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Hispanic Consumers' Willingness to Purchase Aquaculture Products Directly from Farmers: Results from a Recent Survey

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Abstract: A survey of Hispanic consumers was conducted in Kentucky to evaluate their willingness to buy fish and crustaceans directly from farms. The data showed that 72% of respondents were willing to travel to farms to buy food products. In addition, 85% of respondents were willing to support vendors bringing food products from farms to their communities. Of various fish and crustaceans cultured in Kentucky, tilapia was the most popular item. Whole fish was the most popular product form. The stated willingness to pay for tilapia suggests that the direct-to-consumer sale of tilapia is a profitable alternative for aquaculture farmers.

Introduction

Kentucky's agricultural scene is dominated by small farms with an average size of 66 hectares (165 ac) (USDA: NASS, 2008). Agricultural marketing in Kentucky is a challenge because of the higher cost of production associated with small farms and the associated difficulty of profitably selling products through wholesale outlets. Consequently, many producers seek marketing through restaurants, farmers' markets, and direct-to-consumer markets.

The Hispanic population in Kentucky is substantial and growing. According to the 2000 U.S. Census, Kentucky had approximately 60,000 reported Hispanics; however, it is suspected that this number is much higher. Estimated Hispanic population by 2006 was greater than 94,000 individuals (U. S. Census Bureau, 2010). Anecdotal evidence indicates that Hispanic consumers buy fresh food products from farms, which includes live animals. If this were true, Hispanics would be an important marketing asset for small-scale farmers in Kentucky and in other states.

Aquaculture, or farming of aquatic animals and plants, has been a tradition among many farmers in Kentucky. Western Kentucky has a channel catfish industry where producers could have year-round availability of fish in 2-hectare (5 acre) ponds. Farms in central and eastern Kentucky use smaller ponds, with sizes ranging from 0.1 hectares (0.25 ac) to 0.4 hectares (1 ac) and produce crops such as channel catfish, freshwater prawns, tilapia, and bass (Commonwealth of Kentucky, 2000). This article reports on an investigation of the potential of selling fresh fish and crustaceans directly to Hispanic consumers. Data were collected in Kentucky; however, the results may be applicable to other states with aquaculture production and Hispanic consumers.

Literature Review

There is no literature on direct marketing of freshwater fish and crustaceans to Hispanic consumers in the United States. Martinez and Patterson (2004) investigated the effectiveness of promoting local-branded foods among Hispanics in Arizona. They collected data from a consumer survey in the Phoenix Metropolitan Area. Products featured were tomatoes, grapes, cantaloupes, and cilantro. Results showed that more than 50% of respondents preferred an Arizona-product brand to a Mexico-product brand. This proclivity was higher among immigrant Mexicans who had lived in the United States for at least 10 years.

Gradziel, Matthews, and Punia (2003) investigated the food buying habits of low-income Hispanic WIC participants in California through a consumer survey. They discovered that Hispanic WIC-participants shopped for groceries at least once a week and that they were prevented from shopping at farmers' markets because of distance and transportation issues. Hence, the authors suggested bringing farmers' markets closer to Hispanic communities to encourage their participation.

Govindsamy and Nayga (1996) investigated the characteristics of customers who purchased food directly from farms in New Jersey. They discovered that roadside stands were the most visited direct market outlets. Most of the surveyed customers (92%) expected better quality foods in such markets than in supermarkets. The majority of consumers (96%) intended fresh consumption of foods bought in direct markets. The average amount spent per shopping trip varied from \$11-19, with "pick-your-own" operations generating the highest revenue.

