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Food Industry Needs Assessment Survey: A Case Study

Felix H. Barron

Professor and Extension Specialist
Food Science and Human Nutrition Department
Clemson University
Clemson, South Carolina
fbarron@clemson.edu

Abstract: The study reported here assessed the needs of the food processing industry in South Carolina in order to develop strategic plans for effective assistance. Results of the online survey indicated that developing new products and markets, solving technical problems, and the training of employees were important needs. Due to the fundamental similarities of food processing establishments, it can be assumed that food businesses in other states may have similar needs. Future plans include contacting land-grant universities in the U.S. to explore the use of the online survey in other states.

The U.S. Food Processing Industry and the Land-Grant Universities

Land-grant universities in the U.S. have been supported by the federal government and states with the purpose of improving the lives of American citizens, mainly by serving agriculture-related businesses. The food processing industry is typically assisted by food scientists out of food science departments in each university. The assistance may range from food product development and establishment of food safety plans to training of employees and assistance on marketing issues.

The state of the food industry and land-grant universities changes with time, making it necessary to re-evaluate methods to assist the industry. Improvements include, but are not limited to, increased processing efficiency when shortage of food science specialists occurs.

Needs Assessment Tools and the Food Processing Industry

Assessment surveys are good tools to determine the needs of industry in order to develop effective strategies and to provide technical assistance by land grant universities. Industry needs can be assessed in various ways, including surveying the industry directly, surveying Extension specialists who know the local industry, and surveying the public to provide perception on the state of the local food industry. Needs may vary according to geographical location and time of the survey. For example, according to a public survey in the state of Wisconsin in 1994 (Gilmore, Meehan-Strub, & Mormann), the three most important food safety concerns

were pesticides, drugs in foods, and manufacturing standards. Marshall, Bush, and Hayes (2005) used another survey to identify the needs of food entrepreneurs in Indiana. In this particular case, Extension specialists from 86 counties were surveyed. Results indicated that marketing, new business start-up, and food safety were top priorities at that time.

In another study (Kaplan, Liu, & Radhakrishna, 2003), a needs assessment was used as a planning tool for an Extension programming in the state of Pennsylvania. In this case, mostly Extension personnel were surveyed. Results indicated that there were nine needs ranked according to their perceived level of importance, from highest to lowest. Grandparents raising grandchildren was the top need, while natural disaster education showed the lowest level perceived.

Needs assessments can also be very specific, such as the survey designed by Pivarnik, Hicks, Jahncke, and Gall (2007) to determine the need of an Internet-based interactive training course on sanitation and good manufacturing practices. The survey was distributed to U.S. food processors, wholesalers, and distributors. Although 95% of the 182 respondents indicating they already have an on-site training, they would use an Internet-based course if available.

Needs Assessment and South Carolina Food Processors

The study reported here assessed the needs of the food processing industry in South Carolina in order to develop strategic plans for effective assistance to the industry by the Cooperative Extension Service of Clemson University, a land-grant university located in Clemson, South Carolina.

Survey Design and Administration

In the process of searching for needs assessment tools, it was determined that the survey applied by Hazen (2004) to the state of Maine contained the desired survey elements for our purposes in South Carolina. Hazen's survey was modified to fit our needs assessment goals.

The survey was divided in eight sections to include the following:

1. Company structure
2. Product information
3. Ingredients
4. Production
5. Business development
6. Marketing

7. Education/training

8. Computer assessment

Each section contained critical questions to obtain key information useful to assess the needs of companies and to develop strategic planning to improve technical assistance.

A list of 580 of food processing related companies was compiled from different sources, including an internal database in the Food Science and Human Nutrition Department of Clemson University and the SC Department of Agriculture.

The survey was administered online through a secure server. Companies were contacted by regular mail and invited to participate in the survey. An ID and password were provided for each company in order to keep confidentiality. The following is a list of sample factors included in the survey questions. In this example, participants were asked to rank the listed overall market factors in terms of their importance to the success of their product(s) on the scale of 1 (very important) to 5 (very unimportant).

1. Interest rates

2. Cost of raw materials

3. Available ingredients supply

4. National economy

5. Competitors' Activities

6. State economy

7. New market identification

8. Market value

9. Customer attitudes

Companies were given 6 months to participate in the survey, which could be taken at the convenience of the participating company representatives. The function library from Microsoft Office Excel[®] was used to statistically analyze the survey results.

Survey Results

Twenty-four companies participated in the online survey. These companies represent a similar percentage (4%) of responding companies in a similar survey (6% responding companies) in the state of Maine (Hazen,

2004).

