

Canadian Greenhouse Tomato Industry

Canada is the largest producer of greenhouse tomatoes in North America. The introduction of greenhouse technologies allowed Canada to assume a dominance in the greenhouse tomato industry that it never achieved in the fresh field tomato industry. The sophisticated technology and the favorable summer climate—long hours of daylight and relatively mild weather—generate the highest average national yield in North America—494 metric tons per ha in 2003. During the March to December season, Canadian production is a major force in the market. The chief constraint for the Canadian industry is its current inability to produce greenhouse tomatoes profitably during the midwinter period.

Structure and Location

The Canadian greenhouse tomato industry began to grow dramatically in the mid-1990s (table 2). Between 1992 and 2002, production increased by over 600 percent to 220,114 metric tons, fueled by growth in area (up 242 percent) and technology- and management-driven growth in yields (up 121 percent). Canadian production in 2003 was down slightly from the peak in 2002 due to production problems in British Columbia and a small decline in tomato area in Ontario. Some growers in Ontario switched from tomatoes to other greenhouse products, such as peppers and cucumbers, because of low tomato prices. The 2-percent decline in production in 2003 was the first in the Canadian industry's history. Lower market prices and uncertainty with respect to the trade disputes between the United States and Canada in 2001-02 slowed expansion. Some new greenhouse construction continues in

Table 2—Canadian area and production of greenhouse and fresh field-grown tomatoes¹

Year	Greenhouse tomato production		Field-grown tomato production (for fresh consumption)	
	<i>Metric tons</i>	<i>Harvested hectares</i>	<i>Metric tons</i>	<i>Harvested hectares</i>
1992	29,770	134	61,469	4,066
1993	32,844	143	78,522	3,349
1994	32,900	135	84,627	3,305
1995	41,898	158	79,533	3,215
1996	62,642	208	116,529	3,390
1997	78,100	241	59,791	3,357
1998	124,835	312	33,688	1,945
1999	163,630	364	29,657	1,623
2000	195,235	420	n.a.	n.a.
2001	219,936	465	33,473	2,671
2002	225,102	458	26,444	1,888
2003	220,114	446	26,882	1,813

n.a. = Data not available.

¹ Greenhouse data from 1994 to 1997 and all field-grown tomato data are from Statistics Canada. Data on greenhouse tomatoes from 1998 to 2003 are based on a combination of Statistics Canada, Ontario Greenhouse Vegetable Growers, and British Columbia Vegetable Marketing Commission data. See table 4 for more details.

Sources: Statistics Canada, British Columbia Vegetable Marketing Commission, Ontario Greenhouse Vegetable Growers, and calculations by Cook and Calvin.

Canada but mostly for production of other vegetables, although these structures could be converted for use for tomatoes at some later date. Moderate increases tomato area and production are expected in 2005.

Ontario dominates Canadian greenhouse tomato production with a 63-percent share of production (table 3), more than twice the share of the next highest producing region, British Columbia. Quebec and the other provinces account for only minor shares of the total. Growers in British Columbia ship tomatoes from March to late November. The shipping season for rival Ontario starts and ends about 3 weeks later. Most Canadian greenhouses ship the bulk of their volume from April through November (fig. 5 shows exports from Ontario and British Columbia to the United States, which reflect seasonal production trends).

Although there is a strong market incentive for Canadian growers to be year-round suppliers, the costs of producing during Canada's cold and low-light winter months are prohibitive in most cases. To respond to year-round demand, some greenhouse tomato shippers in Canada are developing alliances with producers in the United States and Mexico to augment their low winter supplies. Others have turned to foreign direct investment strategies. In 1996, a grower from British Columbia began producing greenhouse tomatoes in California and is a major source of winter supply in the Canadian market.

Canadian growers are devoting a large share of their tomato greenhouse area to TOV production. Industry analysts estimated Ontario TOV area at 40 percent of total greenhouse tomato area in 2003 and up to 50 percent in 2004. In British Columbia, 47 percent of area in 2003 and 66 percent in 2004 were dedicated to TOV (Driediger, 2004). Producing TOVs appeals to growers for a combination of market and agronomic reasons. TOVs generally sell at a higher FOB price than beefsteak tomatoes, although in the summer of 2004, TOV production growth pushed FOB prices for TOVs below beefsteak prices. Since TOV are smaller tomatoes there can be fewer quality problems relative to producing beefsteaks and a higher percent of tomatoes may be marketed as

