

Impacts of Economic Adulteration on the U.S. Honey Industry

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Estimated Impacts of Economic Adulteration on the U.S. Honey Industry

Abstract

Research for this paper was funded by the National Honey Board to provide a basis for industry dialogue on the need for a quality assurance program. The paper provides a background perspective on economic adulteration, industry perspectives on the extent of economic adulteration in the U.S. honey industry, estimates of potential economic impacts, and a discussion of trends and issues relevant to economic adulteration.

Background

Honey is a wholesome, natural product created by honey bees from the nectar of various flowers. The addition of any other sweetening agent to a product labeled and sold as honey is illegal and unethical. This type of product adulteration for financial gain or competitive advantage is known as economic adulteration. Economic adulteration occurs when the economic value of a product has been decreased without notifying the buyer or consumer. Such problems are not new, having been addressed in ancient Mosaic and Egyptian meat laws, early Greek and Roman wine laws, and in U.S. food laws dating from 1784 in Massachusetts (Crawford). Economic adulteration may undermine the high expectations and trust of consumers and may be a serious threat to the economic viability of the U.S. honey industry.

Economic logic suggests that strong incentives exist for economic adulteration in higher-value food products. In addition to maple syrup, honey is a prime target for economic adulteration in the sweetener industry based on its relatively high cost when adjusted for sweetness intensity. Orange juice and olive oil represent food products often targeted for economic adulteration in their respective industries. High-value food products must develop and sustain a strong image with consumers in order to maintain sales and profit

margins. A product which claims to be pure, wholesome, and natural is vulnerable to negative publicity which can change consumers' attitudes with respect to these key product attributes. Economic adulteration can strike at the core of consumer confidence. Thus, quality-assurance efforts are particularly important. In order to gain support for an industry-wide program and attract the attention and resources of key federal agencies, such as the Food and Drug Administration, the extent and impact of economic adulteration must be determined and industry support generated.

Perspectives on Economic Adulteration

There are a number of perspectives associated with the estimation of impacts of economic adulteration: the cost of consumer deception; the cost to firms which compete with adulterated, and therefore lower-priced, honey; the cost in terms of lower margins resulting from the supply expansion generated by the addition of the adulterant; the cost associated with a shift in consumer demand resulting from changes in product images and consumer attitudes; illicit profits associated with violations of honey grades and standards and labeling laws; the costs of negative externalities to the economy such as reduced levels of pollination due to lower prices and fewer beekeepers. Some of these perspectives provide a basis for measuring economic impact. Others do not.

Consumer Deception

As a result of honey adulteration, consumers are overspending for the adulterated product which they perceive to be honey. While some analysts attempt to argue that consumer costs of adulterated products should only include the difference in ingredient costs, e.g. corn syrup vs. honey, it seems more appropriate to argue that the complete cost to consumers can only be captured by estimating total consumer expenditures on adulterated product purchases. This measurement involves estimating the

amount of adulterated honey purchases over a specific period of time. Food scientists have developed a number of tests to detect the presence of illegal ingredients in honey at certain levels of adulteration, helping to establish levels of adulteration.

Impacts on Competition

The motivation of individuals and firms to engage in economic adulteration is to reduce costs and increase profits per unit of sale, or reduce costs and lower selling price to increase sales volume and/or market share. Cost differences can be significant enough that firms selling adulterated product can cause economic injury to competing firms, sometimes selling below product cost for pure products and sometimes driving producers and packers out of business. Without direct evidence of adulteration, these impacts are difficult to measure.

Supply Expansion

The addition of an adulterant to a product has the effect of expanding the available supply of such product in a given time period. Such a positive shift in supply has the potential to decrease market-clearing price. Own-price flexibilities can be utilized to measure the price response to a given change in quantity supplied. This approach is utilized in this paper.

