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SEAFOOD INITIATIVE

**Illustration of U.S. Organic Agricultural Produce Price Premiums:  
Implications for Ecolabeled Seafood Price Premiums**

by

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## Introduction

Seafood ecolabeling is a market-based mechanism for rewarding those fisheries or aquaculture producers which follow sustainable production practices to the standard of the certification organization. One of the frequent questions asked concerning ecolabeling is whether or not the market actually does reward producers through price premiums for their products.

While that and related questions for seafood ecolabeling remain largely unanswered – is there a price premium paid for ecolabeled seafood, who is receiving it (retailer, supply chain, producer), and how much is it? – indicators of possible upper bounds may be premiums that are being paid for organic agricultural products in the U.S. market.

Why should organic agricultural premiums be viewed as upper bounds to any possible premiums attainable from ecolabeled seafood? There are several possible reasons. First, organic agriculture is well established in the marketplace, thus consumers are more familiar with both the concept and the products. Secondly, organic produce is prevalent in most markets across the U.S., in both conventional markets (supermarkets, grocery stores, mass merchandisers, and club stores) and natural foods stores, whereas ecolabeled seafood has barely entered into markets in the U.S. Most consumers would be hard-pressed to recognize any seafood ecolabel or explain what it means. Third, if the consumer does understand the meaning of a seafood ecolabel, most would know that such labels convey primarily environmental attributes (particularly for capture fisheries) and very little if anything about health issues. In contrast, organic produce is in demand by some consumers often because of perceived health attributes, and this will tend to increase their willingness to pay a premium.

The following pages provide a compilation of results from a variety of reports which look at price premiums paid for organic agricultural products in the U.S. market – at the farmgate, wholesale and retail levels. A bit of background on the organic foods market is presented first, followed by a summary matrix, providing ranges of premiums. Next to the premiums (stated in percentage terms unless otherwise noted) is a superscript which notes which research report those results are derived from. Expanded information on each report follows below in the footnotes.

In many cases, the percent premiums are simply calculated premiums from actual market data collected either through scanner reporting in supermarkets or other reported data. In a few instances, the premiums are estimated from hedonic analyses.

To our knowledge, this is the first summary of this kind available to those interested in the seafood industry. We hope you find it useful.

## Background on Organic Food Sales in the U.S.

According to the Organic Trade Association, organic food sales in the U.S. totaled \$13.8 billion in 2005, making up 2.5% of the retail food market (OTA, 2006). This is an increase from 1.9% in 2003 and from 0.8% in 1997. This increase coincides with the implementation of national organic standards by the U.S. Department of Agriculture in October 2002, which provided uniform labeling for consumer recognition (Stevens-Garmon, Huang, and Lin, 2007).

In 2000, for the first time, conventional markets (defined as above) sold more organic food than any other venue (Dimitri and Greene, 2002). In 2003, 47% of organic foods were sold through supermarkets and conventional channels, 44% through natural food stores, and 9% through direct and other marketing channels (OTA, 2004).

Focusing on specific products, U.S. retail sales of organic poultry were \$161 million in 2005, well under 1% of conventional poultry sales (see Oberholtzer, Greene and Lopez, 2006 [#1]). However, retail sales have almost quadrupled since 2003. Almost half of organic poultry sales were in natural food stores in 2003, 45% in mass market grocery stores, and 4% through direct sales. Drivers of the growth in consumer demand for organic meat include concerns about the use of antibiotics and growth hormones, the environment, and the humane treatment of animals.

Organic egg sales were \$161 million in 2005, up from \$140 million in 2004 (see Oberholtzer, Greene and Lopez, 2006 [#2]), with an average annual growth rate of 19 percent between 2000 and 2005. Retail scanner data analysis of over 8,000 households shows that organic eggs accounted for almost 1 percent of the fresh egg market in 2004. In 2003, consumers purchased 51 percent of organic eggs in mass market channels, 45 percent in natural food stores, and almost 3 percent direct from the producer. Factors boosting demand for organic eggs include consumers concerns for their health and for animal welfare.