Material and Methods

Data were collected from a Hispanic consumer survey conducted during 2010 in Franklin, Fayette, Shelby, and Jefferson counties of Kentucky. These counties were chosen for their significant Hispanic population. The survey was administered in Spanish, and Hispanic respondents indicated their grocery buying habits and willingness to purchase products directly from a producer. The survey questions were developed during 2009 from discussions with a focus group of Hispanic consumers, restaurateurs/caterers, and Hispanic household-serving Extension professionals at Kentucky State University. These individuals advised the project team about products and product forms that Hispanics purchase in their home countries and in the United States. They also indicated what types of food shopping habits to expect. The completed questionnaire was later tested by this advisory group of Hispanics to ensure that the questions were relevant. The targeted aquaculture products were tilapia, channel catfish, largemouth bass, and freshwater prawns. A total of 144 completed survey questionnaires contained useful data.

This article contains descriptive results that characterize the Hispanic direct-to-consumer market in Kentucky.

Contingency tables analyses and chi-squared tests were used to verify statistically significant relations that explain Hispanic consumer preferences.

Results

Respondent Characteristics

Table 1 contains a summary of respondent demographics, juxtaposed to corresponding 2007 U. S. Hispanic population demographics. Table 1 shows that most of the respondents were young, with 72% being 40-years old or younger. The majority of Hispanic consumers were not very highly educated: 67% had a high school education or less. Most respondents were from Mexico, with only 25% of respondents from other Latin American nations. More than half of the respondents received less than \$20,000 as annual household income. Fifty-three percent of respondents were employed as either agricultural workers or as laborers.

Table 1.

Distribution of Demographic Information Expressed as a Percentage of Total Respondents. U. S. Hispanic Population Demographics Are Provided for Comparison Purposes. N=144

	Our Data^a	U. S. Hispanic Population^b
Gender:		
Male	45%	51%
Female	47%	49%
Age:		
30 or less	41%	57%
31-40	31%	17%
41-50	13%	13%
51-60	3%	7%
61-65	1%	2%
66 or more	0%	4%
Education:		
High school or below	67%	71%
Technical	18%	— ^c
4-year degree or more	7%	10%
Country of Origin:		
Mexico	65%	65%
Honduras	6%	1%
Guatemala	4%	2%

El Salvador	3%	3%
Nicaragua	3%	1%
Other	9%	28%
Household income:		
Less than \$20K	52%	20%
≥\$20K but <\$30K	28%	15%
≥\$30K but <\$40K	10%	13%
≥\$40K but <\$50K	2%	11%
≥\$50K	2%	40%
Occupation of breadwinner:		
Agricultural industry	26%	7%
Labor	27%	27%
Sales	3%	14%
Management	6%	11%
^a Percentages do not always sum to 100% due to lack of responses from various completed questionnaires ^b 2007 data from United States Census Bureau: http://factfinder.census.gov ^c Data unavailable		

Food Purchasing Behavior

Table 2 contains results pertaining to grocery shopping habits and preferences. Large chain supermarkets such as Wal-Mart and Kroger were the main food source for 44% and 30% of respondents, respectively. This was followed by 16% of respondents using smaller chain-groceries such as Save-A-Lot as their main food source. While only 10% of respondents considered Hispanic stores to be their main grocer, 72% of respondents made at least two trips to Hispanic grocery stores per month. Forty-seven percent of respondents bought groceries during the week, while 39% bought groceries during weekends only. Fifty-six percent of respondents spent \$300 or less per month on groceries.

Table 2.
Food Purchasing Habits and Preferences of Hispanic Consumers in Kentucky. N=144

Questions	Main Responses
Respondent is the principal grocery shopper	76%
Main grocery store is:	Wal-Mart (44%) Kroger (30%) Smaller U.S. chain store (16%)

	Hispanic store (10%)
Number of grocery shopping trips per month	2-3 trips (38%) 4 trips (35%) More than 4 trips (15%)
Number of grocery shopping trips per month to Hispanic stores	0 trips(10%) 1 trip (16%) 2-3 trips (45%) 4 trips(15%)
Number of grocery shopping trips per month to farmers' markets	0 trips (69%) 1 trip (19%)
Grocery shopping times	Shopping during weekends only (39%) Shopping during week only (47%)
Grocery spending per month	\$0-\$199 (27%) \$200-\$299 (29%) \$300-\$399 (20)% \$400-\$499 (13%) \$500-\$599 (6%) \$600 or more (4%)
Are you willing (and/or able) to travel to a farm to buy food products?	Willing (56%) Willing but no transportation (16%) Not willing (21%)
How many miles will you travel to a farm from your residence?	Less than 5 miles (24%) More than 5 miles but less than 10 miles (27%); More than 10 miles but less than 20miles (21%)
Would you prefer vendors brought food products directly from farms to your community?	Prefer (85%) Do not prefer (9%)