Despite the low number of participants, the collected data provided key information for developing future plans for industry assistance. Other information already known about companies through the existing Cooperative Extension Service would also be included in any future resulting strategic planning.

The majority of the participating companies were very small businesses. These companies have been in business for 10 years or less, as well as employ 10 or less full time employees. Typically they hire seasonal workers to meet any increased demands in added processing needs. These small companies also represent a typical food processing business served by Extension personnel.

Product Information

Survey results indicate that baked goods had the highest sales value, with over \$47,000,000.00 for the 2006 year, followed by fruits and vegetables, with over \$30,000,000.00. A distant third was the sale value for dairy products with just over \$500,000.00. Most participating companies also indicated their intention of producing new food products in the near future, bakery products being the most frequently cited.

Ingredients

Participants indicated a need to improve the cost, availability, and quantity of raw materials and ingredients, while quality and availability are the prime reasons for choosing a supplier. About 20% of the participants are part of the supply chain.

Production

The survey revealed some important aspects of the manufacturing aspect of the food industry. About 77% of the participants indicated that developing new products is part of their goals, while about 35% indicated that they are interested in using a shared processing facility or utilizing a co-packing facility to make some of their products. They would be willing to travel up to 50 miles for that purpose.

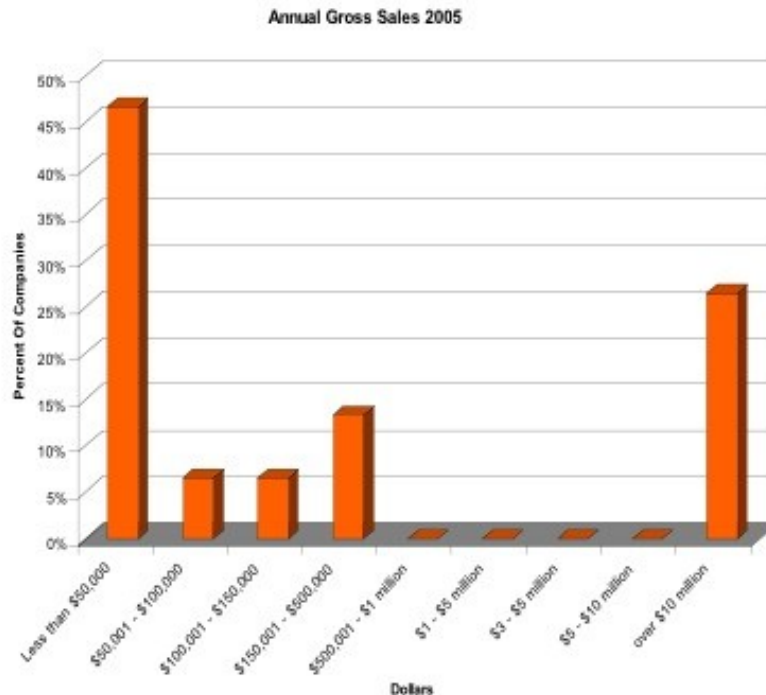
Companies indicated that lack of capital and a lack of equipment are the greatest limiting factors to increasing production. Additional efforts aimed at assisting companies with time management, market analysis, and marketing may also be of benefit.

Business Development

Although the majority of the participating companies reported gross sales of less than \$50,000.00 a year, a significant 25% reported gross sales of over \$10 million a year (Figure 1). About 40% indicated that marketing issues, such as new markets and product promotions, are very important for their business growth. Thirty-three percent of respondents indicated that capital availability is the most limiting factor to their business growth.

Figure 1.

Annual Gross Sales of Participating SC Food Processors (n=24) for 2005



The following percentages of the participating companies indicate some important findings about marketing.

- **32%** have a written marketing plan.
- **63%** would like assistance in writing marketing plans.
- **42%** indicate the cost of raw materials and availability of the ingredients are the most important factors affecting market sales.
- **32%** allocate specific dollar amounts to advertising/marketing.
- **58%** currently export products outside of South Carolina.

Companies budgeted between 2% and 20% for advertising. The methods of advertising/marketing used most often were newspapers, trade shows, and local community advertising.

Education and Training

The solution to technical issues appeared to be the largest need of companies, while the use of fact sheets was the selected means of communication to receive information of importance to their business.

Companies also indicated that about 41% of important information, such as technology, equipment, and marketing, originates from their trade association, 33% from Clemson University, and 27% from manufacturers and newsletters. About 67% of participants would be interested in receiving information on

various programs dealing with training existing workers, apprenticeship training of additional workers, and/or training youths for transition from school to work.

