AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

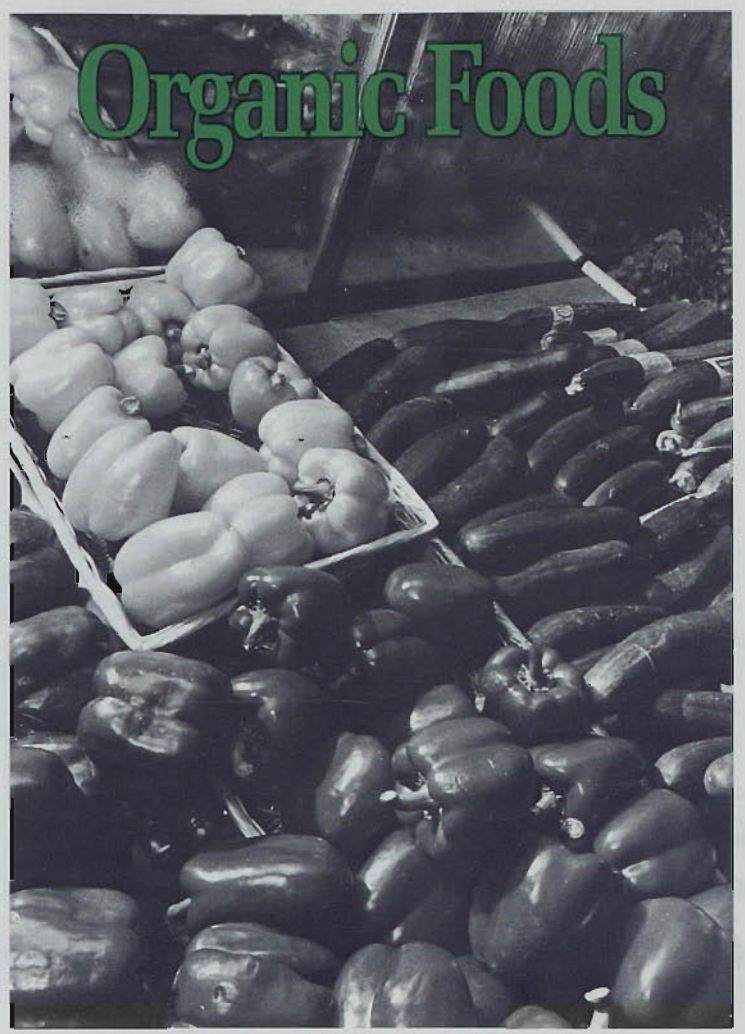
This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



Attract Consumers For The Wrong Reasons

by Chung L. Huang

➢ **Despite the merits of U.S. agriculture and food system, consumer concerns about food safety and environmental quality continue. These concerns have stimulated attention by both producers and consumers to organically grown foods. A Georgia survey found that three fifths of the respondents preferred organically grown produce and that fear of chemical residues was the most important reason for this preference. Even so, many production and marketing problems prevail. No more than 3 percent of the nation's produce production is certified organic produce.**

Food habits and dietary patterns of American consumers are changing. More convenience foods are being purchased and more meals are being eaten away from home, particularly among two-income households. Today's consumers are also more informed about health and nutrition, and are asking more questions about food quality and safety. Despite the obvious merits of U. S. agriculture and food system, consumer concerns about food safety and environmental quality continue to increase. Following the Alar scare and the Chilean grapes incident, public concerns about the potentially adverse effects of pesticide residues on human health have risen to an unprecedented level.

In response to consumers' desire to avoid pesticide exposure, some retailers have initiated residue-monitoring programs and are advertising their fresh produce as being specifically tested for chemical residues. Others are promoting the sale of organic foods. The growing interest in nutrition and food safety has contributed to increasing demand for organic foods, particularly in California and Washington. According to the annual Organic Index poll, 84 percent of Americans surveyed in 1990 said they preferred to buy organic produce if such produce were available. Nearly one half (44 percent) of the respondents, said they would do so even if it cost more. Although sales of "organic food" are relatively small in relation to the total U.S. food market, sales of organic food soared to an estimated $1.25 billion in 1989 from $174 million in 1980. According to some industry analysts, the market for organic foods could grow as rapidly as 40 to 50 percent a year.