Sales of organic milk and cream edged over \$1 billion in 2005, up 25% since 2004 (see Dimitri and Venezia, 2007 [#3]). At the same time, sales of milk remained constant since the mid-1980s, and organic milk and cream now make up about 6% of retail milk sales.

## Organic Premiums on Agricultural Products in US

Produce No.	Product	Type	Region	Year	Percentage Premium		
					Market Level		
					Farmgate	Wholesale	Retail
1	Poultry	Organic	U.S.	2004 - 2006			169 - 262 <sup>1</sup>
2	Eggs	Organic	U.S.	2004 - 2006			113 - 414 <sup>2</sup>
3	Milk (dairy)	Organic	East US	2004			126 <sup>3</sup>
			Central US	2004			106 <sup>3</sup>
			South US	2004			89 <sup>3</sup>
			West US	2004			72 <sup>3</sup>
			National Avg	2004			98 <sup>3</sup>
4	Coffee	Organic	U.S.	2001		0.50\$/lb <sup>4</sup>	0.64\$/lb <sup>4</sup>
		Fair Trade		2001		0.58\$/lb <sup>4</sup>	0.65\$/lb <sup>4</sup>
		Shade		2001		0.49\$/lb <sup>4</sup>	0.60\$/lb <sup>4</sup>
	Coffee	Organic	Mexico	1998 - 2005		\$0.10-0.50/lb <sup>5</sup>	
		Fair Trade	Mexico	1998 - 2005		\$0.76-0.91/lb <sup>5</sup>	
5	Baby Food (Strained)	Organic (Dinner)	U.S.	2004			12 <sup>6</sup>
				2006			30 <sup>6</sup>
		Organic (Vegetable)	U.S.	2004			40 <sup>6</sup>
				2006			46 <sup>6</sup>
		Organic (Fruit)	U.S.	2004			49 <sup>6</sup>
				2006			52 <sup>6</sup>
	Baby Food	Organic	San Jose, CA Raleigh, NC	2001			16 - 27 <sup>7</sup>
6	Broccoli	Organic	U.S.	2000 - 2004	99 - 133 <sup>8</sup>	124 - 180 <sup>8</sup>	
7	Carrots	Organic	U.S.	2000 - 2004	75 - 117 <sup>8</sup>	126 - 162 <sup>8</sup>	
8	Mesclun Mix	Organic	U.S.	2000 - 2004	n/a <sup>8</sup>	6 - 9 <sup>8</sup>	
9	Apples	Organic	U.S.	2001			26 <sup>9</sup>
				2004			36 <sup>9</sup>
				2005			28 <sup>10</sup>
10	Bananas	Organic	U.S.	2001			18 <sup>9</sup>
				2004			24 <sup>9</sup>
				2005			29 <sup>10</sup>

Produce No.	Product	Type	Region	Year	Percentage Premium		
					Market Level		
					Farmgate	Wholesale	Retail
11	Grapes	Organic	U.S.	2001			20 <sup>9</sup>
				2004			23 <sup>9</sup>
				2005			20 <sup>10</sup>
12	Oranges	Organic	U.S.	2001			17 <sup>9</sup>
				2004			9 <sup>9</sup>
				2005			21 <sup>10</sup>
13	Strawberries	Organic	U.S.	2001			14 <sup>9</sup>
				2004			16 <sup>9</sup>
				2005			42 <sup>10</sup>
14	Carrots	Organic	U.S.	2001			1 <sup>9</sup>
				2004			18 <sup>9</sup>
				2005			15 <sup>10</sup>
15	Onions	Organic	U.S.	2001			24 <sup>9</sup>
				2004			22 <sup>9</sup>
				2005			17 <sup>10</sup>
16	Potatoes	Organic	U.S.	2001			78 <sup>9</sup>
				2004			78 <sup>9</sup>
				2005			60 <sup>10</sup>
17	Peppers	Organic	U.S.	2005			34 <sup>10</sup>
18	Lettuce	Organic	U.S.	2001			23 <sup>9</sup>
				2004			58 <sup>9</sup>
19	Tomatoes	Organic	U.S.	2001			13 <sup>9</sup>
				2004			20 <sup>9</sup>
				2005			15 <sup>10</sup>
20	Corn	Organic	U.S.	1995 - 2003	35 - 113 <sup>11</sup>		
21	Soybeans	Organic	U.S.	1995 - 2003	85 - 217 <sup>11</sup>		
22	Spring Wheat	Organic	U.S.	1995 - 2003	54 - 102 <sup>11</sup>		
23	Oats	Organic	U.S.	1995 - 2003	34 - 165 <sup>11</sup>		

