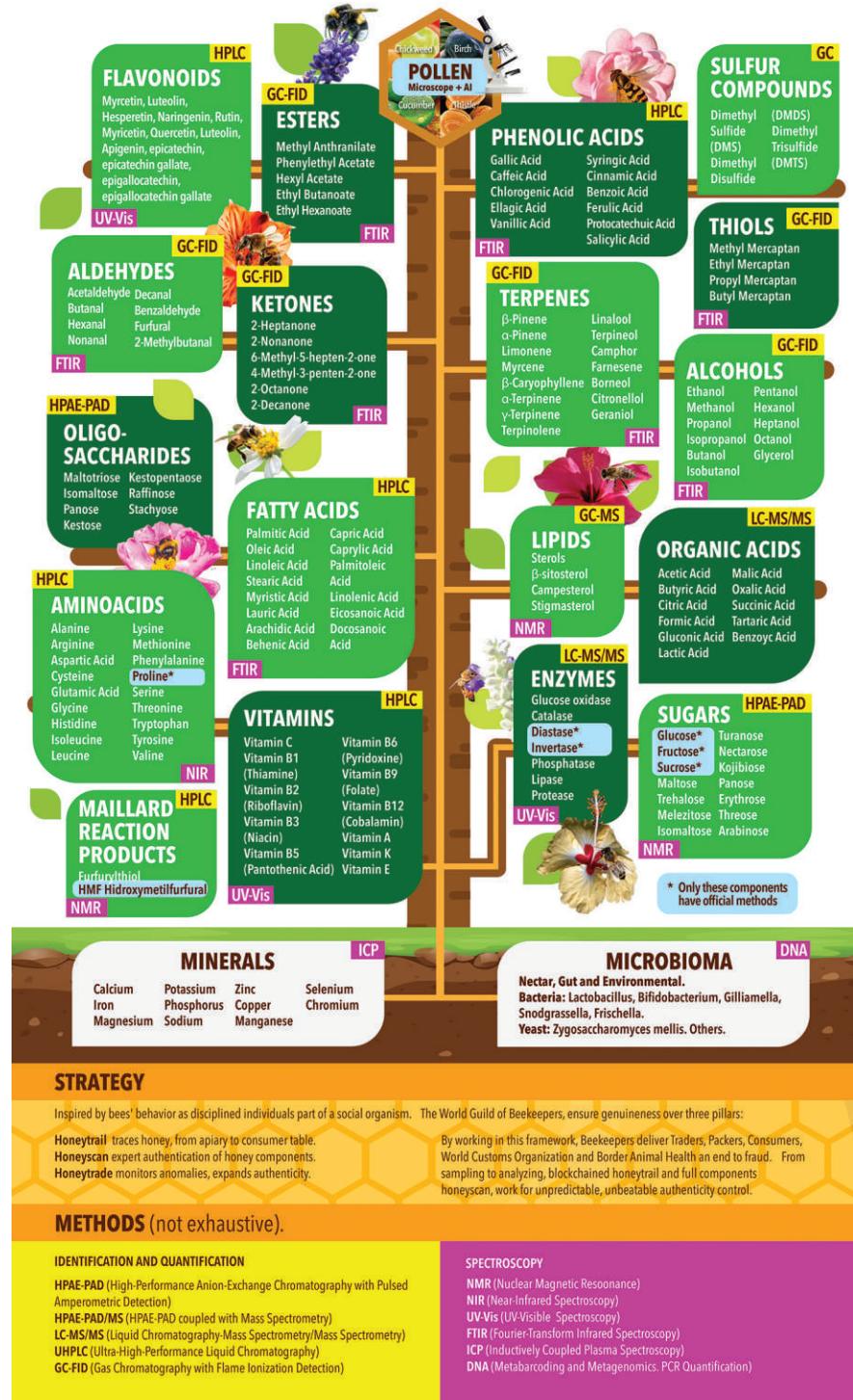
The scientific analysis of authenticity must take into account the considerable complexity and diversity of the chemical profiles of the world's commercially traded honey. That means the analysis must take into account all of the variables which affect the diverse chemical nature of authentic honey. The search for one parameter or a few variables is inadequate. An enhanced traceability system must be integrated with multiple types of sophisticated scientific analyses. That enhanced traceability takes into consideration the variables which cause the diverse chemical profiles and whose detection requires multiple sophisticated analytic technologies. Only contemporary "medicine men" advocate one or two methodologies and one or two variables.