Fear and Misconception Affect Responses

Consumers' fear of chemical contamination associated with modern agricultural practices, and concern for environmental protection, are primarily responsible for the renewed interest in organically grown foods. Although not all the foods headed for the marketplace were tested, the Food and Drug Administration's (FDA) regulatory monitoring program in 1989 showed no residues were found in over 60 percent of the foods sampled. Of all the samples analyzed, less than 1 percent contained residues that exceeded tolerances. These data and FDA's monitoring of the food supply over the past 25 years have consistently demonstrated that pesticide

Chung L. Huang is Professor, Department of Agricultural Economics, Georgia Experiment Station, University of Georgia.

residues in foods are generally well below the permissible levels, and that findings of above-tolerance residues are rare exceptions. However, many consumers allege that they face more risk today than in the past, and predict even greater risks in the future.

Consumers' apprehension about risks associated with food grown with chemicals reflects a desire for absolute safety and the ways that risks are perceived. Most people desire zero risk or absolute safety, including food; but, in reality, it is unreasonable and unattainable. Achieving or proving absolute safety is somewhat akin to proving that a person is absolutely honest. Risk is a relative concept and should be put into proper perspective to sort out sense from nonsense and to weigh against potential benefits. Perceptions of food related risk are often skewed from reality. Perceived risk is not always related to the probability of injury or health risks calculated on an actuarial basis. In fact, deaths caused directly from food poisoning or contamination are so rare that they produce headlines instead of being lost in mortality statistics.

Heart disease, cancer, pneumonia, and automobile accidents are the leading causes of deaths in the U.S. While consumers should be concerned about the risks of eating certain foods with high cholesterol, fat, or salt content, there is abundant scientific evidence identifying other factors, such as heredity and lifestyle, as much greater risks that cause deaths from heart disease and cancer more directly than food. A person living in the United States is about 16,000 times more likely to die in an automobile accident than being killed by botulism. Yet botulism is big news, which typically focuses and emphasizes extraordinary events and skews public risk perception. The smaller a risk factor is, the greater tendency is that reality will be obscured with misconception.

Risk is a relative concept and should be put into proper perspective to sort out sense from nonsense.

Consumers' behavior or reaction to a given risk is somewhat predictable on the basis of whether they perceive the risk as being voluntary or involuntary. If the risk is perceived as voluntary and an individual believes that it is controllable or reducible through personal action, the risk becomes less objectionable and the level of fear and concern diminishes. Activities such as traveling by automobile or airplane, smoking, and consuming alcoholic beverages are clearly voluntary choices.

Apparently, consumers perceive the risks associated with the use of chemical pesticides as involuntary and uncertain and, hence, a cause of public concern. In addition, people tend to behave differently even toward the same risk, depending on whether it is presented as a risk of losses or gains. When taking risks for losses, people gamble. The chances of winning the much publicized $105 million in the September 1990 Florida state lottery, about 1 in 14 million for a $1 ticket, represented a risk of losses. It was a choice of losing between a few dollars on lottery tickets and a chance of becoming an overnight millionaire. Many people drove long distances, waited long hours in lines and spent hundreds or even thousands of dollars on tickets, which were considered as a small sacrifice compared to the winning prize.

On the other hand, when taking risks for gains, people behave conservatively, opting for the sure over the unknown. Avoidance of foods grown with pesticides or man-made chemicals is an example of a choice of gains. Taking Alar for example, it is a growth-regulator which was applied by spraying on apple trees to keep fruits on the tree longer. Alar extends the harvest time, allows development of a deeper red coloring in apples and makes them more resistant to deterioration in storage. It also decreases natural infections that are 2,000 times more toxic than Alar. The Natural Resources Defense Council (NRDA) estimated that 1 in 4,200 American children is likely to get cancer by eating Alar-treated apples. The choice of using or not using Alar on apples as presented by NRDA was a choice between having apples with ripe reds and saving our children's life from cancer. Consequently, people are conservative and want to restrict the use of chemicals in food production.