## Footnotes

1. Oberholtzer, Lydia, Catherine Greene, & Enrique Lopez. 2006. *Organic Poultry and Eggs Capture High Price premiums and Growing Share of Specialty Markets*. LDP-M-150-01. U.S. Department of Agriculture, Economic Research Service. Washington, D.C. December.  
<http://www.ers.usda.gov/Publications/LDP/2006/12Dec/LDPM15001/ldpm15001.pdf>

Organic price data for eggs and poultry became available in USDA Agricultural Marketing Service (AMS) *Market News Report* starting in January 2004. The report tracks the prices paid to the poultry or egg companies by that entity that purchases the product from the companies, such as retailers. AMS reports high and low prices. The monthly price data used here are simple averages of the reported weekly high and low prices.

The average quarterly price premiums for organic broilers ranged from 169% to 262%. The overall average between Jan 2004 and June 2006 was 200 percent. The price for organic broilers held steady at an average of \$2.17 per pound from July 2004 through early 2006, with a range of \$1.89 to \$2.45. Average prices for conventional broilers ranged from \$0.59 to \$0.82 per pound during the same period.
2. Oberholtzer, Lydia, Catherine Greene, & Enrique Lopez. 2006. *Organic Poultry and Eggs Capture High Price premiums and Growing Share of Specialty Markets*. LDP-M-150-01. U.S. Department of Agriculture, Economic Research Service. Washington, DC, December.  
<http://www.ers.usda.gov/Publications/LDP/2006/12Dec/LDPM15001/ldpm15001.pdf>

Organic price data for eggs and poultry became available in USDA Agricultural Marketing Service (AMS) *Market News Report* starting in January 2004. The report tracks the prices paid to the poultry or egg companies by that entity that purchases the product from the companies, such as retailers. AMS reports high and low prices. The monthly price data used here are simple averages of the reported weekly high and low prices. Only prices for brown eggs are reported by AMS since the majority of organic eggs are brown eggs.

From 2004 through mid-2006, price premiums for organic eggs ranged from 113% to 414%. The average over the entire period was 278%. Prices for organic eggs held steady at an average of \$2.34 per dozen, with a range of \$2.17 to \$2.50, while average prices of conventional eggs ranged from \$0.43 per dozen to a historical high of \$1.14.
3. Dimitri, Carolyn, and Kathryn M. Venezia. 2007. *Retail and Consumer Aspects of the Organic Milk Market*. LDP-M-155-01. U.S. Department of Agriculture, Economic Research Service. Washington, D.C., May.  
<http://www.ers.usda.gov/publications/LDP/2007/05May/LDPM15501/ldpm15501.pdf>

This report uses the Nielson Homescan® panel, a nationwide panel of 41,000 households in 2004 that scanned their food purchases (from all retail outlets) at home. The authors drew from that sample households which bought milk- 38,375 households.

The price premium for organic milk ranged from 72% to 126% of the conventional price, depending upon region. Most purchasers of organic milk are Caucasian, high

income, and well educated. The data indicate that organic milk carries the USDA organic seal about 60% of the time, most organic milk is sold in supermarkets, price premiums are large and vary by regions, and most organic milk is branded.

4. Giovanucci, Danielle. 2001. *Sustainable Coffee Survey of the North American Specialty Coffee Industry*. Conducted for the North American Commission for Environmental Cooperation. July.