Consumer Demand

Economic adulteration also can result in losses associated with a decrease in consumer demand. Consumer images of a product with respect to such attributes as purity and health benefits can have psychological impacts which result in significant changes in consumer behavior and thus demand. It is far easier and less expensive to maintain a positive product image with consumers than to rebuild an image which has been damaged. The importance of image to consumer demand, and thus consumer prices,

should not be underestimated. These impacts are difficult to measure.

Illegal Profits

The impact of economic adulteration also includes firm profits associated with violation of government and industry grades and standards and government labeling laws. While there is an analytical perspective associated with competition, there is also a legal perspective to be considered. Sales and profits can be measures of the degree of violation. Such estimates are well-received by the legal community, regulatory agencies, and the court system. Fairchild (1993) provided such estimates with respect to orange juice adulteration in testimony presented in the Federal District Court of Western Michigan.

Externalities

Negative externalities are costs which accrue to other individuals, groups, and society as a result of actions by those engaging in a particular activity. In the honey industry, such negative externalities could include a decrease in welfare of fruit growers and consumers if fewer bee colonies are available to provide pollination services as the result of decreased honey prices caused by the adulteration of honey. Measurement of externalities is often difficult.

Honey Packer Survey Results

In an effort to develop data on the extent of economic adulteration, and thus supply expansion, a survey approach was utilized. A mail survey of fourteen honey packers which are known to account for approximately fifty percent of the U.S. honey market was conducted (Fairchild). The response rate for this mailed survey was 86%. The total volume of honey purchased by survey respondents was 184 million pounds in 1998, 162 million pounds in 1997, and 164 million pounds in 1996. These volumes represent

approximately one-half of estimated total U.S. honey sales. Fifty-eight percent of respondents, representing 88 percent of respondent volume, reported testing for economic adulteration, while 42 percent did not test for economic adulteration. The honey sales of those testing for economic adulteration were distributed among product utilization channels as follows: retail sales, 50.2 percent; food service sales, including hotel, restaurant, and institutional pack, 13.4 percent; and bulk sales to the food-ingredient market, 36.4 percent. All of those firms which test for economic adulteration reported using a commercial lab, with one firm using both commercial and in-house labs.

All firms testing for economic adulteration reported using the Stable Isotope Ratio Analysis (SIRA) and 43 percent of firms testing reported using a protein test. Only firms who reported testing for economic adulteration were asked factual questions pertaining to economic adulteration. However, firms who did not test were included in the opinions at the end of the questionnaire.

All firms reported testing for other factors in addition to economic adulteration, such as quality, safety, etc. Acknowledging that firms could have multiple reasons for testing, the percent of firms offering reasons for testing of other factors are as follows: required by federal or state law, 14 percent; required by industry, 29 percent; required by domestic-market buyer, 57 percent; required by export-market buyer, 29 percent; and voluntary, good management practice, 100 percent. When asked whether they test imported honey the same as, or different from, domestic honey, 71 percent reported using the same testing procedures while 29 percent reported using different testing procedures. The primary difference was the use of additional tests, suggesting less confidence in the purity of imported honey.

Estimates of Economic Adulteration

Firms were asked if they had found economically adulterated product in the past three years.

Seventy-one percent reported finding adulterated honey, while 29 percent reported no such findings.

Firms which reported finding economically-adulterated product were asked what percent of the total volume of honey purchased was determined to be adulterated by the addition of foreign ingredients, rather than the percentage level of adulterants in the honey. Among those reporting adulterants, adulterated product as a percent of total volume purchased averaged 0.8 percent in 1998; 1.3 percent in 1997; and 2.6 percent in 1996. The only adulterant found was corn syrup, with the exception of one firm which also indicated the possibility of sugar cane syrup.

Honey packers were asked what the average detected level of adulterant was for the honey found to be economically adulterated. Firm responses ranged from 5.7 to 25 percent in 1998, from 7.3 to 43 percent in 1997, and from 7.0 to 23 percent in 1996. Establishing lower and upper bounds for each year was determined to be more meaningful than calculating a weighted average, given the relatively wide range of responses and small sample size.