Modern computerization allows producers and blenders of honey to create independent databases which take into account geographic origin, weather conditions, elevation, time of the year, floral source(s), and blend formulas. The profiles of Nuclear Magnetic Resonance (NMR) discern parameters, and other tools can assess whether the chemical and physical profiles conform to the variables described in an enhanced traceability system. Artificial Intelligence (AI) can make this task much easier, more comprehensive and more accurate.

Governments and independent academic laboratories provide the

Honey's Rich Tapestry: A New Paradigm for Authenticity in Apimondia's Care

Despite the compositional richness of honey only 8 of 180 components are part of the official authentication in 2023.



independence and integrity needed to accomplish this task. Integrating more comprehensive traceability systems, more comprehensive analyses of chemical profiles and modern computerization, including AI, provides the systems which must be administered with integrity and independence. The fundamental facts are that the chemistry of honey is very complex and that chemistry is created by multiple variables. Current analytic techniques do not take into account those variables.

Obviously private, for-profit laboratories have an important and essential role. But those laboratories cannot be the standard-makers nor those who ordain methodologies. We need a scientifically advanced laboratory to set the templates and methodologies for assessing adulteration. Academic laboratories in conjunction with government laboratories must set the criteria for assessing authenticity. Legislatures establish the laws, the police seek the violations of those laws, and judiciary systems impose the penalties for the violations. A similar tripartite arrangement is logical and imperative for the international honey industry if integrity is to be restored and consumers faithfully served with authentic foods.

As a result of recent meetings in various European governments, those who are championing authentic honey are recognizing they cannot rely only upon private, for-profit laboratories. What is considered a marker for adulteration and what is ignored often reflect the commercial interests of those who are prescribing the test and the parameters being tested. As Joel Schiro, leader of the French beekeepers's organization, indicated in a response to the JRC Technical Report on honey, often those who seem to be victims of adulteration are participants and economic beneficiaries of the sale of "fake" honey.

The finding that 46% of honey sampled in Europe by the JRC in 2022 was suspected of adulteration is eliciting more attention to honey adulteration in Europe:

"On average, honey imported into Europe costs 2.17 euros per kilo while sugar syrups made from rice cost between 0.40 and 0.60 euros per kilo," explains Foodwatch, which reveals that if beekeepers and the resellers, who work according to the rules of the art, are generally victims of this fraudulent honey trafficking, "it happens that they are sometimes

accomplices." Neither packers, trade associations, exporters, importers nor for-profit labs — history teaches us — can set the testing modalities, the parameters studied nor the interpretation provided regarding authoritatively and independently.

There is an old accounting joke. The boss asks various candidates a simple mathematical question. All candidates answer correctly except one. The one who gets the job answers the boss: "Whatever you want it to be." In philosophy this is called the "fallacy of misplaced concreteness," whereby from a totality of facts, the only facts cited are those which serve other objectives than those of Truth and Justice. There is a book by a mathematician whose title is "Lying with Statistics." New approaches are needed to ensure objectivity and impartiality in assessing adulteration.

The collapse of honey prices is occurring as income for pollination is being reduced (a major topic at the December convention of the AHPA) due to reduction of acreage of almond orchards. Even if that reduction of acreage is reversed, it takes years for newly planted orchards to become productive. The crisis is serious.

