Emerging Hothouse Industry Poses Challenges for California's Fresh Tomato Industry

by Roberta Cook

Hothouse tomato production has grown in all three NAFTA countries. Hothouse tomatoes Ê *represent about 12% of U.S. fresh tomato consumption but a higher share of retail purchases.* Ê *The competitive impact is being felt by the traditional mature green industry, leading to new market dynamics.* Ê

Two related trends are affecting the fresh tomato industry: a reduction in the market share of mature green tomatoes in retail markets, and increased competition from domestic and imported hothouse (HH) tomatoes, with imports led by Canada. While the mature green tomato (grown primarily in Florida and California) completely dominates foodservice channels in the U.S. and Canada and is still the leading tomato type sold in U.S. retail channels, product differentiation within the tomato category has been cannibalizing its retail sales. The share of vine-ripe, HH, roma, grape and other specialty tomatoes sold at retail has grown substantially in recent years. (See box on page 6 for definitions and statistics.) This article highlights some of the recent changes in tomato markets, emphasizing the impact of the HH tomato industry on field-grown tomatoes.

Trends in Tomato Consumption, Production and Trade

While mature green tomatoes have experienced a sharp rise in competition in retail channels, they have benefited from strong foodservice demand. Tomato consumption as a whole has fared well, with per capita fresh tomato consumption trending upward from 16.75 lbs. in 1994-95 to 17.8 lbs. in 2000. However, consumption may reach 19.1 lbs. when domestically grown HH tomatoes and unreported Mexican HH imports (not captured in USDA statistics) are included. Increased competition within the tomato category has not led to a decline in U.S. production of field-grown tomatoes when vine-ripes and romas are included. Production was 3.7 billion lbs. in 2000 compared to an average 3.6 billion lbs. in 1994-95. Production in California was 1.1 billion lbs. in 2000 compared to an average of just over 1 billion lbs. in 1994-95. Production in Florida was 1.5 billion lbs. in 2000, only slightly below the 1994-95 average of 1.6 billion lbs., despite the fact that mature green tomatoes remain the predominant variety grown there.

While production has been relatively stable, U.S. fresh tomato exports grew to 410 million lbs. compared to a 315 million lb. average in 1994/95, with Canada and Mexico representing the leading export markets. Although the U.S. and Canada are overwhelmingly net importers of fresh tomatoes (the U.S. from Mexico and Canada from the U.S.), both countries have benefited from higher exports, primarily to each other. The Canada–U.S. tomato trade exists despite extensive seasonal overlap, as shown in Figure 1 on page 4. However, U.S.–Mexico trade is somewhat contra-seasonal; much of the volume enters in January and February when U.S./Florida production is low, and most U.S. fresh tomato exports to Mexico occur during the summer/fall. Both Canada and Mexico receive primarily mature green tomatoes from the U.S. but roughly half of U.S. exports to Canada go to foodservice markets while Mexico imports primarily for retail markets.

U.S. fresh tomato imports peaked at 1.9 billion lbs. in 1998, since declining to the level prevailing in 1996 (1.6 billion lbs.). This decline results from lower import volumes of mainly vine-ripe tomatoes from Mexico. U.S. imports from Mexico, including HH tomatoes, were 1.3 billion lbs. in 2000, 20% below the 1998 peak. While imports from Canada have grown, they have not offset the decline from Mexico.

A Snapshot of the Size of the U.S. Hothouse Tomato Market

U.S. imports of HH tomatoes have grown rapidly, from 43.9 million lbs. in 1994 to an estimated 395.5 million lbs. in 2000, including 224 million from Canada, 76.5 million from the EU, around 96 million from Mexico, and the remainder contributed by countries such as Israel and Morocco. HH tomato imports from the EU peaked in 1998 at 102.7 million lbs. and were more than displaced by imports from Canada, which grew from only 16.9 million lbs. in 1994. Despite the rapid growth in HH imports, total fresh tomato imports in 2000 were similar to the 1996 level, as noted earlier. Hence, the growth in HH imports in the latter half of the 1990s has cannibalized field-grown tomato imports at the expense

of producers in Mexico, as well as competing with domestic producers by offering a consumer-ready retail pack, different from field-grown imports.