[http://www.cec.org/files/pdf/ECONOMY/CoffeeSurvey\\_EN.pdf](http://www.cec.org/files/pdf/ECONOMY/CoffeeSurvey_EN.pdf)

This survey studies the characteristics and trend estimates of sustainable coffees across the full range of actors – from importers to retailers – in the North American specialty coffee market. The survey was based on a list of more than 9,000 coffee-related firms supplied by the Specialty Coffee Association of America and the Coffee Association of Canada. The data for these coffees includes additional research along with the baseline survey conducted in early 2001.

The estimated North American market for certified sustainable coffees is approximately \$152 million at retail. Total sustainable market value, including non-certified coffees that are marketed as sustainable, i.e. *bird-friendly*, is approximately \$188 million.

Coffee quality, rather than price, consumer demand and convenience of supply was found to be the overwhelming criterion for industry purchasing decisions. More than two-thirds of the specialty coffee industry believes that certification of sustainable coffees will be important to their business in the future.

Organic coffee is defined as that which is produced with methods to preserve the soil and prohibits use of synthetic chemicals; Fair-trade coffee is purchased directly from cooperatives of small farmers that are guaranteed a minimum contract price; shade coffee is grown in shaded forests settings and is good for biodiversity and birds.

The industry average for price premiums was between \$0.53 and \$0.62 – this is an average across self-reported premiums paid by retailers, roasters, wholesalers, distributors, and importers. Retailers state that they paid a \$0.64 premium for organic, \$0.65 for Fair Trade, and \$0.60 for Shade. Importers state that they paid \$0.36 for organic, \$0.74 for Fair Trade, and \$0.35 for Shade. When asked if they felt the price premiums for sustainable coffees were reasonable, approximately 75% of respondents answered ‘yes.’

5. Calo, Muriel and Timothy A. Wise. 2005. *Revaluing Peasant Coffee Production: Organic and Fair Trade Markets in Mexico*. Tufts University, Global Development and Environment Institute. Medford, MA. October.

<http://ase.tufts.edu/gdae/pubs/rp/RevaluingCoffee05.pdf>

This study evaluates the market for sustainable coffee from the state of Oaxaca, Mexico. Mexico is a world leader in the production in certified organic coffee, and with Peru, among the leaders in Fair Trade coffee.

The source for the data and calculations for the organic premium price 1998 – 2005 is the International Coffee Organization and authors’ calculations.

The average export (F.O.B.) price received for Mexican coffee markets is slightly lower than the N.Y. stock price. The organic price of US \$0.93/lb creates an organic premium of US \$0.25/lb over the Mexican export price of \$0.68/lb. With export prices for uncertified coffee in recent years as low as US\$0.50/lb, the premium can be significant. Fair Trade coffee, meanwhile, offers even higher rewards, paying a

fixed US\$1.26/lb for conventional Fair Trade coffee and US\$1.41/lb directly to producer cooperatives for organic Fair Trade coffee.

6. Smith, Travis A., Chung L. Huang, and Biing-Hwan Lin. 2009. *How much are Consumers Paying for Organic Baby Food?* 43-3AEM-5-80043. USDA, ERS. Selected paper presented at the Southern Agricultural Economics Association Annual Meeting, Atlanta, Georgia, Jan.

[http://ageconsearch.umn.edu/bitstream/46748/2/Hedonic-baby06-SAEA\\_011609 .pdf](http://ageconsearch.umn.edu/bitstream/46748/2/Hedonic-baby06-SAEA_011609.pdf)

Using retail purchase data, price premiums and discounts associated with household demographic, market factors, and product attributes (focusing on the organic attributes for strained baby food) are estimated using a hedonic pricing model. Results suggest that the organic premium ranges from about 12 to 49 % in 2004 and from 30 to 52 % in 2006. Tests for significant changes relative to product attributes show that while the price of conventional baby food has stayed relatively the same, the premium for organic baby food has increased.

The data source of this study was the 2004 and 2006 Nielsen Homescan® data. The panel consisted of representative U.S. households that provided food purchase data for at-home consumption. Total enrollment is over 37,000 households, but only those households reporting purchases for at least 10 months were included.

7. Maguire, Kelly B., Nicole Owens, and Nathalie B. Simon. 2004. "The Price Premium for Organic Baby food: A Hedonic Analysis," *Journal of Agricultural and Resource Economics* 29(1):132-149.