A major impetus of the study was to investigate the willingness of Hispanic consumers to purchase food directly from farms. Seventy-two percent of respondents were willing to travel to farms to buy food products. Twenty-four percent of respondents were willing to travel to farms within a 5-mile radius of their residence, another 27% of respondents were willing to travel up to 10 miles of their residence, and an additional 21% of respondents were willing to travel up to 20 miles from their residence. Correspondingly, 85% of respondents were willing to patronize vendors bringing food products from farms to their communities.

Willingness to Buy Aquaculture Products from Farms

Respondents indicated a strong desire to purchase various fish and crustaceans from Kentucky farms. Table 3 lists various Kentucky aquaculture products in decreasing order of popularity. Eighty-four percent of respondents were willing to purchase locally grown tilapia, and 48% of respondents were willing to buy freshwater prawns. This is encouraging news because research results and field demonstrations have shown that both tilapia and freshwater prawns could be simultaneously cultured in the same pond, in a small farm/limited resource setting (Danaher, Coyle, & Tidwell, 2004; Danaher, Tidwell, Coyle, Dasgupta, & Zimba, 2007).

Table 3.

Types of Seafood Products that Respondents Would Like to Buy for At-Home Consumption. Each Respondent Was Allowed Multiple Answers. N=142

Seafood Type	Number of Respondents	Percentage
Tilapia	119	84%
Freshwater prawns	68	48%
Bass	44	31%
Catfish	35	25%

Table 4 lists preferred product forms for fish by Hispanic consumers in decreasing order of popularity. Whole fish was the most preferred form (80% popularity), followed by fresh fillets (45% popularity). Frozen fillets, at 16% popularity, were not very sought-after items.

Table 4.

Preferred Fish Product Forms. Each Respondent Was Allowed Multiple Answers. N=143

Seafood type	Number of respondents	Percentage
Whole fish (not live)	114	80%
Fresh fillet	64	45%
Live	25	18%
Frozen fillet	23	16%

Table 5 reports various preferred sources for buying aquaculture products. While supermarkets were the most popular source, it is unlikely that small-scale producers will sell to supermarkets. This is because the conflux of higher production costs in small-scale farms and price markups usually make by supermarkets make products from small-scale farms unaffordable to many supermarket shoppers. However, Table 5 shows that 35% of respondents were willing to buy local aquaculture products from a farm. Arguably, these consumers will also buy the same products if vendors transported the seafood items to their communities. This is an important result for small-scale producers seeking direct-to-consumer markets. No respondent wanted to shop at farmers' markets. The commonly proffered reason was language barrier: most farmers' market vendors did not speak Spanish.

Table 5.

Preferred Outlets for Seafood Purchases. Each Respondent Was Allowed Multiple Answers. N=143