Table 3—Canadian greenhouse tomato area and production by province

Year	Ontario ¹		British Columbia ²		Quebec		Others		Total ³	
	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area
	<i>Metric tons</i>	<i>Ha</i>	<i>Metric tons</i>	<i>Ha</i>	<i>Metric tons</i>	<i>Ha</i>	<i>Metric tons</i>	<i>Ha</i>	<i>Metric tons</i>	<i>Ha</i>
1998	80,014	183	29,010	55	12,654	61	3,157	13	124,835	312
1999	106,612	221	41,824	71	11,690	58	3,504	14	163,630	364
2000	130,499	260	50,351	93	10,219	51	4,166	16	195,235	420
2001	145,204	301	57,845	100	12,422	50	4,465	14	219,936	465
2002	149,606	305	57,242	97	13,248	41	5,006	15	225,102	458
2003	138,346	275	63,013	115	12,841	37	5,914	19	220,114	446

Ha = Hectares.

¹ Ontario area is from Statistics Canada except for 2001 and 2002 data, which are from the Ontario Greenhouse Vegetable Growers.

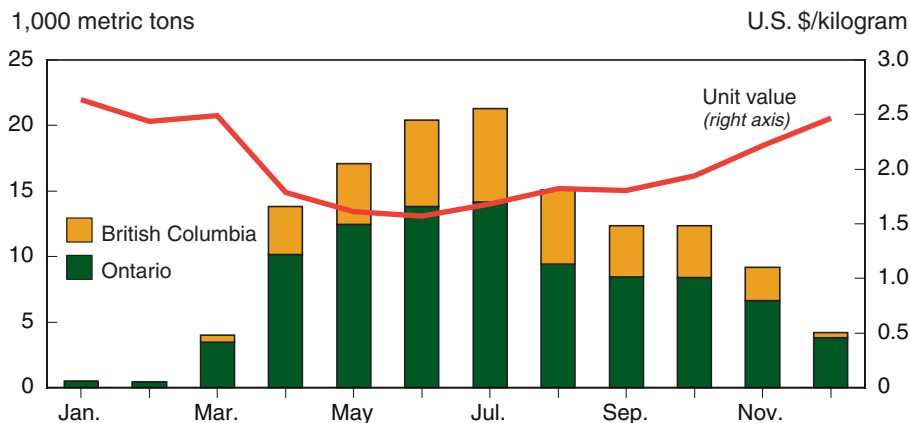
² 1998-2003 British Columbia production and area data are from the British Columbia Vegetable Marketing Commission instead of Statistics Canada. The British Columbia Vegetable Marketing Commission figures are higher than those of Statistics Canada.

³ Total Canadian production figures are based on Statistics Canada data for Ontario, Quebec, and Others, and British Columbia Vegetable Marketing Commission data for British Columbia. Therefore, the total national figures reported here are higher than Statistics Canada data.

Sources: Statistics Canada (various issues of *Greenhouse, Sod, and Nursery Industries* and various issues of *Production of Fruit and Vegetables*), British Columbia Vegetable Marketing Commission, Ontario Greenhouse Vegetable Growers, and calculations by Cook and Calvin.

Figure 5

Ontario and British Columbia greenhouse tomato exports to the United States, 2003¹



¹Unit values represent all exports, the export bar represents just Ontario and British Columbia since exports from other provinces are too small to show up on the figure.

Source: World Trade Atlas.

the top quality level, receiving the best prices. However, the sharp decline in TOV prices in summer 2004 has made TOVs less attractive and the industry is already changing the product mix accordingly.

While Canada has the largest production volume of greenhouse tomatoes in North America, its growers tend to be rather small. The largest greenhouse tomato operation in Canada in 2003 was 21 ha (Papadopoulos, 2003). In 2003, the largest greenhouse tomato firm in the United States was more than three times larger and leading Mexican firms were even larger.

Probably due to the smaller size of many Canadian greenhouse growers, much of the production is marketed jointly, providing more clout than indicated by any individual grower’s area alone. In 2000, five Canadian marketing firms (often also producers) accounted for 82 percent of greenhouse tomato exports to the United States (ITC, 2001). The forces encouraging consolidation of production and marketing in the global fresh produce industry, such as retail consolidation, are affecting the Canadian greenhouse industry as well (Calvin and Cook et al., 2001).

