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The Market for Greenhouse-Grown Tomatoes

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Market Overview

Greenhouse tomatoes include both soil-grown and hydroponic tomatoes. The U.S., Canada and Mexico are major producers of greenhouse tomatoes in North America. In 2003, total greenhouse production in the three countries has been estimated at 528,078 metric tons (Table 1). Canada accounted for about 42% of the total production, while the U.S. and Mexico accounted for 30% and 28% respectively. Mexico is leading in field tomato production, while Canada has the lowest field tomato production.

Table 1: North America greenhouse and field tomato production (2003)*

	United States	Canada	Mexico	North America Total
Greenhouse tomato (metric tons)	159,664	220,114	148,300	528,078
Greenhouse tomato area (hectares)	330	446	950	1,726
Fresh field tomato production (metric tons)	1,594,241	26,882	1,804,000	3,425,123
Fresh field tomato area (hectares)	50,304	1,813	63,300	115,417
Estimated U.S greenhouse tomato imports from		130,154	125,970	256,124

*Excludes processing tomato production. Source: Cook and Calvin (2005).

The U.S. is the single most important market for greenhouse tomatoes in the region. An estimated 17% of the U.S. fresh tomato supply comes from domestic greenhouse production. Fresh tomato import in the U.S. is dominated by supply from Canada and Mexico. In 2003, about 46% of the U.S greenhouse tomato imports came from Canada, while Mexico accounted for 45 % of the imports. Mexico exports most of its marketable greenhouse tomatoes to the U.S. and Canada. Although greenhouse production can take place at any time of the year, seasonality is one of the key factors that affect the greenhouse tomato market. Production is high in the summer season. Supply is limited in the winter season and prices are relatively high. During this season, fresh tomatoes in the U.S. market are available mainly from Florida and Mexico (Calvin and Cook, 2005; Boris, et al. 2005).

Annual per capita consumption of fresh tomatoes in the U.S. has increased from 12.3 pounds per person in 1981 to 19.3 pounds per person in 2003. An increase in the consumption of healthy foods and the popularity of a variety of salads, salad bars, and vegetable and salad stuffed sandwiches has contributed to this upward trend. Tomatoes have been promoted as sources of different vitamins and antioxidants in recent years. In addition, the growing ethnic population with preference to vegetable diets, and the introduction of new and improved tomato varieties has led to a surge in the fresh tomato market (ERS/USDA, 2005; Boris, et al. 2005).

Greenhouse tomato production technology ranges from using low-technology greenhouses to high-technology greenhouses. U.S. greenhouse tomato production is dominated by large greenhouse operations. The four largest greenhouse operations are located in the West and Southwestern part of the country in the states of Arizona, Texas, Colorado, and California. These operations produce greenhouse tomatoes year-round, and they accounted for 67% of the domestic greenhouse tomato production in 2002. Small- and medium-size greenhouse operators have also a significant role in the greenhouse tomato industry. These operations are located throughout the U.S. In 2002, seven medium-size operations produced an estimated 11% of total greenhouse tomato. Small-size greenhouse operations accounted for 22% of the greenhouse tomato production in the same year. Production in small-size firms is expected to be seasonal and they mainly produce for local markets (Cook and Calvin, 2005).

Expansion of greenhouse tomatoes in the past two decades has led to the differentiation of the fresh tomato market, adding more varieties to field grown tomatoes to meet an increasing need of the consumer for product variety. Greenhouse tomatoes are now differentiated based on size, shape, degree of ripeness, color, and variety. The most common greenhouse tomatoes that are sold in the market include beefsteak tomatoes and the popular TOVs (tomato-on-the vine). The TOVs have become the dominant greenhouse tomatoes in recent years. Growers are now offering different sizes and shapes of the TOVs including the traditional TOVs, cherry TOVs, Campari tomatoes (a type of cocktail tomato, midway in size between a traditional TOV and cherry TOV), as well as roma and mini roma TOVs. Growers are aggressively pursing and experimenting with specialty varieties and use different names to increase sales of greenhouse tomatoes.

They are also experimenting with heirloom tomatoes. Despite these product differentiation endeavors, there are no well-developed greenhouse tomato brands on the market today. However, it appears that greenhouse tomatoes are more brand-oriented than field tomatoes. They are, at least, marked with the names of the suppliers on each package or tomato (Cook and Calvin, 2005).