In an effort to determine the sources of adulterated product, firms were asked what percent of economically-adulterated product was purchased from various sources. Respondents indicated that, on average, in 1998 Argentina accounted for 70 percent of adulterated honey, followed by China with 25 percent, and domestic U.S. sources 5 percent. Argentina was the source of 56 percent of adulterated honey in 1997 with China accounting for the remaining 44 percent. In 1996, China was the leading source of adulterated honey, accounting for 57 percent, followed by Argentina with 37 percent and Mexico with 6 percent. Thus, for the responding firms, most adulterated honey originated in Argentina and China, with little coming from domestic sources.

Cost Impacts

In an attempt to determine some of the cost impacts of economic adulteration on honey packers, firms were asked to estimate the cost of monitoring and testing for economic adulteration as appropriate to their firm. Responses indicate that the average monitoring/testing cost per pound was 0.1123 cents, with a range from 0.047 cents to 0.177 cents. In terms of cost per sample, the average was \$43.75, ranging from \$40 to \$50 per sample. The cost for monitoring and testing as a percent of purchase cost averaged 0.137 percent with a range of 0.057 to 0.222 percent. As will be seen, an important cost issue arises when a firm buys a large number of small quantities and thus generates the need for large numbers of samples to be tested.

Opinions

Honey packers were asked a number of open-ended opinion questions. All survey respondents were asked to answer these questions, regardless of whether or not they tested for economic adulteration or whether or not they had found adulterated product.

Survey participants were asked whether they were satisfied with their ability to detect adulterated product at the present time. One-fourth of respondents indicated they were satisfied, while three-fourths indicated they were not currently satisfied with their ability to detect adulterants. Of those who test for adulterants, 85 percent are not satisfied. From a different perspective, of those who are not satisfied, 67 percent still test for adulterants, despite these concerns.

Explanations for dissatisfaction among those who test for adulterants include the following in order of frequency mentioned: there is a need to detect more than just corn syrup; low levels of adulteration go undetected; more accurate tests are needed or the current tests are inadequate; cheaper tests are needed; and bulk users need to be able to test supplies.

Explanations offered by those who do not test include: tests cost too much and we have too many small lots to test; there is a need for a simpler test; and they would like to test but do not have enough information. Those firms who test seem to be concerned about being able to test for a range of adulterants, low levels of adulteration, and would like cheaper, more accurate tests, while those who do not test are concerned about the cost of testing large numbers of small lots, and desire easier tests and more information.

Based on their knowledge of the honey industry, firms were asked whether or not they believe economic adulteration is affecting their operation or creating unfair competition. Nearly sixty percent of respondents indicated that yes, economic adulteration was affecting their operation or creating unfair competition, compared to one-third who answered no, and 8 percent who did not know. If they answered yes, they were asked to identify the source. Collectively, respondents believe that there are unscrupulous participants at all levels of the honey supply chain, including producers, packers, and importers.

Additional comments included observations that while their own firm had a reputation for demanding quality product, some other firms did not seem as concerned about product quality. Several respondents noted the importance of developing and maintaining trusting relationships between buyers and sellers in order to minimize product-quality problems. Other comments included concerns that economic adulteration hurts competitiveness and cheats consumers, and that ultimately the honey industry gets hurt when product quality is compromised through adulteration.

Survey participants were asked an open-ended question as to what, if anything, they believe can be done to reduce/eliminate economic adulteration. Individual responses can be grouped into six categories and are listed in order of frequency of response. First, and most-often noted, there is a belief that more

or better or simpler testing methods would help reduce or eliminate adulteration. Second, it was suggested that there should be standardized testing requirements and protocols. Third, it was evident that the industry should support random product testing in both the retail and institutional markets. Fourth, participants felt that a program should be developed to educate both honey-buying firms and the general consuming public about the importance of product quality and some way to provide assurance of product quality. Fifth, it was suggested that analysis of all imports from firms with a history of economic adulteration problems should be conducted on a regular basis. Sixth, and least-often noted, an acceptable protocol should be developed for testing global supplies which take into account “variations” among production regions.

