The Journal of Extension

Volume 44 | Number 1 Article 14

2-1-2006

Direct Marketing Edamame (Glycine max [L.] Merrill) to Professional Chefs

Dru N. Montri
The Pennsylvania State University, dnb135@psu.edu

Kathleen M. Kelley
The Pennsylvania State University, kmk17@psu.edu

Elsa S. Sanchez
The Pennsylvania State University

Recommended Citation

Montri, D. N., Kelley, K. M., & Sanchez, E. S. (2006). Direct Marketing Edamame (Glycine max [L.] Merrill) to Professional Chefs. *The Journal of Extension, 44*(1), Article 14. https://tigerprints.clemson.edu/joe/vol44/iss1/14

This Research in Brief is brought to you for free and open access by the Conferences at TigerPrints. It has been accepted for inclusion in The Journal of Extension by an authorized editor of TigerPrints. For more information, please contact kokeefe@clemson.edu.

February 2006 // Volume 44 // Number 1 // Research in Brief // 1RIB4

Direct Marketing Edamame (*Glycine max* [L.] Merrill) to Professional Chefs

Abstract
A consumer-research study was conducted in Metro-Philadelphia to determine professional chef demand for edamame (Glycine max [L.] Merrill). Cultivar preferences and partiality for shelled or inshell edamame were also investigated. The majority of chefs indicated that they were "very likely" to use edamame again, and many were interested in acquiring Pennsylvania-grown edamame from small-acreage growers. Most chefs "liked" all three cultivars, and the majority preferred shelled edamame. Using this methodology, Extension personnel can continue to investigate professional chef demand and preferences for specialty crops and provide grower clientele with information on how to best meet consumer needs.

Dru N. Montri
Horticulture Master of Science Graduate
dnb135@psu.edu

Kathleen M. Kelley
Assistant Professor of Consumer Horticulture
kmk17@psu.edu

Elsa S. Sánchez
Assistant Professor of Horticultural Systems Managementelsasanchez@psu.edu
The Pennsylvania State University
University Park, Pennsylvania

Introduction

Producing specialty crops, such as edamame, may provide small-acreage growers in the U.S. with a means to diversify marketing options (Miles & Alleman, 2001). A direct marketing approach, for instance selling to restaurants, offers small-acreage growers several advantages, including a reliable market throughout the growing season, premium prices, and flexibility in the crops grown (Gibson, 1991). To appeal to restaurant clientele, benefits of regionally grown produce, including freshness, uniqueness, great flavor, special care, and personal service should be emphasized (Gibson, 1991).

Small-acreage growers, defined as those producing on one to 99 acres, account for nearly half of all U.S. farms (USDA, 2004). These growers are the most likely to rely on innovative marketing methods to sell their crops (Adam, Balasubrahmanyam, & Born, 1999); therefore, it is imperative that Extension efforts investigate potential marketing opportunities and supply grower clientele with educational resources and instruction that enables them to better understand how to effectively market to potential consumers. The research format described here can be used as a template for further studies that focus on marketing efforts for small-acreage growers.

Edamame as a Specialty Vegetable

Edamame, also known as "green vegetable soybeans," are specialty cultivars of soybean that have been bred for direct human consumption. They are the same species as agronomic soybeans but have a sweet, mild flavor and nutty texture (Miles, Lumpkin, & Zenz, 2000). Edamame beans are rich in vitamin C, vitamin E, dietary fiber (Johnson, 2000), vitamin A, calcium, and protein (Miles, Lumpkin, & Zenz, 2000). Edamame also are one of the few natural sources of a group of phytoestrogens known as isoflavones (Rao, Bhagsari, & Mohamed, 2002). Health benefits of eating

foods like edamame can include stronger bones and teeth, lower cholesterol levels, prevention of cardiovascular disease, and reduction in mammary and prostrate cancers (Rao, Bhagsari, & Mohamed, 2002).