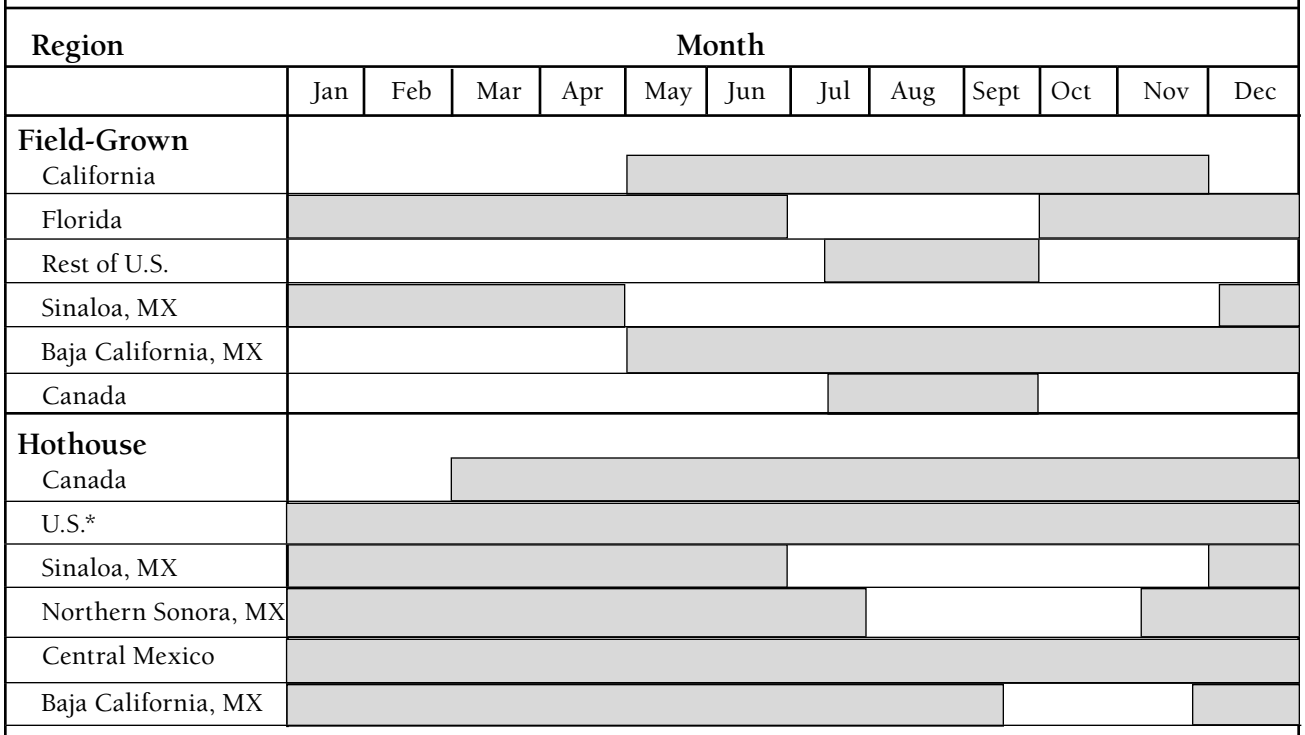
Total imported HH tomato volumes surpass domestic HH production, which reached 273 million lbs. in 2000. Total HH volume (domestic and imported) consumed in the U.S. market in 2000 is estimated to be equivalent to 17% of the U.S. field-grown volume and 12% of U.S. fresh tomato consumption (2.3 lbs. per capita). However, HH tomatoes go almost entirely to retail markets and since total tomato consumption is split roughly equally between retail and foodservice channels, the national average market share of HH tomatoes at retail is likely approaching one-quarter of the total retail volume.

Further, the concentration of HH tomatoes in certain markets, such as in the West during the California production season, means that the competitive effect on field-grown tomato producers may be above that reflected by the national average market share. Retail scanner data shows that for most chains in the Los Angeles market, the share of volume accounted for by HH tomatoes in 1999 ranged from 18-39%. Canadian HH export statistics show that California and Washington have become increasingly important destinations, in 2000 receiving one-quarter of total Canadian HH tomato exports and a disproportionately higher share of exports from British Colombia.