Survey participants were asked how important an issue economic adulteration is for the U.S. honey industry. Response options ranged from very and somewhat important to somewhat and not very important. Seventy-five percent of respondents indicated they believed economic adulteration to be a very important issue and an additional 17 percent believe it is a somewhat important issue. While 8 percent answered that they did not know how important an issue it is, no one thought it to be somewhat unimportant or not very important. Thus, 92 percent of survey respondents believe economic adulteration to be a very important or somewhat important issue for the industry.

When asked to explain their opinion as to the importance of the economic adulteration issue, the collective responses in order of frequency were as follows: honey’s image is vulnerable to damage; product adulteration expands supply and decreases price; “our” firm is not affected by economically adulterated product, but believe there are problems elsewhere; there is a need for better tests to reduce confusion and strife; the easiest, safest place to send adulterated product is the food service/ingredient market; and we need to be checked for adulterated product more often.

Survey participants were asked for additional comments or suggestions regarding economic adulteration in the U.S. honey industry. Responses were grouped into eight categories. The order presented does not reflect the frequency of response as most were mentioned fairly equally. There is a need for more reliable tests and a desire for more information on testing methods. There is concern for consumers health. There is a felt need for world-wide product standards. The belief exists that some products are labeled so as to confuse the consumers. Concern exists that there is no recourse for product found to be adulterated. Some believe that the packer-level problem is mostly in the industrial/food ingredient market. Economic adulteration is believed to be a problem in the short term and in the long term with respect to continued industry viability. Many believe that the solution to the economic adulteration problem is the passage of a National Honey Board Quality Assurance Program.

Interviews with Honey Importers

Several firms which import honey into the United States were interviewed by telephone in order to get input on the economic adulteration issue from their perspective (Fairchild 1999). There was a striking similarity across importer interviews resulting in a locus of opinion points. The first point is that it is important to know your foreign supplier in order to assure a pure product. Relationships are more important now than ever before. This point was stressed repeatedly.

Second, the problem has diminished in recent years. Opinions vary as to how much exists currently. Most agree that adulteration is positively correlated with price, noting that honey prices have decreased in recent years. General agreement also exists as to the need to be permanently vigilant with respect to adulteration. Third, improved testing methods are needed, and also less-expensive tests. Fourth, there is a need for international cooperation and communication on the subject of economic

adulteration among firms, industries, and governments. Last, problems are centered in the food ingredient market. There is a need to work with and educate buyers as to the importance and advantages of assuring pure product ingredients, particularly honey. It is very hard to compete with adulterators on price.

Potential Economic Impacts

The information presented in this section is based on an empirical study of the demand for honey (Capps). As discussed earlier, there are several potential types of economic impacts which can result from economic adulteration. Of primary interest in estimating the impacts of economic adulteration is knowledge of how price might be expected to behave in response to an increase in quantity supplied, as adulterated product has the effect of expanding the “supply” of product available in the market. Analysis begins with an estimation of the retail demand for honey in the U.S. market. From this, estimates are developed for own-price elasticity of demand at the retail and farm or producer (beekeeper) level of the market channel. Finally, estimates are developed for the upper bounds of own-price flexibility at the producer and retail levels.

The demand function for honey is specified as follows: the monthly per capita consumption of honey is a function of the monthly retail price of honey deflated by the consumer price index, monthly per capita income deflated by the consumer price index, and trend variables to account for potential structural shifts in consumer preferences toward honey. The R-square is 0.9658, indicating an exceptional fit, and the Durbin-Watson statistic is 1.51, indicating a lack of serial correlation.

