

WORLDWIDE CHANGES IN FOOD MARKETING AFFECT FRESH FRUITS AND VEGETABLES: IMPLICATIONS FOR PLASTICULTURE

Roberta Cook
Department of Agricultural and Resource Economics, UC Davis
SS&H Building, Room 2136
One Shields Ave.
Davis, California 95616
cook@primal.ucdavis.edu

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Abstract.

The global marketplace is expanding but evolving toward greater market consolidation, where more volume is controlled by fewer, larger firms. Food marketing firms are increasingly focused on achieving more tightly integrated supply chains. This process involves adding value and decreasing costs by streamlining distribution and understanding customer demands. Suppliers are becoming account-driven, dedicated to serving the specific needs of key customers. For their part, buyers are relying more on a smaller number of preferred suppliers per product category. Greater focus on value-added, high quality products and direct sourcing is changing fresh produce marketing, and benefiting greenhouse vegetables.

Global Fruit and Vegetable Production, Where Does Greenhouse Fit?

Worldwide, consumption and cultivation of fruits and vegetables has been increasing. Between 1990 and 2004, global fruit and vegetable production grew from 814.33 million metric tons to 1.35 billion metric tons (FAO 2005). Per capita availability expanded from 155 to 212 kilograms over this period. Much of this growth has occurred in China.

Although only a tiny share of this production is currently grown using plasticulture, more quality-oriented producers in more countries are beginning to use or at least consider plasticulture. For example, in North America (Canada, the United States and Mexico), over 13 percent of fresh tomato production is now estimated to be greenhouse-grown, compared with a negligible share in 1990 (Cook and Calvin). In the United States (US), the principal North

American market for fresh tomatoes, greenhouse-grown account for over 17 percent of total fresh tomato supply, including domestic production and imports. Most of the imports originate in Canada and Mexico, now the key suppliers to the US greenhouse tomato market. Greenhouse tomatoes continue to erode the market share of round field tomatoes in US retail channels, even as strong foodservice demand for field tomatoes helps offset this loss.

Despite growth, the greenhouse share of North American fresh vegetable supply remains very low relative to the greenhouse share in Europe. Abundant, low cost production of field-grown vegetables can be achieved year-round in North America by shifting production locations seasonally. Mexico and Florida are capable of major winter production. In contrast, a major shift to plasticulture has occurred over the last twenty years in Europe for important crops such as tomatoes, peppers, and cucumbers.

The evolution of greenhouse production in North America, and the extent to which it will or will not emulate Europe, depends on numerous factors affecting supply and demand. These include relative per-unit costs of production between field and greenhouse, and willingness to pay price premia for greenhouse produce relative to field, both at the farmgate and consumer levels. Commercial buyer preferences reflect a combination of strategic considerations, including risk management.

Fresh produce is a critical element in the competitive strategy of retailers, and is becoming more so for foodservice. In the United States and Europe, fresh produce procurement is evolving toward predominantly direct sales from shippers to retail and foodservice firms, reducing the use of intermediaries, with foodservice channels (hotels, restaurants and institutions) absorbing a growing share of total volume. The consistent, year-round availability of large volumes of high quality fresh produce is now seen as a necessity by both foodservice and retail buyers. Furthermore, buyers are pressuring suppliers to meet strict food safety guidelines, regardless of where they are sourcing from at any moment in time.

Year-round sourcing has long been a challenge in the world of fresh produce due to seasonality in production and perishability. With improvements in shipping and postharvest technology, delivered quality is improving over longer distances, contributing to greater international trade and more competitive markets. Both field and greenhouse growers are developing marketing alliances with producers in diverse locations, while simultaneously

standardizing food safety practices, both seeking to respond to market demand, with different price points and target markets.

While high value/cost, greenhouse-grown products have made only small inroads into the foodservice industry (white tablecloth restaurants), more retail buyers are finding benefits compared with field-grown product. Chief among these are relative consistency in year-round volumes and quality, the ability/willingness of shippers to offer pricing predictability via forward contracts, more direct marketing channels with less reliance on intermediaries, and lower food safety risk.

The emergence of the greenhouse vegetable industry in North America appears to be market-driven, meeting the needs of large buyers, increasingly influenced by world-wide trends in fresh produce sourcing. The stakes are high. In the US alone, the 2004 crop value for a leading fresh vegetable like tomatoes surpassed \$1.3 billion. The 2004 final value of all fresh produce sold through US retail and foodservice channels is estimated by the author to exceed \$95 billion. The market surpasses \$100 billion in the EU-15.

International Trade

International trade in all fruits and vegetables surpasses \$70 billion. The European Union (EU) is the largest importer and exporter of fruits and vegetables, importing about \$13 billion of fresh and processed fruits and vegetables (excluding wine, beer and nuts) in 2002. However, as a single country, the United States is the world's largest trader of fruits and vegetables. US imports of fresh and processed fruits and vegetables grew from \$6.7 billion in 1990 to \$11.7 billion in 2004, with 2004 imports of fresh fruits and vegetables alone surpassing \$7.1 billion. In 2004, US exports of all fruits and vegetables were also \$7.1 billion, including \$3.8 billion in fresh form. The US is a net importer of both fresh and processed fruits and vegetables, and the trade deficit has been growing.

Germany has long been the most important import market within Europe, accounting for 12% of world fruit and vegetable imports in 2001, according to Eurostat. Japan imported \$5.9 billion worth of fruits and vegetables in 2001, accounting for about 8% of world imports since 1993. As mature markets, neither the influence of the EU and Japan on world horticultural markets has been growing, but they will remain vitally important. Leading and emerging fruit

and vegetable suppliers will continue to vie for these lucrative markets and will respond to market signals conveying evolving European and Japanese preferences regarding products grown using plasticulture. Furthermore, in the case of Japan, declining domestic horticultural production over time and economic recovery are expected to eventually cause imports to rebound.