Organically Grown Foods

There are no valid reasons for condemning the use of organically grown foods. However, one misconception held by some needs to be dispelled. The misconception is that the nutritional value of organically grown produce is different from the nutritional value of plants grown with inorganic chemicals. In fact, organic source plant nutrients decompose into their inorganic components before they can be assimilated by the plant. Therefore, fertilizers, regardless of the type, do not influence the nutrient composition of the plant with respect to its content of protein, fat, carbohydrate, or various vitamins. The genetic composition of the seed, as well as environmental factors such as geography, climate, season, and maturity of the plant at harvest determine the nutrients in a plant. Thus, organic methods *per se* do not produce a nutritionally superior or inferior product than non-organic methods. There is no scientific evidence that can demonstrate otherwise.

Organically grown fresh produce seems to have special appeal to people who are concerned about environmental quality. They

Opposite page: *The message is clear that there is no trade-off; consumers want their fresh produce to be both residue-free and picture-perfect.*
Above: *Consumers' fear of chemical contamination...and concern for environmental protection, are primarily responsible for the renewed interest in organically grown foods.*

believe that organic production methods would reduce pollution, because it leaves no chemical pollutants in the environment. Concern for environmental protection is certainly commendable. Injudicious use of agricultural chemicals has undoubtedly contributed to the pollution problem, but organic farming is not the only alternative. New and safer pesticides and improved techniques can be developed for use in agricultural applications. Rigorous testing and monitoring programs can be implemented to identify chemicals with characteristics that are environmentally undesirable and hazardous to human safety. Crop rotation, tillage, disease-free planting stock, and disease-resistant varieties can be combined to develop alternative farming systems that are cost effective with minimum dependency on agricultural chemicals.

The Definition of Organic Food Adopted by the United Task Force on Organics

- Organic food production systems are based on farm management practices that replenish and maintain soil fertility by providing optimal conditions for soil biological activity.
- Organic food is food that has been determined by an independent third-party certification program to have been produced in accordance with a nationally approved list of materials and practices.
- Organic food is documented and verifiable by an accurate and comprehensive record of the production and handling system.
- Only nationally approved materials have been used on the land and crops for at least three years prior to harvest.
- Organic food meets all local, state and federal regulations governing the safety and quality of the food supply.

Source: McClure, B. H. "The Growing Demand for Organic Food." *Supermarket Business,* Vol. 44, No. 12, December 1989, p. 61.

Georgia Consumer Survey

Because of the importance of the issues related to organic food, in 1989 the Department of Agricultural Economics at the Georgia Experiment Station conducted a statewide survey of consumers. It focused on their attitudes toward pesticide residues, food preservatives and additives, freshness, sensory quality, price and their perceptions of food quality and safety risks. Questionnaires were mailed to 580 randomly selected households. The survey resulted in a total of 389 completed questionnaires, representing a 67 percent response rate.

Nearly one half (45 percent) of Georgia consumers ranked pesticide use as one of their top three overall concerns about the food they buy.

Approximately 61 percent of the respondents expressed a preference for organically grown produce, if available. The study found no statistically significant relationships existed between sociodemographic characteristics and those who would and would not buy "organically grown fresh produce." Gender, race, age, education or income of the respondents did not account for differences in preferences for organic food. However, evidence suggests that age, sex, education, and income were significantly related to risk perceptions, importance of produce attributes, and attitudes toward chemical pesticides.

The majority of consumers, it seems, were satisfied with the quality of fresh fruits and vegetables available in the marketplace. Approximately 84 percent of the respondents rated the quality of produce they bought to be good to very good. Nearly one half (45 percent) of Georgia consumers ranked pesticide use as one of their top three overall concerns about the food they buy; 31 percent identified chemical food additives and preservatives; 29 percent and 26 percent identified food poisoning and high food prices, respectively. Concern about pesticide use correlated with respondents' sex and age. Women were more concerned with pesticide use than men, and respondents less than 44 years of age were more concerned than their older counterparts.