In terms of prices, the greenhouse tomato industry is currently facing downward price pressures. Prices have declined as the greenhouse industry of the U.S. and Canada expanded over the last few years. This price decline has forced some small- and medium-size growers to close their greenhouses. Also recent expansion of low-technology greenhouses and shade houses in Mexico that allowed year-round production has created high competition in the greenhouse tomato market. This trend has led to a rapid growth of the greenhouse tomato industry, which eventually transformed the product from being niche to becoming a more conventional commodity. This transformation has also created a shift within the greenhouse tomato industry itself. For example, between 1999 and 2003, the share of beefsteak tomatoes in the fresh tomato market dropped from 18% to 13%, while the share of TOVs increased from 13% to 24%. This has led to an oversupply of the TOVs resulting in low prices and slow production expansions in the following years (Cook and Calvin, 2005).

In terms of retail markets, greenhouse tomatoes are mainly sold through supermarkets, and their share in this market segment (currently about 37%) has grown in recent years. Major users of this market channel are large greenhouse operations that sell their products directly to retailers. Large greenhouse operations guarantee year-round supply, and offer other services to these markets including promotional support, stable pricing through forward contract, and other marketing services. Small- and medium-size growers use different intermediaries to sell their products through this channel. These growers also use alternative local and regional market outlets such as farmers' markets, farm and roadside stands, and specialty shops that carry locally produced food products One advantage in marketing greenhouse tomatoes over field tomatoes is that they are pre-packaged and consumer-ready as they leave the supplier (Cook and Calvin, 2005).

Greenhouse tomatoes have a limited market access through the food service channel (restaurants, schools, hospitals, etc.). Field grown mature green tomatoes that are preferred for their firmness and long shelf life currently dominate this channel. Some greenhouse tomato growers have thus recently started experimenting with some products that appear to have the potential to raise gains from sales in this market segment (Calvin and Cook, 2005).

Hydroponic tomatoes

Although there are no statistical figures available on hydroponic tomato production and supply, an increasing number of greenhouse operations are now using hydroponics for their greenhouse production and the operation is considered to be a high-technology production system. According to a USDA /ERS report, the volume of greenhouse and hydroponic tomato imports from countries such as Canada, the Netherlands, and Mexico has increased dramatically since the mid-1990s and now account for a significant share of all U.S. fresh-market tomato imports (ERS/USDA, 2005). Domestic producers have recognized an opportunity in this market niche and the number of new or expanded hydroponic operations is growing fast in several states. The largest share of hydroponic tomatoes is expected to be coming from medium-, and large-size growers. Despite this development, hydroponic tomatoes still appear to have a small share of the total fresh tomato market. Some sources suggest that, in terms of annual per capita consumption, only four of the 18 pounds per person (about 22%) are hydroponically grown (American Hydroponics, 2005). As in the case of the soil-grown greenhouse tomatoes, domestic hydroponic tomato production and supply has faced high competition from growers in Canada over the last few years.

Hydroponic tomatoes appear to represent the high-end of the fresh tomato market. One market advantage of these tomatoes is that they have more uniform appearance than other tomatoes. Some hydroponic tomatoes are also said to be produced in a healthy environment without using inorganic chemicals. This could possibly provide an opportunity to differentiate the products based on their contribution to wellness. Until now, however, hydroponic tomatoes have not differentiated themselves from other fresh products. Also, there are no brands or an established customer base for these products. Some supermarkets are attempting to differentiate these tomatoes from other greenhouse

tomatoes by labeling the company name and using the term “hydroponic tomatoes” on each package or tomato. Currently, this does not mean that prices for these products are higher than for other greenhouse tomatoes.

There are no studies that show consumers’ preferences and attitudes towards hydroponic tomatoes. Accodring to some sources, some of the hydroponic tomatoes that are currently coming into the marketplace are perceived as sweeter and firmer than soil-grown tomatoes (American Hydroponics, 2005). In terms of prices, the perception is that consumers think hydroponic tomatoes are high priced, but this may directly be affected by the supply and demand of hydroponic tomatoes on the market place. With regard to retail markets, supermarkets are the most significant outlets for hydroponic tomatoes. Currently an increasing number of supermarkets are carrying these products. In the future, a bundle of market factors, technology, and state and federal regulations will determine the pace of development in hydroponic tomatoes. Some states have already started defining their greenhouse production. For example, according to the definition given by the state of California in 2004, greenhouse tomatoes are those tomatoes to be grown in a fixed structure using nutrient solutions that substitute for soil, which would in effect mean they have to be hydroponically grown (Cook and Calvin, 2005).