In the case of the EU, saturating demand at home for greenhouse vegetables is challenging the industry to develop new markets. Yet, as greenhouse vegetable production destined for regional markets grows in areas like North America, the European greenhouse industry faces further roadblocks to expansion. More recently, it has been emphasizing the export of technology, rather than the produce itself, to the emerging global plasticulture industry.

International trade in fruits and vegetables will continue to be handled by a smaller number of larger firms. Streamlining of marketing channels poses both challenges and opportunities for both greenhouse and open field producers. The challenge to supply seasonal, perishable products year-round has favored imports and increased horizontal and vertical coordination and integration among fresh produce shippers regionally, nationally and internationally. Greenhouse vegetable producers have been participating in these changes, with international marketing alliances becoming more common.

Integration among international traders and grower-shippers allows them to position themselves as consistent year-round suppliers of differentiated products; these firms increasingly seek out varieties that offer superior flavor and other attributes. For example, some firms are beginning to pursue strategies of marketing proprietary varieties where possible, with characteristics valued by consumers – focusing on output- rather than just input-attributes. This poses great challenges to both conventional and biotechnology-oriented breeders. Long-term, breeding a set of attributes into a particular fruit or vegetable variety in one location will be insufficient for suppliers aiming at consistent year-round offerings; the same final product attributes must be replicated in diverse locations with different agronomic and climatic conditions.

The greenhouse industry offers some important advantages in this regard relative to open field production. With hydroponics and climate-controlled growing, soil conditions are not a factor and varieties are more adaptable to a wider range of locations. The greenhouse vegetable industry is proving to be very dynamic, driven by continuous product and technology innovation.

For example, as of the late 1990s North American greenhouse tomato producers quickly shifted from beefsteak to cluster tomatoes as demand preferences changed. With competition intensifying, new product introductions are proliferating, from cocktail tomatoes to mini-romas to heirlooms. Campari tomatoes are an example of a proprietary variety of cocktail tomatoes grown in diverse international locations to meet year-round demand. The consumer and retail-driven tendency of the greenhouse vegetable industry may increasingly challenge open field vegetable growers.

Retail Markets

Over the past decade the world has experienced a high rate of mergers and acquisitions in the grocery retailing industry, both in home country markets and across borders via foreign direct investment. Over the past decade this trend led to an estimated 30 firms accounting for 10% of global grocery sales (Planet Retail 2003). In the US alone, the top 20 largest grocery retailing firms accounted for an estimated 58 percent of the \$498.3 billion in 2003 food sales through retail channels. This means that only 20 firms purchased over \$289 billion in food; suppliers must have the wherewithal to serve large buyers, or seek smaller, local or regional customers.

Facing saturating food markets at home, many large European retailers have targeted third country markets for expansion, achieving store presences around the globe. In contrast, with the largest (and not quite as mature) food market in the world, most US retailers operate domestically only. A nonconventional grocery retailer, Wal-Mart, is not only the one U.S. firm with a global presence, with store locations in 11 countries, but also the largest grocery retailer in the world. Approximately 30% to 40% of Wal-Mart's \$284.8 billion in global 2004 sales were estimated as grocery-equivalent, generating impressive new buying power in the food industry. The influence of global retailers will increasingly impact procurement practices and supplier requisites.

For example, over the next decade the rapid evolution of supermarkets should induce more direct linkages between suppliers and retailers on a global scale, gradually eroding the dominant role of traditional wholesalers, open street markets and small scale fruit and vegetable vendors, following the trend occurring in the latter half of the 20th century in the United States and Europe.

Despite a recent slowdown, mergers and acquisitions have caused five-firm concentration ratios (the share of sales contributed by the largest five firms) to increase throughout the world, albeit at different rates. Latin America and Asia have experienced striking growth in the role of supermarkets in food retailing over the past decade, with Southern and Eastern Africa lagging greatly but apparently now engaged in the same transformation process (Weatherspoon and Reardon 2003).

Latin America and Asia will exert a growing influence on food markets over the next decade since food demand there is rising much more rapidly than in developed economies. Consumers there are shifting their diets away from grains toward higher consumption of fresh produce and animal proteins. These two regions are home to 3 billion consumers, including about 700 million middle-class consumers (Reardon, Timmer, and Berdegue). In many of these countries growing demand from the emerging supermarket sectors for high quality fresh produce, with food safety assurances, is causing the gap between domestic and export quality produce to diminish. This trend may benefit the greenhouse vegetable industry. For example, in Mexico, the export-oriented greenhouse tomato industry is beginning to see domestic demand develop from an increasingly quality conscious retail sector. Robust domestic demand induces innovation and product and process improvement that affects both national and export demand. Ultimately, the competitive bar will be raised in all markets. Those that are new to greenhouse vegetable production will find that market imperatives no longer permit a long learning curve. The technology- capital- and management-intensive nature of the greenhouse business makes market-driven investments essential.

Conclusions

As the food distribution system consolidates, retailers are seeking more marketing and promotional support from their suppliers, tailored to their specific needs. This movement toward account-based marketing is causing innovative suppliers to develop detailed knowledge of consumer buying habits for their respective products, by demographic and psychographic segment (reflecting the impact of consumer attitudes) for use in category management programs. Category management programs are designed to improve retail profitability based on shelf-allocation, pricing and promotional decisions in specific product categories. Increasingly, the

food system is evolving toward technology-intensive, demand-based information management practices to stimulate sales and profits for retailers. Successful suppliers are likely to be the ones that actively participate in the transition, and greenhouse vegetable firms have the potential to be leaders in the process.

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