Own-price elasticity represents the percent change in the quantity of a product purchased in

response to a one-percent change in the price of the product. The own-price elasticity at the retail level is estimated to be -0.26. Thus, a one-percent price increase is expected to result in a 0.26 percent decrease in quantity purchased. Producer-level own-price elasticity is estimated to be -0.2, meaning that a one-percent price increase is expected to result in a 0.2 percent decrease in quantity purchased.

Own-price flexibility measures the percent change in price of a product in response to a one-percent change in the quantity of the product supplied. In other words, price flexibility is a measure of how sensitive a product's market price is to changes in quantities supplied to the market. The upper bound of the own-price flexibility at the retail level is estimated to be -3.88. Thus, a one-percent increase in quantity supplied is expected to result in about a 3.9 percent decrease in price. The upper bound of the producer-level own-price flexibility is estimated to be -5.07. This indicates that a one-percent increase in quantity supplied is expected to result in about a 5.1 percent decrease in price. These estimates indicate that honey prices are extremely flexible or sensitive to quantity changes at both the retail and producer level, particularly the producer level. Unfortunately, due to data limitations, it was not possible to compute an elasticity/flexibility at the packer level. However, it is probable that the price flexibility at the packer level is between retail and producer flexibilities (-3.88 and -5.07). Both the retail and producer own-price flexibilities reflect a situation in which price is quite sensitive to changes in quantity supplied.

When the own-price flexibilities are combined with the product-adulteration estimates obtained from the honey-packer survey and USDA production and price data, one can calculate potential economic impacts of honey adulteration in terms of price changes (cents/pound) and revenue changes measured at

both the producer and retailer levels of the honey marketing channel. However, an additional clarifying assumption needs to be made. The degree of economic impact resulting from the supply-expanding dimension of product adulteration is affected by the percentage level of adulterant contained in the adulterated honey.

For any given amount of honey determined to be adulterated, higher percentages of adulterant would be associated with greater supply expansion and therefore larger price impacts. Thus, a given amount of honey containing 50 percent adulterant would expand supply more than if the adulterant were only seven percent of the volume of honey in question. Again, the larger the supply expansion, the larger the price impact. Recall that the survey results indicated an adulterant range from 5.7 percent to 43 percent. Seven percent is used as a lower bound because current testing methods generally cannot identify the presence of adulterants in honey below this level.

Price Impacts

Examples of the potential supply-expansion-induced price changes associated with various levels of adulterant in the percent of total product estimated by honey packers to have been adulterated during the past three years is presented in Table 1. The estimates are a function of the percentage level of adulterant (50, 25, or 7 percent for illustration) in the estimated percent of total product adulterated for each year: 0.79 percent in 1998; 1.3 percent in 1997; and 2.6 percent in 1996. The various combinations of these two factors yield the array of percentage-price changes and the cents-per-pound changes at the producer and retail levels contained in Table 1.

For example, in 1996, a year in which honey packers estimated that 2.6 percent of honey was

economically adulterated, if the average level of adulterant was 25 percent, then the expected price decrease would have been 3.31 percent, or -2.94 cents, at the producer level and 2.53 percent, or -4.78 cents at the retail level. It should be noted that while the farm-level own-price flexibility coefficient (-5.07) is larger than the retail-level own-price flexibility coefficient (-3.88), the larger price changes measured in cents per pound at retail are due to the higher retail prices relative to producer prices.

Table 1. Supply-Expansion-Induced Price Changes from Economic Adulteration Based on the Honey Packer Survey.

Year (%)*	% Adulterant in Honey	--- Producer Level---		--- Retail Level---	
		% Price Change	Cents/Pound Change	%Price Change	Cents/Pound Change
---	-%-	-%-	-cents-	-%-	-cents-
1998 (0.79)	50	-2.01	-1.32	-1.53	-3.65
	25	-1.00	-0.66	-0.77	-1.84
	7	-0.28	-0.18	-0.22	-0.52
1997 (1.3)	50	-3.30	-2.49	-2.53	-5.88
	25	-1.65	-1.24	-1.26	-2.93
	7	-0.46	-0.35	-0.35	-0.81
1996 (2.6)	50	-6.62	-5.88	-5.07	-9.56
	25	-3.31	-2.94	-2.53	-4.78
	7	-0.93	-0.83	-0.71	-1.43

*Percent of honey supply estimated to be economically adulterated.