Concerns about chemical food additives and preservatives, food poisoning, and high food prices correlated with age and educational level. Concern was greatest among those who were 30-44 years old and who had no more than a high school education. A majority of respondents (83 percent) rated nutritional value and low price as very important or somewhat important attributes that influence their fresh produce purchasing decisions. Respondents who rated nutritional value and low price as important were more likely to indicate a preference for organic produce than those who did not.

When asked whether chemical pesticides should be banned from use on fresh produce, 43 percent said that at least some pesticides should be banned. A significantly greater proportion of female respondents than males wanted at least some pesticides banned from use on fresh produce production. Not surprisingly, a majority of those respondents (76 percent) who advocated some banning said they would buy organically grown produce. Whether pro-organic or not, a majority of respondents (87 percent) wanted assurance that fresh produce was tested and certified residue-free. Among those respondents, 66 percent would be potential buyers of organically grown produce. The greatest proportion of respondents who considered testing and certification to be very or somewhat important were between 30 and 44 years of age.

Motivation

What motivates Georgia consumers to prefer organically grown to conventionally grown fresh produce? The survey suggests that the most important reason is freedom from chemical residues (38 percent). It appears that Georgia consumers think "organic" means pesticide-free. Georgians also ranked other reasons for choosing organic produce: naturally grown (35 percent) and tastes better (16 percent). With respect to willingness to pay, the majority of respondents (61 percent) said that they would pay only 10 percent more than what they pay for conventionally grown fresh produce. While some (15 percent) would pay a higher premium, 24 percent are not inclined to pay any higher price at all. Furthermore, only 25 percent of the potential buyers would accept organically grown fresh produce that is visually imperfect, with insect damages and blemishes, or possess soft spots. The message is clear that there is no trade-off; consumers want their fresh produce to be both residue-free and picture-perfect in appearance. The acceptable strategy is to use chemicals but be certain no residues enter marketing channels.

With organic produce typically priced in Georgia at least 30 percent higher than that of conventionally grown produce, it is not surprising that organic produce sales in Georgia have declined since the Alar scare in 1989. Future demand will likely come from

a small group of consumers who are determined and committed enough to buy organic produce despite higher prices. The most important factor in marketing organically grown produce in Georgia appears to be certification that the produce is free of chemical residues. Perhaps of equal importance to the promotion of organically grown produce is that it should be made available to consumers at a price close to other produce and without apparent defects in its sensory quality. However, this combination is difficult to achieve.

Challenges to the Industry

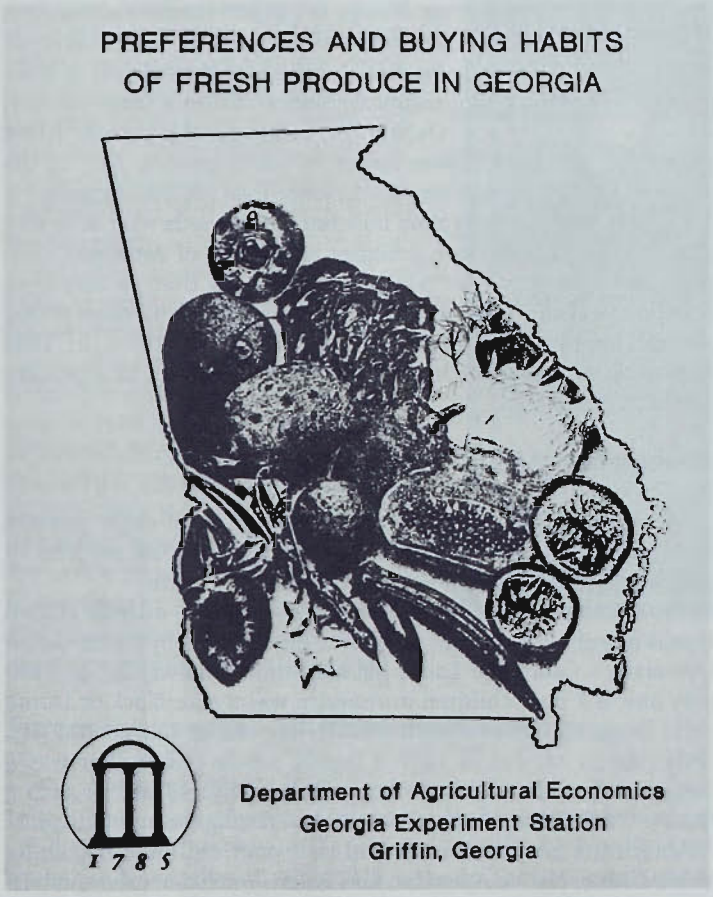
While the organic farming industry continues to grow both across the nation and in Georgia, practical production and marketing problems remain to be solved. Many kinds and varieties of fresh produce simply cannot be grown successfully without the help of chemicals. For example, Alar was used on Red Stayman and Winesap apples to prevent them from ruin by skin splitting and cracking without altering taste. In South Georgia, strawberry growers are limited to the varieties Chandler and Douglas because of disease problems. Preplant fumigation with methyl bromide is essential to commercial strawberry production for nematode, weed and disease control.