Edamame can be prepared by boiling pods in salted water for approximately 5 to 7 minutes (Johnson, 2000). Beans are then removed from the pod and either eaten as an appetizer or a snack, or used as an ingredient in entrees (Rao, Bhagsari, & Mohamed, 2002). Edamame pods should not be eaten because they are tough, fibrous, and have an overall unappealing texture (Miles & Alleman, 2001). The popularity of edamame and other Asian vegetables is increasing in the U.S. due to growing interests in ethnic cuisines and better understanding of preparation instructions (Adam, Balasubrahmanyam, & Born, 1999).

Research objectives for the study were to:

- Discover if demand for edamame exists among chefs in metro-Philadelphia,
- Determine chef preferences for edamame cultivars 'Early Hakucho,' 'Green Legend,' and 'Kenko,' and
- Investigate chef interests in acquiring edamame from regional, small-acreage growers.

Methodology

In the fall of 2003, a consumer-research study was conducted to investigate professional-chef preferences and demand for edamame. The metro-Philadelphia area was chosen as a test site because it is a metropolitan area with diverse demographics such as age, level of education, household income, and ethnicity (U.S. Census Bureau, 2000).

A list of restaurants in metro-Philadelphia was developed to represent a variety of international food offerings (American; Asian, particularly Japanese and Chinese; Chinese-French; continental; Swiss and tropical), establishment types (cafes to four star restaurants), and menu selections to evaluate where edamame could be incorporated into menu items. Chefs at selected restaurants were contacted in early September 2003 and asked to evaluate edamame cultivars. A total of 20 chefs agreed to participate and were given a $100 incentive.

In October 2003, chefs were provided with edamame cultivars grown at the Russell E. Larson Agricultural Research Center, Rock Springs, Pennsylvania. All cultivars had dark green pods and light colored pubescence. There were no significant differences between cultivars in bean weight per pod (data not shown). Edamame was considered marketable when pods contained two or more beans and were unblemished.

Prior to distribution, edamame was blanched and frozen to comply with food safety standards. Chefs were given basic preparation instructions along with the shelled (beans removed from the pod, Figure 1) and inshell (Figure 2) edamame.

Figure 1.
Representation of Shelled Edamame Beans Removed from the Pods, Supplied to Professional Chefs at Restaurants in the Metro-Philadelphia Area

Figure 2.
Representation of Inshell Edamame Beans Left in Pods, Supplied to Professional Chefs at Restaurants in the Metro-Philadelphia Area

Chefs were asked to rate each of the edamame cultivars individually based on visual appeal, mouth feel, and flavor and answer the following question:

"On a scale of 1-9 (1 being dislike extremely and 9 being like extremely), how well did you like the sample overall?"

Chefs were then asked to complete a follow-up survey by mail, fax, or telephone to aid in determining demand for edamame and the potential for small-acreage growers to supply this market. Data collected included:

- Chef demographics, including gender, years of culinary experience, and certification level;
- Description of restaurant establishment;
- Previous experience using edamame;
- Quality perceptions of edamame provided;
- Cultivar and presentation (shelled or inshell) preferences;
- Likelihood of using edamame again;
- Interest in obtaining contact information for regional, small-acreage growers who produce edamame; and
- Price chefs were willing to pay per pound for shelled and inshell edamame

Chefs were also asked to create an original recipe using edamame as an ingredient and provide it for use in future marketing studies.

Results

Eighteen chefs completed the study. Sixteen were male, two were female, and experience as a chef ranged from 3 to 30 years. Types of restaurant establishments included: contemporary American, casual upscale vegetarian, Asian-fusion, Japanese, eclectic, and international. The number of meals served per week at the restaurants ranged from 12 to 2,800, with three to 500 patrons served each evening. Prices of entrees ranged from $7.50 to $65.00 per dinner.