Beyond the detailed estimates of price changes resulting from adulteration-induced supply expansion presented in Table 1, it can generally be noted that a 1%, 5%, and 10% increase in quantity

supplied will result in an estimated 5.07%, 25.35%, and 50.7% decrease in producer prices, respectively. Similarly, a 1%, 5%, and 10% quantity increase is estimated to result in a 3.88%, 19.4%, and 38.8% decrease in retail prices, respectively.

Whatever the level of economic adulteration, the resulting supply-expansion impacts are significant, as prices at all levels of the honey marketing channel are extremely sensitive to quantity changes. It is also instructive to examine potential producer-level price and revenue loss resulting from supply expansion due to economically-adulterated honey.

Revenue Impacts

Over the three-year period covered in the honey-packer survey, 1996-1998, the USDA three-year average for U.S. honey production was reported to be 205,014,660 pounds. The USDA three-year average producer price for 1996-1998 was 76.5 cents per pound. Over the same three-year period, honey packers reported an average of 1.56% of honey purchased to have been adulterated at some level. Based on these numbers, and assuming that the adulterant level was 7%, the estimated producer-level price decrease is 0.56% or 0.43 cents per pound in the 1996-1998 period. This would translate to an estimated producer-level revenue loss of about \$880,000. If adulterant levels were 25% or 50%, corresponding price decreases would be estimated at 1.98% (1.51 cents) or 3.95 % (3.02 cents) and revenue losses would be estimated at \$3.1 million or \$6.2 million, respectively.

Income Elasticity of Demand

The concept of income elasticity of demand measures the percentage change in quantity of a product demanded which results from some percentage change in consumer incomes. The income elasticity of demand is estimated to be 2.5. (Capps) That is, a one percent increase in consumer incomes is

estimated to result in approximately a 2.5 percent increase in quantity of honey purchased. Thus, honey is extremely sensitive to changes in consumers' incomes. Income elasticities in this range indicate that honey is a luxury good and sales have a strong positive correlation with income.

There are implications which can be drawn from the income elasticity of demand information. First, since honey appears to be a luxury good, this finding would suggest that many consumers purchase honey based on its quality perception and image rather than buying on the basis of price. This perception simply underscores the importance of quality and image to honey's continuing success. The implications of negative publicity for the honey industry are serious and noteworthy. Given that honey is a relatively high-priced, value-added product in the sweetener market, it must be concluded that the image of honey is both extremely valuable and vulnerable. Valuable in that honey enjoys an image as a pure, natural, nutritious product which is key to its "luxury-good" status. Vulnerable in that such an image could easily be damaged by the type of negative publicity commonly associated with adulterated products.

Second, there are marketing implications for honey with respect to rates of income growth across markets. The industry may benefit from increased focus on selected export markets exhibiting high income growth rates as a source of increased sales.

Additional Considerations

Quality assurance for the U.S. honey industry is by no means a simple issue. In addition to the question of economic adulteration, there are trends and issues in the area of commodity and food marketing which have implications for the honey industry's strategies for quality assurance. Several relevant trends and issues are briefly outlined.

Relationship Marketing

The umbrella of relationship marketing covers several trends which are relevant to the quality-assurance issue facing the honey industry. First is the basic concept of win-win situations in which cooperation replaces the overt use of power in business-to-business relationships. In the food marketing arena, the possibility of cooperation for mutual benefit occurs when cooperation either produces additional benefits for consumers or reduces marketing costs. The existence of economically adulterated product in the honey marketing channel should serve as motivation for honey buyers at all levels of the channel to establish on-going relationships with their suppliers. Both survey and interview results indicate the necessity for and benefits from relationship marketing.