<http://ageconsearch.umn.edu/bitstream/31144/1/29010132.pdf>

Baby food price and characteristic data were collected from 38 establishments in Raleigh, North Carolina in February 2001, and from 45 establishments in San Jose, California in August 2001. Stores in each city were randomly selected from a list of all retail food establishments generated from current local online consumer yellow pages. Data collection resulted in 1,689 useable observations, with 930 observations from Raleigh, and 759 observations from San Jose.

The price premiums associated with organic baby food was estimated by applying a hedonic model to price and characteristic data for baby food products collected in the two cities. The findings from the study indicate the price of organic baby food is 16% to 27% more than its conventional counterparts, all else equal. Combined with other studies, it shows a lower premium than previous studies (in earlier years) from 123% in 1988, to 51% in 1999, and thus, may signal a continued decrease in the premium associated with organic baby food.

8. Oberholtzer, Lydia, Carolyn Dimitri, and Catherine Greene. 2005. *Price Premiums Hold on as U.S. Organic Produce Market Expands*. VGS-308-01. U.S. Department of Agriculture, Economics Research Service. Washington, D.C. May.

<http://www.ers.usda.gov/publications/vgs/may05/VGS30801/VGS30801.pdf>

Organic produce represents approximately \$4.3 billion in 2003, or 42% of all organic food sales. The majority of these sales are fresh produce (93%). The top 8 fresh organic fruits and vegetables, in order, are: tomatoes, carrots, peaches, squash, leafy vegetables, apples, potatoes, and bananas. Consumers tend to buy more organic vegetables than fruit. Respondents to a national survey cite health and



nutrition (66%), taste (38%), food safety (30%), and the environment (26%) as motivating factors behind organic food purchases.

This report details price premiums for broccoli and carrots, both at the wholesale and farmgate level, and mesclun mix, at the wholesale level, for 2000-2004. The analysis of wholesale prices is based on organic and conventional pricing data gathered by USDA's AMS. The monthly prices used here are simple averages of the high and low prices. Farm-level analysis is based on Organic Food Business News (OFBN) price data used to calculate monthly prices for organic products. OFBN provides weekly price ranges (lows and highs), and midpoints were computed on these ranges. The data provided by OFBN include a simple average of the month's midpoints. Conventional farm prices are reported as monthly averages in ERS Outlook Reports, based on monthly prices reported by NASS.

Over the period 2000-04, the wholesale organic premium consistently exceeds the organic premium at the farmgate for broccoli and carrots. In contrast, wholesale price premiums and prices for both organic and conventional mesclun mix have continued to narrow since the mid-to-late 1990s. Consistent with earlier studies, annual organic price premiums for broccoli and carrots are close to 100% or above (the highest was 180% in 2003 for wholesale broccoli) for all but organic farmgate carrots. Annual organic price premiums for mesclun mix, at the wholesale level, range from 6 to 9% over the 5-year period.

9. Stevens-Garmon, John, Chung Huang, and Biing-Hwan Lin. 2007. "Organic Demand: A Profile of Consumers in the Fresh Produce Market." *Choices: the magazine of food, farm and resource issues*. American Agricultural Economics Association. 2<sup>nd</sup> Quarter, p. 109-115.

<http://www.choicesmagazine.org/2007-2/2007-2.pdf#page=37>

This report uses the Nielson Homescan® panel, a nationwide panel of households that scanned their food purchases (from all retail outlets) at home from 2001 and 2004. The data include purchases of both random weight and Uniform Product Code (UPC) food items. For 2001 and 2004, more than 8,164 and 8,430 households, respectively, participated in the Homescan® panel.

According to Homescan®, tomatoes, potatoes, carrots, onions, lettuce, apples, oranges, bananas, grapes, and strawberries were the top five vegetables and fruits in terms of their shares of fresh produce expenditures for home consumption. Unit values (spending over quantity purchased) were calculated to derive price premiums for selected fresh produce.

Except for oranges and onions, average organic premiums for the most valuable produce increased from 2001 to 2004. In 2001, average organic premiums varied from 1% above the conventional produce for carrots to 78% for potatoes. In comparison, organic premiums varied from 9% for oranges to 78% for potatoes in 2004.