Sensory Evaluation

Chefs completed a sensory evaluation rating each edamame cultivar independently on overall appeal. Responses were combined to create three categories: like, neutral, and dislike. Fourteen chefs liked 'Kenko,' 12 chefs liked 'Early Hakucho,' and 11 liked 'Green Legend' (Table 1).

Table 1.
Chef Ratings for Edamame Sample Overall by Cultivar

Rating for Sample Overall	**Number of Chef Responses**		
	'Early Hakucho'	**'Green Legend'**	**'Kenko'**
Like[1]	12	11	14
Neutral	3	3	1
Dislike[2]	3	4	3

[1] Combined responses: Like extremely, like very much, like moderately and like slightly
[2] Combined responses: Dislike extremely, dislike very much, dislike moderately and dislike slightly

Follow-Up Survey

Ten chefs had previous experience using edamame either as an appetizer or in dishes such as Lobster Risotto with Edamame, Edamame Pancakes, or Edamame Nori Salad. Chefs had obtained edamame from a variety of sources and had purchased it as shelled or inshell, depending on use. Three of the chefs had purchased products with edamame used as an ingredient.

These 10 chefs were asked to compare the quality of the edamame supplied for this study with the quality of the edamame obtained from other sources. Five chefs noted that the edamame supplied was superior to edamame obtained from other sources, four responded that the edamame was the same quality, and one chef noted that the edamame was inferior.

The follow-up survey also addressed preference for cultivar and potential differences in demand for shelled and inshell edamame. After tasting all three cultivars, chefs ranked the cultivars by preference. 'Green Legend' was ranked as most preferred by eight of the chefs, with 'Early Hakucho' and 'Kenko' ranked as most preferred by five and four chefs, respectively (Table 2). When chefs indicated the cultivar they preferred least, responses showed little difference between cultivars, with each receiving five to six responses. One chef indicated that preference was dependent on the recipe used, so he was unable to select a cultivar he preferred most or least.

Table 2.
Chef Preferences for Edamame Cultivars Based on Taste

Most Preferred		**Least Preferred**	
Cultivar	**Number of Responses**	**Cultivar**	**Number of Responses**
'Early Hakucho'	5	'Early Hakucho'	6
'Green Legend'	8	'Green Legend'	5
'Kenko'	4	'Kenko'	6

Eleven of the chefs preferred shelled edamame (Table 3). When asked if they had any difficulty removing the beans from the unshelled edamame pods, two chefs answered affirmatively stating that shelling was "too time consuming," and one chef noted that the "pods did not open correctly so the beans would not slip out."

Table 3.
Chef Preferences for Shelled and Inshell Edamame

Type of Edamame Preferred	**Number of Chef Responses**
Shelled	11
Inshell	2
No Preference	5

Chefs used a scale of 1-7 (1 being very unlikely, 4 being neutral, and 7 being very likely) to rate how likely they would be to use edamame as an ingredient in a recipe again. All chefs responded with a rating of four (neutral) or higher, with 10 of the chefs indicating that they were "very likely" to use edamame again. When asked if they had an interest in obtaining contact information for small-acreage growers in Pennsylvania who produce edamame, 14 chefs gave a positive response. Prices chefs were willing to pay for edamame ranged from $0.50-$9.00 per pound for shelled edamame and from $0.25-$7.00 per pound for inshell edamame.

Edamame Recipes

Chefs created original recipes using edamame as an ingredient. Examples of recipes include:

- Edamame Cakes with Sweet Chili Vinaigrette
- Linguini with Zucchini and Fresh Edamame
- Moroccan Edamame Soup
- Sesame Crusted Ahi Tuna with a Saffron-Ginger Buerre Blanc and a 'Green Legend'-Shiitake Saute
- Edamame Bean and Radish Salad (Figure 3)

Figure 3.
Edamame and Radish Salad Created by a Chef in Metro-Philadelphia

Conclusions and Implications

Results indicate there is a demand for Pennsylvania-grown edamame among metro-Philadelphia chefs who participated in this study. Over half of the chefs were "very likely" to use edamame again, and the majority were also interested in obtaining edamame from a Pennsylvania grower for use in their restaurant. This indicates that small-acreage growers in Pennsylvania may become potential suppliers.