Beekeepers have for the past decade been faced with simultaneous decreases in productivity and increases in the costs of production and transportation. The cheap — if not dumped — prices for some imported honey have been devastating to the overall beekeeping communities in North America and Europe. If all the inexpensive traded honey were authentic, the entire global beekeeping community would have long been bankrupt.

CREATIVE MARKETING

The growing international quest for authenticity in honey ultimately is less about denouncing and more about transforming. Prof. Michael Roberts of UCLA's Resnick Institute is considering how to create models so that illicit modes of production are replaced by proper modes, leading to the demise of adulteration and the emergence of authentic honey in all its charm and diversity. We will fully comment about this later.

From the wine industry we can learn how to promote intrinsic qualities of diverse types of honey, the beauty of production and the diverse modes of consumption. From the tea industry we can learn how to increase consumption, qualities and prices by

promoting health benefits of honey. Recently we saw a report about honey and its health benefits relative to preventing or slowing the progress of Alzheimer's and other forms of dementia. Compounds in honey, including phytochemicals and antioxidants, have been shown to be beneficial for prevention or slowing the disease, which is plaguing a growing number of people in the world.

During the first international symposium on honey and health there were papers presented which indicated the effect of honey consumption on the brain in animal studies. One study showed a significant reduction in anxiety. There are other significant health benefits. The main point which must be said is that those health benefits depend upon the chemical components of authentic honey and their biochemical activities. That is, adulterated honey lacks those health benefits, which may be influenced by the botanical and geographic origin of the honey.

In attractive specialty shops in high mountain towns in Provence, France, a stunning array of honey from different floral sources and regions is displayed. In Starbucks coffeehouses, paintings and photos showing coffee growing regions and their geography are prominently displayed. Dirk Olsen, of Olsen Honey Farm, Oregon, is a master of the production of high-quality, diverse honeys such as raspberry, blueberry, meadow and fireweed. Adee Honey Farms has introduced a new label for their magnificent South Dakota white clover which utilizes the concept of authenticity. This is a positive perspective which should help the industry.



CONCLUSION

Honey fraud has an oversized impact upon global agriculture and ecology. But it is one of many spheres of food fraud bringing inordinate profits for the fraudsters but concurrently terrible harm to others. On January 19, the front page of The New York Times had an article titled "Kona Coffee Lawsuit: How Science helped Farmers Look for Counterfeit Coffee Beans." The article cites a class action lawsuit which resulted in settlements of \$41 million following accusation of food fraud and mislabeling. The plaintiffs successfully argued that the products were fake and far too cheap to be authentic. The U.S. Supreme Court previously ruled that "if you are harmed by false labeling you can bring a case for damages." The labeling fraud was confirmed by James Ehleringer, a biologist at the University of Utah who ran the chemical analysis. "After comparative studies, Dr. Ehleringer's team found several chemical ratios which indicated mislabeling." Professor Rebecca Tushnet of Harvard confirmed the result. Independent science is successfully intervening in the battle for authenticity in the global food supply.

In recent discussions with Federico Berrón of the Honey Authenticity Network, Federico commented after an extensive trip to Europe, "Beekeepers feel powerless. Their sense of their own power and dignity must be restored so that the current tragedy can be transformed into a triumph." As Dr. Stan Daberkow's economic analysis reveals, the general trend has been for retail prices to go up, and honey packers' prices to retailers to go up, but packers' prices to beekeepers and importers' prices to exporters and on to local beekeepers to go down. During the past decade and more, the contradiction between the appearance of surges of production of "honey" and the concomitant deterioration of the conditions needed to produce honey have put stress on beekeepers as never before. The facts lead to the inescapable conclusion that there has been a loss of authenticity and purity of that which has been marketed as "honey."

Ron Phipps is Vice President of the Beekeeping Economy Commission of Apimondia, Founder and President of CPNA International, Ltd., Organizer of Vivaldi Festival, Summer 2023 at Planting Fields Arboretum, and presented "The Cosmology of an Infinite, Open and Integrated Universe" in July 2023, at the Institute of Philosophy in Munich, Germany.