10. Smith, T. A., B-H. Lin, and C. L. Huang. 2008. *Organic Premiums of US Fresh Produce*. Proceedings of the NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. St. Louis, MO.

<http://ageconsearch.umn.edu/bitstream/37626/2/confp23-08.pdf>

The study uses the 2005 Nielsen Homescan® panel data to estimate price premiums and discounts associated with product attributes, market factors and consumer

characteristics, focusing on the organic attribute for 5 major fresh fruits and 5 major fresh vegetables in the United States. The Nielsen Homescan® panel consists of representative U.S. households that provide food purchase data for at-home consumption in 2005. The panel included more than 8,500 households, which reported their purchases of foods that were sold as random weight or with the uniform product Code (UPC) at retail outlets.

The price premiums associated with fresh produce were estimated by applying hedonic model to price and characteristic data for fresh produce. The results suggest that organic attribute commands a statistically significant price premium, from 15% above the conventional price for carrots and tomatoes to just above 60% for potatoes.

11. Streff, Nicholas, and Thomas L. Dobbs. 2004. *'Organic' and 'Conventional' Grain and Soybean Prices in the Northern Great Plains and Upper Midwest: 1995 through 2003*. Econ Pamphlet 2004-1. South Dakota University, Economics Department. July. <http://econ.sdstate.edu/Research/EcPamphlet2004-1.pdf>

The data on organic prices come from the Organic Business News *Organic Commodity Prices*. For each of the grains (corn, spring wheat and oat) and soybean commodities, prices are reported simply for the U.S. as a whole, and not by state or region. For each commodity, the midpoints between the highs and the lows were calculated and used for the monthly observations.

The organic corn price premiums from 1995 through 2003 ranged from a low of 35% in 1995 to a high of 113% in 2003. After 1998, the annual organic price premiums for corn did not increase again until 2003.

The organic soybean price premiums ranged from a low of 85% in 1996 to a high of 217% in 1999. After 1999, the price premiums for soybean were on a decline. When compared to the other crops, organic price premiums for soybean have generally been the highest.

The organic price premiums for spring wheat ranged from 54% to 102% in the 9-year series. The low was recorded in 1995, while the high was recorded in 2000. The organic price premiums from 1995 through 2000 were on an increase but started declining thereafter.

The price premiums for oats ranged from a low of 34% in 1995 to a high of 165% in 2003. Price premiums for organic oats showed a significant increase in 2002 and 2003.

#### Additional Information

- o Organic Price Data Set  
<http://www.ers.usda.gov/data/organicprices/>

This data set contains:

- Monthly organic and conventional wholesale (first receiver) prices for poultry (broilers) and eggs;
- Monthly organic market (f.o.b. or spot) prices for grain and feedstuffs;
- Monthly organic and conventional wholesale prices for broccoli, carrots, and

mesclun mix;

- A limited set of organic prices (and corresponding conventional prices) for other fruits and vegetables from the Boston and San Francisco wholesale markets;
- Monthly retail prices for organic and conventional milk, eggs, rice, carrots, salad mix, spinach, and strawberries; and
- Monthly organic and conventional farmgate prices for broccoli and carrots (data series ends in 2007).

## References

Dimitri, C., and C. Greene. 2002. *Recent growth patterns in U.S. organic foods market*. Agricultural Information Bulletin No. 777, U.S. Department of Agriculture, Economic Research Service.

Organic Trade Association (OTA). 2004. *The OTA 2004 Manufacturers' Survey Overview*.

Organic Trade Association (OTA). 2006. *The OTA 2006 Manufacturers' Survey Overview*. [www.ota.com/organic/mt.html](http://www.ota.com/organic/mt.html)

Stevens-Garmon, John, Chung Huang, and Biing-Hwan Lin. 2007. "Organic Demand: A Profile of Consumers in the Fresh Produce Market." *Choices: the magazine of food, farm and resource issues*. American Agricultural Economics Association. 2<sup>nd</sup> Quarter, p. 109-115.