As Canada’s greenhouse tomato industry has grown, its fresh-market field-grown tomato industry, centered in Ontario, has declined (table 2). In 1992, field tomatoes accounted for 67 percent of fresh-market production, declining to 11 percent in 2003. With greenhouse tomatoes proving to be more profitable than field-grown in Canada, many field producers moved into greenhouse production. A few greenhouse tomato growers in Ontario also have some field production. The separate field-grown tomato industry for processing is still a major business in Canada.

Fresh Tomato Trade

Trade flows vary by type of tomato and season. Canada imports fresh field tomatoes from the United States and Mexico on a year-round basis. During

the winter, Canada imports greenhouse tomatoes from both countries, as well as smaller amounts from other countries. Canada exports greenhouse tomatoes to the United States during the rest of the year. All Canadian tomato exports are assumed to be greenhouse tomatoes, and virtually all exports are to the U.S. market. Canada does not ship any type of tomato to Mexico.

The growth of the greenhouse industry has changed net trade flows of fresh tomatoes between Canada and the United States. Canada is the largest market for U.S. fresh tomato exports (mostly mature green tomatoes destined for both retail and foodservice markets), accounting for 88 percent of total export volume in 2003. However, Canadian exports to the United States have grown dramatically over time in terms of quantity, while Canadian imports of U.S. tomatoes have remained relatively stable (fig. 6). In 2003, the United States became a net tomato importer from Canada in terms of volume, although it had already become a net importer in terms of value in 1999.

Canada's tomato exports to the United States compete with field-grown tomatoes from Florida and Mexico in the spring; field-grown tomatoes from California, the U.S. Eastern seaboard, and Mexico during the summer and early fall; and greenhouse tomatoes from the United States, Mexico, and northern Europe throughout the entire Canadian season (see fig. 1). During much of its season, Canadian production dominates the North American greenhouse market, and the high volume of low-cost summer production, combined with competition from other field and greenhouse tomato producing areas, drives down the market price. For example, the per kilogram (kg) price of imported Canadian tomatoes in June 2003 was only 60 percent of the price in January (see fig. 5).⁶

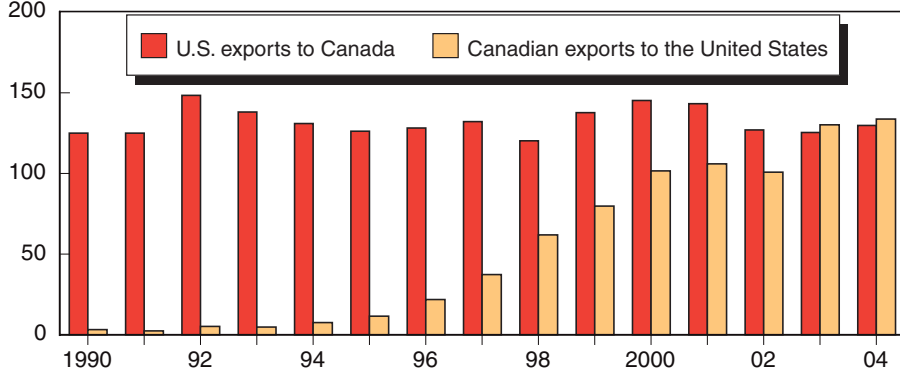
⁶ One kilogram equals 2.204 pounds.

As Canadian production increased in the latter part of the 1990s, the Canadian market (31.5 million consumers in April 2003) became relatively saturated, making the greenhouse tomato industry increasingly export dependent. With 291 million consumers in the United States in 2003, the growth in the Canadian industry appears to have been largely aimed at serving the expanding U.S. demand for greenhouse tomatoes. In 2003,

Figure 6

U.S.-Canadian fresh tomato trade

1,000 metric tons



Source: U.S. Department of Commerce.

exports accounted for 60 percent of domestic production, compared with only 23 percent in 1994 (table 4).

Exchange rates factored into the export boom in trade with the United States. Between 1990 and 2002, the Canadian dollar depreciated 34 percent against the U.S. dollar, based on average annual exchange rates, making the U.S. market increasingly attractive. In 2003, the exchange rate declined 11 percent, eroding some of the exchange rate advantage for Canada. In 2004, the exchange rate continued to decline. Simultaneously, the Mexican peso has been depreciating against the U.S. dollar, making Mexican tomatoes more competitive relative to Canadian product in the U.S. market.