Table 1 shows the degree of interest in education and training issues. Packaging, food safety, and sales promotions were top priorities.

Table 1.
Areas of Interest for Participating Companies (n=24)

Subject Area	Topic	Request
Material Sourcing	Sourcing packaging/labeling materials	47%
	Procuring raw ingredients	20%
	Sourcing equipment	13%
Marketing	Planning sales promotions	53%
	Public Relations/Consumer Education	20%
	Export Markets	7%
	Religious and ethnic foods (Kosher/Halal)	13%
Technical Issues	Food regulations	40%
	Packaging	60%
	Food Safety	53%
	Nutrition Labeling	40%
	Equipment/processing techniques	47%
	Production efficiency	33%
	Government regulations	13%
	Organic production and processing	27%
	Plant sanitation	33%
General Business Development	Combination of above	40%
Other	Web site technology	13%
	Point of purchase software	13%
	Mail order	13%
	Sanitation and safety	27%
	Computer software applications	20%
	Business plan	27%

Computer Assessment

The following percentages of participating companies indicate important findings about the use of computers and the Internet.

- **72%** currently utilize a computer system in their business operations.
- **17%** use custom designed software for a food processing business.
- **72%** use e-mail.
- **50%** have a Web page.
- **22 %** receive orders through their email or Web site.
- **33%** of these orders are wholesale.
- **39%** of these orders are retail.

Results Analysis

It is recognized that the surveyed sample size is small compared to the larger number of invited participants. Even so, it is still valid to use this direct industry information collected in the survey as a guide to develop strategic plans to provide technical assistance from an Extension viewpoint.

The survey indicates that the food processing industry in SC may not be different from any other similar small business in the country. Very similar results in all surveyed areas were also obtained by Hazen (2004) in the Maine industry survey.

The most important aspects of the assessed needs include the following.

- New products and new markets should be developed.
- Lack of capital and equipment are growth limiting factors.
- Cost, availability, quality, and service are factors to be considered when dealing with suppliers.
- Solving technical problems and training of employees are recognized needs.

- Trade associations are the main source of information, and fact sheets are the selected means of communication.
- Wide use of the Internet was also indicated. The majority of the participants indicated a wide use of the Internet, including e-mail, business operations, Web pages, and wholesale orders.
- Shared facilities or co-packing for the manufacture of products should be considered.
- Interest in receiving information from Clemson University or other sources included marketing, food packaging, and food safety issues.

All these aspects should be considered when developing Extension strategies to provide technical assistance to food processing companies in South Carolina.

The small size of most of the surveyed companies, which include fewer than 10 full-time employees and annual gross sales of less than \$50,000.00, justifies their need for assistance in product development, solving technical processing problems, developing new markets, and training. These companies, however, lack the financial support to fulfill these needs.

Based on the present knowledge about the specialty food processing industry in South Carolina, this industry focuses on niche markets of products, such as salsas, jams, jellies, pickled vegetables, and bakery products, among others. A major need in this area is the establishment of a shared processing and packaging facility, similar to the so called incubators, or a co-packer willing to manufacture the most popular food products to satisfy the general industry needs. In either case, the shared facility of the co-packer should be profitable in order to be sustained.

A shared facility may function as a Food Processing Center, with ties to Clemson University in order to provide training and information of importance, including food packaging, food safety, food processing, food regulations, and nutrition labeling.

Another important aspect of product development is shelf life determination. Although not specifically indicated in the survey, it has been our experience that there is a need to provide this type of service at a low cost. Currently, many companies would like a shelf life study for their products but cannot afford it.

Due to the fundamental similarities of food processing establishments, it may be correct to assume that food businesses in other states may have similar needs as stated in the study reported here and that they may be taken into consideration when developing assistance plans by local universities or government agencies. Future plans include contacting land-grant universities in the U.S. to explore the use of the online survey in other states.

Conclusions

Small food processing companies have the typical needs of a small business: assistance on market developments, research and development and training, limited financial and human resources, and lack of equipment.

Some of these needs are presently satisfied by the Cooperative Extension Service of Clemson University. Product development, food safety, food processing and packaging, and food laws and regulations are areas covered by Extension personnel.

The establishment of a strategically located food processing and packaging center may be the solution for those businesses lacking adequate facilities. This center may function in coordination with Clemson University, other universities, and government agencies to fulfill industry needs and promote business growth. The global nature of the online survey allows for its application in other states and other countries.

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