Companion concepts include the many dimensions of supply chain management (SCM). SCM involves a recognition that firms really operate in value chains of related activities which reach from input supplies to the initial production process to the final consumer. Inherent in this concept is the idea that firms are linked together and will be evaluated as to how well activities are performed and coordinated at a profit to meet the wants and needs of the final consumer, a value system which assures quality and purity for the consumer.

Globalization and International Cooperation

Clearly, the market for honey has become international in nature, with imports and exports growing in significance. Beyond the import-competition concerns of domestic honey producers, there are broader questions of product quality and quality standards. With globalization comes increased attention to harmonization, convergence, and compatibility of technical standards, product quality and safety standards, and sanitary and phytosanitary standards.

Government Concern for Consumers

Governments continue to respond to concern for the health, safety, and welfare of consumers. There is increasing attention being given to labeling laws and accurate and available information for consumer choice and decision making. These concerns focus on a diverse range of topics from pesticide and drug residues to nutritional labeling to allergenicity. Government concern, then, has direct application to the economic adulteration situation in honey when one considers that some people are allergic to common adulterants found in honey, such as beet sugar or gluten. In terms of food intolerance, if there are not pure ingredients in the product, then the label is wrong and labeling laws have been violated. There are serious chain-of-responsibility issues involved. Government often provides the basis for independent or third-party regulation of products.

Industry Self-policing

Industries are increasingly taking more responsibility for themselves with respect to standards and behavior. At the same time, the importance of government inspectors is being diminished. Industries are developing self-policing control systems. Firms are testing their competitors' products, knowing that the actions of one firm can affect the welfare of an entire industry. Industries may develop lists of questionable firms, and firms may report their unscrupulous competitors to the proper government authorities.

To be effective, quality assurance should be a front-end issue, not an after-the-fact find/test/prosecute issue. Quality assurance is becoming a way of life for many food manufacturing companies. There are just too many reasons why it is good business to buy only high-quality, pure ingredients. Examples include government labeling laws, consumer health issues, consumer demand for 100% pure, high-quality products and associated competitive advantages, and increasingly stringent technical standards for imported food products in many countries.

In the food-ingredient market, honey is a positive, value-adding ingredient. Food manufacturers need to have confidence that the product purchased is pure honey. Thus, increasing attention will be given to quality assurance in the food ingredient market.

Traceability and Other Monitoring Systems

Increasingly, consumers want to know more about the history of their food. Their desire for information includes genetic material, chemical inputs, handling and storage, manufacturing processes, additives, and environmental impacts. Traceability and accountability are becoming important issues. Consumers increasingly will want to know “where their honey was last night.” This is an issue which the honey industry needs to address.

Product Image: More Important Than Ever

The pure, natural, wholesome image as a relatively high-value, luxury product is vulnerable to erosion from negative publicity which undermines consumer confidence in the underlying product attributes. Because many consumers purchase honey, and often products containing honey, on the basis of product quality and image rather than price, image maintenance demands the industry’s highest priority.

Concluding Remarks

Product adulteration is what it is: illicit profits, unfair competition, consumer fraud, and potential industry-wide damage. Given the existence of economic incentives associated with a high-value product such as honey, economic adulteration will continue to be a threat. Thus, given that the image of a high-value product is extremely vulnerable to damage, there are compelling reasons to consider the development of quality assurance programs in such industries.

There are a number of potential weapons which are valuable in combating economic adulteration

including clear, enforceable grades and standards of identity, accurate, scientifically-accepted tests for detecting product adulteration, an approved monitoring and enforcement program, and an educational program to encourage responsibility at the firm level throughout the production-marketing channel. It is important to enlist the support and cooperation of industry and government in order to successfully develop and support such a program.

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