Market opportunities for greenhouse tomato growers

As mentioned above, the U.S. consumer has a wide choice of fresh tomatoes. The consumer is also demanding continuous year-round supply of a wide variety of high quality fresh tomatoes. Over the past few years, an increase in the volume of production and supply to meet this demand has created high competition in the fresh tomato market. Greenhouse tomato suppliers are thus becoming more innovative to increase sales from their products. As the fresh tomato market continues to grow, small-, and medium-size growers will not be able to compete in the market based on price. Future success for these growers will depend on product innovations that support the development and marketing of fresh tomatoes that provide more benefits and desired choices to the consumer. Small- and medium-size suppliers of both soil-grown and hydroponic tomatoes will have better market opportunities, if they can differentiate their fresh tomatoes from other fresh products in terms of color, size, shape, and flavor.

Selection and development of new types of tomato varieties and expansion of existing product lines targeting consumer desires and needs will play an important role in increasing sales. Growers need to understand the needs of the different market segments (direct consumers, food service outlets, retailers, etc.) and current local and regional marketing practices in order to distinguish their products from their competitors. Those who grow hydroponic tomatoes should also focus on developing educational and promotional programs that could inform and teach the consumer about the uniqueness, quality, and benefit of hydroponic tomatoes.

Packaging will also be one key area growers need to focus on to differentiate their products from other local and regional suppliers. Fresh tomato packages could convey different messages about the product including convenience, servings, flavors, and other product attributes and qualities. Wellness is the other market driver that can help greenhouse tomato producers increase their sales. For example, greenhouse tomato varieties that could be produced with specific benefits or those without the use of chemicals or pesticides can be appealing to health-oriented consumers.

The other market segment greenhouse tomato growers could focus on is the ethnic market. Today, there is a significant growth and change in the ethnic mix of the U.S. population, with Hispanics and Asians being the fastest growing ethnics groups. The U.S. Hispanic population grew by 5.7 million in 1998-2003, and is expected to grow by 5.6 million in 2003-08, becoming an increasingly important demographic target (Mintel, canned fruit and vegetables, 2003; non-alcoholic beverages, volume II, 2004). In the 90s, Hispanics were not seen as an important consumer group, because their purchasing power was negligible. But in recent years, their income has shown a significant increase. They also spend the larger part of their income on food than the average U.S. consumer (Food system group, 2004). This growth in purchasing power has been acknowledged by food and beverage manufacturers and retailers, and it is spurring demand for various food items. According to Luicer et al. (2000), Hispanics are one of the significant consumers of fresh tomatoes. They consume about 13% of the fresh tomatoes sold in the U.S. But some experts suggest that Hispanics prefer field grown tomatoes. If greenhouse growers produce varieties that meet the need of this consumer group, they can benefit from this market.

Because of high competition in the fresh tomato market, the potential to increase sales of greenhouse tomatoes based on prices is very limited. Only large-size greenhouse operations that have the lowest cost of production and can form marketing agreements and alliances to provide high-volume low-price fresh tomatoes year-round will be able to increase sales. In the long term, brand building that help promote a unique image and character will play a significant role in increasing sales of greenhouse and hydroponic tomatoes. Greenhouse tomato growers who can produce unique and specialty niche tomato products can sell their products at higher prices to consumers who want to pay premium prices for these products. Some greenhouse tomato growers could also benefit, if they can supply tomatoes especially during the winter season where currently supply is limited and prices are relatively higher. Currently some greenhouse growers have agreements with other suppliers to exploit this market opportunity by providing a variety of tomato products that meet year-round consumers demand. However, with an increase of year-round tomato supplies, expanding winter production will not be the best medium- and long-term solution to raise sales from greenhouse tomatoes.

In terms of the retail market, supermarkets will remain the main retail outlets for greenhouse tomatoes. Since these retail markets demand year-round supply of products, medium- and large-size growers who can meet this demand will benefit from the trend. The growing food service market from fast food to high-end restaurants will also provide a broad market opportunity, if growers develop product innovations to supply greenhouse tomatoes that are needed and preferred in this market segment. With declining prices and an increasing demand for year-round supply by the supermarkets, small-size greenhouse operators will need to find alternative market outlets for their fresh tomatoes. Successes of small-size and medium-size growers will generally depend on their ability to identify alternative local and regional markets for their products.

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