Although these research results are primarily of interest to those in the metro-Philadelphia area, the methodology can be used across the country to investigate professional chef demand and preference for other specialty crops and their interest in acquiring a selected specialty crop from regional, small-acreage growers. Extension personnel can survey professional chefs in their vicinities and assist small-acreage growers with establishing mutually beneficial relationships with restaurants or chefs as a direct marketing option for specialty crops.

Researchers should begin by determining what information is desired and choose the most appropriate survey tool, which may include a sensory evaluation and follow-up survey. In an effort to design a more useful survey instrument, small-acreage growers should be consulted to develop questions with the intent of better understanding the needs and desires of this audience. Researchers should then create a list of restaurants in their area and determine how many they are able to supply with the quantity of selected product available. Chefs should be contacted by telephone, asked to participate, and have committed to participate prior to harvest. If the selected specialty crop is to be sampled fresh, it is imperative to have the survey sample committed prior to harvest. A monetary incentive can be a persuasive tool when dealing with time-stressed chefs.

In the stud described here, it was observed that chefs had no preference for cultivar; however, the majority of chefs preferred shelled edamame, possibly because it is more convenient to work with. This type of preference criteria can be determined from a survey and is important for small-acreage growers to understand when pursuing new market outlets. Once survey results are compiled, a list of interested restaurant clientele along with preference criteria could be compiled to assist small-acreage growers in successfully selling to restaurants.

A component of the Extension mission is to be forward thinking and to inform clientele about existing and potential production and marketing opportunities. As specialty crops become more popular among average U.S. consumers, small-acreage growers can learn from Extension educators and specialists about niche markets and competitive channels of distribution and decide whether or not to enter these potentially lucrative markets. By conducting research to investigate professional chefs' cultivar preferences, demand, and how the product should be handled prior to delivery, Extension offers an important service to their grower clientele by reducing monetary and time-related risks. Results from this type of research can also provide valuable marketing tools for small-acreage growers, such as chef-created recipes that can be attached to the product package. Using this research format as a template, Extension personnel can continue to investigate where marketing efforts should focus and how to best meet consumer needs.

Acknowledgement

Funding for this research was provided by The USDA Federal-State Marketing Improvement Program and The Pennsylvania State University College of Agricultural Sciences Seed Grant

Program.

References

Adam, K., Balasubrahmanyam, R., & Born, H. (1999). *Direct marketing business management series*. ATTRA – National Sustainable Agriculture Information Service [On-line]. Available at: http://attra.ncat.org/attra-pub/directmkt.html

Gibson, E. (1991). Selling direct to restaurants: White-linen produce. *California Grower*, 15(4), 38.

Johnson, D. (2000). Edamame. *Engineering and Technology for a Sustainable World*, 7, 11-12.

Miles, C. A., & Alleman, D. G. (2001). Promoting and marketing Asian crops. *HortTechnology*, 11(4), 517-519.

Miles, C. A., Lumpkin, T. A., & Zenz, L. (2000). Edamame. Washington State University Cooperative Extension Bulletin No. PNW0525.

Rao, M. S. S., Bhagsari, A. S., & Mohamed, A. I. (2002). Fresh green seed yield and seed nutritional traits of vegetable soybean genotypes. *Crop Science*, 42, 1950-1958.

United State Census Bureau. (2000). *Pennsylvania Quick Links* [On-line]. Available at: http://quickfacts.census.gov/qfd/states/42000lk.html

United States Department of Agriculture Economic Research Service. (2004). *Farm Characteristics* [On-line]. Available at: http://www.ers.usda.gov/StateFacts