As with people and animals, diseases develop in plants as a result of infection by pathogenic microorganisms. Plant diseases and insects exact heavy yield losses unless preventive techniques are utilized. The development of new techniques is complicated by current crop varieties having been developed with the use of chemical protection from disease and insect damage. For practical organic production to become a reality, different varieties will need to be developed. Furthermore, the yield of most organically grown crops is substantially lower than the yields of crops grown with inorganic fertilizers and other chemicals. In many production areas, the land will require years of special preparation before it can be practical to produce organic food economically. In Georgia, certified organic farmland must be free of synthetic chemical use for three years.

At the market level, producers also must overcome obstacles such as inconsistent quality, higher price, and sporadic availability before supermarket operators are able to establish regular organic sections in their produce department. Present production costs increase when fruits and vegetables are grown without using synthetic chemicals. Organic farming depends on the use of natural fertilizers and natural methods of pest control management and hence, is more labor intensive. In addition the results are less predictable. Organic produce is also more perishable because it is picked riper and is not treated after harvest to extend shelf life, all of which contribute to more spoilage, lower quality in appearance, and higher prices.

Today, suppliers of certified organic produce represent no more than 3 percent of the nation's produce production and many cannot produce crops in large quantity. As a result, supplies of organic produce have been limited, inconsistent, and unpredictable.

Furthermore, there is the ultimate question of consumer acceptance. Although surveys have shown that many consumers say they prefer organically grown produce, they don't reflect this desire in actual purchases. Many supermarkets in Atlanta that once carried organic produce in their produce department, have discontinued because of poor sales. Today, in Georgia, organic produce is sold primarily in health-food stores and at some farmers markets. The American consumer still wants a bright red apple at a competitive price.



A total of 389 Georgians completed questionnaires for the Georgia Experiment Station statewide survey of consumers.

The Future

Food is essential for life. It fulfills not only our physiological requirements but also social and emotional needs. To some consumers, organic foods are appealing because of social and emotional values linked to the idea of small scale family farms, and a simpler more wholesome time before agricultural chemical use became widespread.

For the Georgia consumers surveyed, six out of every ten respondents said that they would prefer to buy organic produce, a significant number. Fear and misconception about the use of farm chemicals in food production seem to be a driving force behind the organic movement to a large extent rather than the inherent quality of the produce.

Although most Georgia consumers find organic produce attractive, they are apparently motivated by concern about pesticide residues and preference for food safety. The study suggests that only a very small proportion of determined consumers would buy and pay a higher price for organically grown produce. Many retailers have found sales of organically grown produce to be minuscule, hardly a marketing success. Appearance and price are likely to impede growth in this specialty market.

Even though consumer demand has diminished and there is resistance to organic food prices above prices for conventionally grown produce, the future for organic farming seems promising. Last year, the Georgia Organic Growers Association took the first step to approve six farms in Georgia and one in Alabama for growing certified organic produce. Many of the production problems are likely to be solved with advancements in biotechnology. Scientists seek to develop built-in disease and pest controls in crops and to produce genetically engineered bacteria that fix nitrogen to reduce chemical fertilizer dependency. However, these are no small tasks. It will require considerable money and years—even decades—of research to accomplish these goals.