Canada imports greenhouse tomatoes mostly during the midwinter. In 2003, Mexico was the largest supplier with 6,152 metric tons, followed by Europe, Israel, and Morocco with 4,176 metric tons, and the United States with 3,836 metric tons (fig. 7). Imports from non-NAFTA countries have decreased with the growth of the U.S. and Mexican industries. Actual greenhouse imports from the United States and Mexico may be higher if Canadian import statistics, like U.S. statistics, do not always correctly classify greenhouse shipments.

Industry in Ontario

Ontario is the largest producer of greenhouse tomatoes in Canada. The industry is centered around Leamington in southern Ontario, southeast of Detroit. This area has the single largest grouping of vegetable greenhouses in North America (Papadopoulos, 2003). Canadian production in both Ontario and British Columbia is concentrated geographically, which has resulted in strong input industries, a benefit not enjoyed by other producers in North America. The proximity of Leamington to major Canadian and

Table 4—Canadian greenhouse tomato supply and use

Year	Production	Imports ¹	Supply	Exports ²	Consumption	Consumption	Export	Exports to
						per capita	share	the U.S. ³
						Kilograms	Percent	Metric tons
1994	32,900	n.a.	n.a.	7,673	n.a.	n.a.	23	7,673
1995	41,898	4,235	46,133	11,716	34,417	1.17	28	11,712
1996	62,642	6,201	68,843	21,936	46,907	1.58	35	21,935
1997	78,100	7,961	86,061	38,373	47,688	1.59	49	38,373
1998	124,835	12,021	136,856	62,441	74,415	2.46	50	62,405
1999	163,630	11,012	174,642	80,130	94,512	3.10	49	80,117
2000	195,235	11,589	206,824	102,212	104,612	3.40	52	102,131
2001	219,936	11,577	231,513	106,691	124,822	4.01	49	106,626
2002	225,102	16,273	241,375	101,625	139,750	4.45	45	101,402
2003	220,114	14,159	234,273	131,456	102,817	3.26	60	130,868

n.a.=not available.

¹ In 1995, assuming all imports from EU, Israel, and Morocco are greenhouse and all else field grown. From 1996 to 2003, including official Canadian statistics on greenhouse imports from the United States and Mexico.

² Assuming all tomato exports are greenhouse tomatoes.

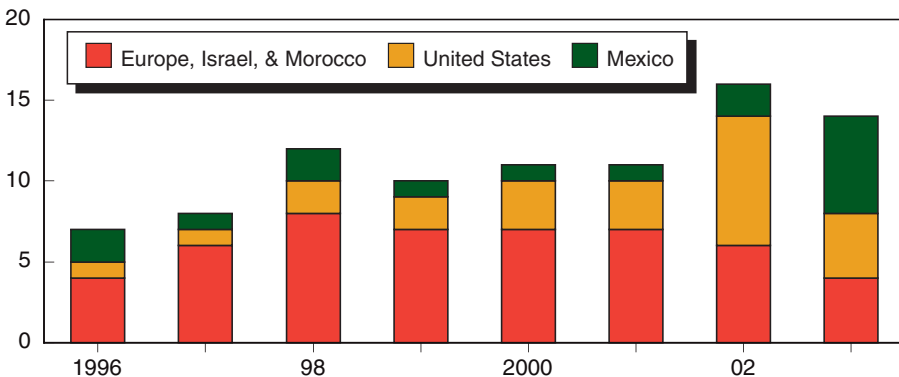
³ For 1994, using U.S. Commerce numbers of imports from Canada as a proxy for total Canadian exports. For 1995-2003 using Statistics Canada data on total exports.

Sources: Statistics Canada, British Columbia Vegetable Marketing Commission, Ontario Greenhouse Vegetable Growers, U.S. Department of Commerce, World Trade Atlas, and calculations by Cook and Calvin.

Figure 7

Canadian greenhouse tomato imports by origin

1,000 metric tons



Source: World Trade Atlas.

U.S. markets gives producers there a major advantage in terms of transportation costs (see fig. 2). In 2003, over 39 percent of Canada’s population lived in Ontario (with an additional 31 percent in Provinces to the east). Perhaps more importantly, Ontario is also closer to the eastern U.S. market than the big U.S. firms in the West and Southwest.