The Canadian Hothouse Industry

Dutch growers led the development of the HH industry in glass houses due to the short growing season permitted by their climatic conditions. Dutch emigrants to Canada helped establish the industry there, where their technology packages and varieties adapted readily to Canadian growing conditions. However, double poly plastic structures are more common than glass houses today, especially in Eastern Canada. Most Canadian HH production uses various forms of hydroponics and involves computerized production facilities. Production totaled around 402 million lbs. in 2000 from 1054 acres, up from 72.5 million lbs. in 1994. Production is dominated by Ontario with a 72% share, followed by British Colombia (BC) with 21%, with Quebec accounting for most of the remainder. BC producers have been required to sell jointly through a single desk marketer, although this may be changing.

Figure 1. North American Shipping Seasons by Tomato Region, Field-Grown vs. Hothouse



*Dark areas indicate shipping seasons. *Most of the U.S. hothouse industry is not producing year-round, but there is year-round production in the aggregate (including locations in Arizona and California).*

Canada exports 56% of its volume to the U.S., producing mainly from March through December, overlapping first with Florida, then with California field-grown production and with the U.S. HH industry throughout its entire season. To extend volumes on a year-round basis in response to market demand, HH shippers in Ontario are developing alliances with producers in the evolving Mexican HH industry, to serve both Canadian and U.S. customers, particularly in the Midwest and Northeast.

The U.S. Hothouse Industry

The U.S. HH tomato industry is estimated at 273 million lbs., produced on about 740 acres, with mainly glass houses. The industry is relatively concentrated with the three largest producers comprising about 54 percent of the total area. Production is centered in Colorado, the Southwest, Texas and the Northeast, with some production in California and Nevada. The development of the industry was originally linked to co-generation facilities, influencing the location of production. More recently, the importance of this linkage has declined and location decisions are now made more on the basis of optimal climatic conditions. While the shipping seasons for the Northeast and Colorado are similar to Canada's, production in Arizona and California is essentially year-round.

The emergence of year-round HH production means new competition for field tomato producers throughout North America, affecting California, Midwestern, Southern and Eastern producers in the summer. Field-grown tomato producers in Florida and Mexico who, in the past, competed only with each other from November through April, are affected as well. However, just as in Canada, U.S. HH production volumes are lowest in January and February. Hence, some U.S. HH producers have also been seeking Mexican partners to help assure higher and more stable year-round volumes. This will continue the competitive pressure on both the winter and summer field-grown tomato industries since year-round supply is a highly sought-after attribute by commercial buyers.

Still, some U.S. HH tomato producers have had difficulty earning profits despite growing consumer demand, given the capital-intensive nature of HH production and the rapidly expanding competition from Canadian HH imports. The recent imposition of temporary dumping margins against some Canadian HH exporters may give the U.S. industry a reprieve, especially if significant final margins are issued.

The Mexican Hothouse Industry

In contrast to Canada, the Mexican tomato export industry is predominantly field-grown. It is concentrated in Sinaloa (in northwest Mexico) from December through April and Baja California from May through December, with Sinaloa typically responsible for around two-thirds of total tomato exports. Much of the emerging Mexican HH exports originate in Sinaloa, are produced by field-grown tomato growers and merely displace field-grown production. Mainstream field tomato exporters have expressed an interest in the HH sector as a strategy for responding to buyer demands for greater consistency of both volumes and quality and to recapture market share lost to HH production north of the border.

HH shipments in Sinaloa tend to run from late November through June with volume peaking in January and February. However, HH production is now also exported from other regions of Mexico, such as northern Sonora, Baja California and Central Mexico. During the winter this adds a new competitive factor for Sinaloa, Florida (and California and Arizona HH production) but during the remainder of the year it represents new competition for the entire North American tomato industry, HH and field-grown. Beginning in March, HH volume becomes available from Northern producers and prices for Mexican HH tomatoes fall dramatically. Hence, in the end Mexican HH tomatoes retain the same January-February contra-seasonal window targeted by field-grown producers, with competition much more intense the rest of the year.