Seafood Type	Number of Respondents	Percentage
Supermarket	82	57%
Farm	51	35%

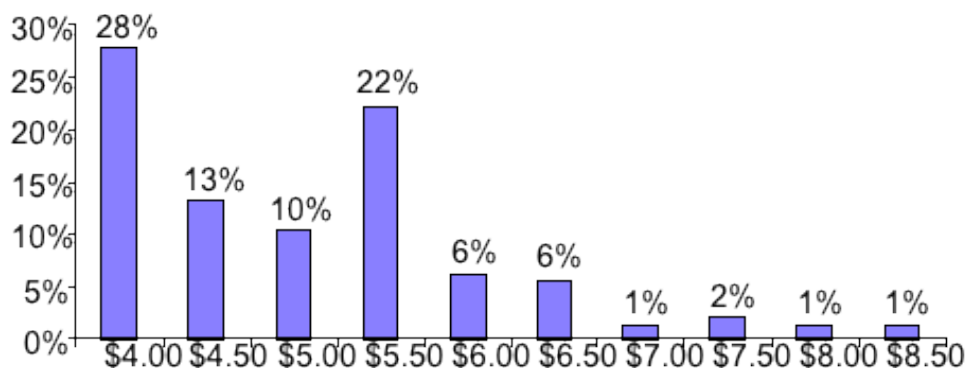
Hispanic grocery store	26	18%
Farmers' market	0	0%

We segmented the group of respondents who indicated preference towards live tilapia. This would allow producers to better target their promotional activities among Hispanic consumers. Live tilapia were more popular among Hispanic consumers exhibiting a desire to buy foods directly from farms, with a Chi-squared test generating a P-value of 8.13%, i.e., the null hypothesis of equal preference for live tilapia was rejected. Similarly, consumers who used Hispanic stores as their main grocery source also showed a significantly higher willingness to buy live tilapia (P-value = 0.7%).

The survey asked respondents to provide the maximum that they would pay for a 0.91 kg (2 lb) tilapia. This size of fish is a common harvest size in Kentucky (Danaher, Coyle, & Tidwell 2004). Figure 1 provides a relative frequency distribution of the maximum stated willingness to pay (WTP) for tilapia. Clearly, \$4 (\$2/lb) was a popular price, with 28% of respondents stating this WTP, followed by \$5.50 (2.25/lb). The weighted mean stated WTP was \$4.67 (\$2.33/lb) with a standard deviation of \$1.09 (\$0.54/lb). Only 7% of respondents did not respond to this question.

Figure 1.

Relative Frequency Distribution of the Stated Willingness to Pay for a 0.91 kg (2 lb) Tilapia Among Hispanic Consumers in Kentucky. Prices Are Reported in "\$/Fish" Units.



Conclusions

Gallons, Toensmeyer, Bacon, and German (1997) indicated that the typical U.S. consumer who purchased food products directly from farms was a well-educated, upper-middle class, suburban individual. This article shows that Hispanic consumers, most of whom were less educated and with low income, were also interested in purchasing food products directly from farms. The results show that 72% of surveyed Hispanic consumers were willing to buy food products at a farm and that 85% were willing to patronize vendors selling farm products in their communities.

A substantial proportion of Hispanic consumers (35%) preferred to buy fresh aquaculture products at a farm. The survey respondents viewed Kentucky's aquaculture products favorably: tilapia received 84% consumer approval, followed by freshwater prawns at a 48% consumer approval. Other results show that Hispanic consumers preferred whole fish to fillets. This is encouraging for small-scale aquaculture farmers who usually find processing fish

prohibitively expensive.

This article shows that sales of fish/crustaceans to Hispanic consumers would improve if such activities focus upon population segments that are willing to purchase food from farms and/or buy groceries mainly from Hispanic stores. Results indicate that aquaculture products could be sold by: 1) having fish at farms near Hispanic communities and advertising products in Spanish; 2) bringing products to Hispanic communities, similar to a mobile farmers' market; and/or 3) using Hispanic grocers as "middle men." The data suggest that it is important for vendors to speak Spanish, which will likely increase sales.

An important question is whether the direct-to-Hispanic consumer market is feasible, i.e., can farmers sell products profitably in this market and consumers find the prices acceptable? This article indicates that the stated willingness-to-pay for whole/live tilapia was between \$4.40/kg and \$6.60/kg (\$2-\$3/lb), with 79% of respondents preferring the price to be in that range. Williams and Dasgupta (2007) suggested a profitable price of \$4.40/kg (\$2/lb) for whole tilapia. This suggests that selling tilapia directly from farms to Hispanic consumers is likely to be a feasible business scenario for aquaculture farms.

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