In 2004, there were 116 tomato growers in Ontario with an average size of 16 ha. The largest producers control a disproportionate share of production; growers with over 37 ha accounted for 7 percent of growers and 40 percent of area (Lutz, 2005). A small number of Ontario shippers dominate sales, assembling production from numerous growers and marketing volumes far exceeding their own production. Industry sources indicate that concentration has been increasing, with three firms marketing an estimated 65 percent of total provincial volume in 2004.

All Ontario growers of greenhouse tomatoes and cucumbers are required to belong to the Ontario Greenhouse Vegetable Producers’ Marketing Board (OGVG). The OGVG collects a fee from growers based on area in production to fund research, promotion, market development, and administration. This organization does not regulate production or restrict entry. The OGVG has statutory authority to license marketers, set a weekly minimum price, and revoke licenses from shippers who do not adhere to marketing requirements. In reality, in recent years, its authority has only been used to issue licenses. In 2002, OGVG licensed 34 sales agents, although only a small number are large enough to be major exporters. Currently, Ontario shippers sell at the best price possible and the OGVG works with growers to establish a weekly benchmark price, which is particularly useful to smaller growers trying to determine the value of their production.

About 80-85 percent of Ontario’s greenhouse tomato area is in plastic structures. Growers have found plastic to be advantageous given the region’s hot summers. Glass greenhouses, developed in the Netherlands with more limited light conditions, transmit more solar radiation than plastic, and excessive heat in summer can damage the plants. Plastic greenhouses are also cheaper to build than glass and generally have been considered to have

lower energy costs, though they must be replaced more frequently. Because Ontario is hot and humid in the summer, some growers reduce late summer production to avoid the higher production costs, quality problems, and lower prices (see fig. 5). British Columbia, with a milder climate, has a more gradual decline in exports from its July high. As competition grows in the North American industry, growers in all locations are seeking technologies that improve product consistency and reduce per unit costs by maximizing yields and efficiency. There is diversity of opinion about what type of technology will be the most profitable in Ontario in the future, but interest in glass greenhouses seems to be growing. Glass may improve production in the early and late parts of the season.

Industry in British Columbia

British Columbia is the second largest producer of greenhouse tomatoes in Canada, with 24 greenhouse tomato growers in 2004. The industry is centered near the town of Delta in the Fraser Valley near Vancouver. British Columbia has warm summer days and cool nights, good light (although less than Ontario), and low humidity due to the regulating effect of the Pacific Ocean. The climate is similar to that of the Netherlands, and most growers use Dutch-style glass greenhouses. Industry experts say that the more conditions deviate from those experienced in the Netherlands—the technology leader—the more effort is required to develop an appropriate technology. British Columbia greenhouse tomato growers have the highest average yields in North America—590 metric tons per ha in 2002 (a more normal crop year than 2003), compared with 491 metric tons for Ontario. While British Columbia is ideal in terms of climate, it is located far from major markets. Only 13 percent of the Canadian population lives in British Columbia, and growers there must rely heavily on the nearby U.S. west coast market for their customer base. In this market, British Columbia growers also compete with all the large producers located in the U.S. Southwest and West.

In British Columbia, production of greenhouse tomatoes, butter head lettuce, peppers, and long English cucumbers is regulated by the British Columbia Natural Products Marketing Act. The British Columbia Vegetable Marketing Commission administers the Act by controlling volume through area quotas (not production quotas) issued to individual greenhouse growers. This organization analyzes the market before allocating the permissible area, and quota fees are not charged. In 2003, the Commission authorized the last increase in tomato area. Production from this expansion will begin in 2005. In August 2004, the Commission gave the industry permission to initiate minimum prices for domestic and export sales. This authority was used in late August and September 2004.

In British Columbia, all sales, except sales via farm stands and municipal markets, must go through licensed sales agents. Up until 2002, all growers around Vancouver and on Vancouver Island had to market their production through BC Hot House, a former cooperative that incorporated in the mid-1990s. In 2001, BC Hot House accounted for nearly 40 percent of Canadian greenhouse tomato exports. The other producers outside of Vancouver and

the Vancouver Island area have very small production, and exporting is not a viable option.

BC Hot House is still the dominant British Columbia marketer, but it is no longer a monopoly. Two other groups received permission to begin marketing in 2002. In the aftermath of the dumping cases, the Commission imposed marketing conditions on the two new marketing agencies that required them to market to specific areas of North America through December 2003. While BC Hot House had traditionally focused on the West, it has begun to geographically diversify its markets, aided by a forward distribution center approach (establishing its own distribution centers close to major markets).