Compared to the U.S. and Canadian HH industries, the Mexican industry has more variation in technology, given much greater heterogeneity in climatic conditions and the need for growers to adapt technology to local conditions via their own on-site research. While Dutch, Canadian and U.S. HH technologies are all used in Mexico, HH approaches are more closely linked to Spain and Israel, since the problem is often not heating, as in Northern climates, but, rather, cooling. Except for colder areas, such as Northern Sonora and some areas of Central Mexico, most Mexican HHs are plastic rather than glass. Plastic HH's can be very high tech, especially if they utilize hydroponic growing techniques. However, many HH producers are growing in soil rather than hydroponically, achieving lower yields and generally less consistent quality in exchange for reduced capital outlays.

Mexican HH tomato area was estimated at around 1,200 acres in 2000, but part of this area is intermediate technology HHs with average yields substantially lower than common HH yields in Canada and the U.S. of 175-200 MT/acre. Less than half of Mexican HH area is high tech with automated hydroponic systems achieving yields similar to their northern neighbors.

An intermediate technology is also evolving, involving "shade houses," which are designed mainly to provide some protection from the sun and pests with ceiling and side shades. Shade houses represent a higher cost, higher technology approach than normal field tomato production, and offer the potential for improved quality and yields, although the yields are inferior to HH, and quality differences between HH and shade-house production are noticeable particularly for early- and late-season production.

The extent to which the Mexican HH industry expands in areas with dual field and HH production, and the level of technology selected within the protected production sector, will depend on relative net returns.

The Development of the HH Industry Influences Trade Disputes

Seasonality of production has always meant the existence of geographically distinct tomato industries with different market structures and competitive conditions. As traditional market relationships change tensions are reflected in formal trade actions, which are nothing new to the tomato industry.

Three tomato dumping suits are underway involving all three NAFTA partners. The U.S. HH tomato industry recently won a preliminary judgement against the Canadian HH tomato industry, and the Canadian government is currently considering a dumping suit filed by Canadian HH tomato growers against fresh tomatoes from the U.S. (and Mexico if exported via the U.S.). Meanwhile the U.S. Department of Commerce (DOC) is involved in a sunset review of the 1996 Suspension Agreement between Mexico and the U.S. that suspended an earlier dumping suit filed by the Florida tomato industry against the Mexican tomato industry. This Agreement established a floor price for the importation of Mexican tomatoes, an innovation at the time. Disputes are likely to continue, as the stakes are high in the tomato industry, with a farmgate value of $1.5 billion in the U.S. and Canada alone.

Tomato Definitions and Industry Characteristics

Mature green tomatoes (about 57% of California's production and over 85% of Florida's) are round tomatoes picked at stage 1 of a 5-stage maturity scale, when the fruit is fully developed but still completely green. They are then ripened with ethylene, the plant's natural ripening hormone. Vine-ripe tomatoes (about 25% of California's volume and the majority of midwestern and eastern production) are picked at the first blush of color, usually stage 2. Mature green tomatoes are preferred in foodservice markets due to their firmness and slicing characteristics, hence, the vast majority of tomatoes served in foodservice establishments are mature green, while the retail markets in the U.S. and Canada are shared by many tomato types, including mature green, vine-ripe, roma (17% of California's volume) hothouse, grape, cherry, colored, and other specialty tomatoes (about 1-2% of California's volume). HH tomatoes are dominated by round (beefsteak) and cluster tomatoes, although cherry tomatoes, including cherry tomatoes-on-the-vine and other specialty tomatoes are also grown in HHs.

Conclusions

Tomato trade in North America is dominated by trade among NAFTA partners. The U.S. predominantly exports mature green tomatoes to Canada and Mexico, while simultaneously importing vine-ripe and HH tomatoes from them. HH volumes from Canada and more recently Mexico are increasingly displacing vine-ripe field-grown volumes from Mexico and HH imports from Europe. Rapid growth in HH tomato imports from Canada has negatively impacted the U.S. HH and field-grown industries in some markets. With the profit picture in the U.S. HH industry less than sanguine, field-grown tomato producers have been reluctant to enter this new industry. Furthermore, the potential for expanded production of vine-ripe tomatoes in California is limited. Hence, mature green tomato shippers retain their dominant position, albeit becoming more dependent on foodservice markets as product differentiation increases competition within the retail tomato category. California shippers are tapping the foodservice market more directly than in the past by expanding sales directly to foodservice buyers, especially on a contract basis.

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