Tangled Routes

Women, Work, and Globalization on the Tomato Trail

Deborah Barndt

ROWMAN & LITTLEFIELD PUBLISHERS, INC.
Lanham • Boulder • New York • Oxford
CHAPTER 1

Across Space and through Time:
TOMATL MEETS THE CORPORATE TOMATO

The history of the tomato can reveal the unfolding global food system and the shifting role of women workers within it. In this chapter, we begin to excavate tangled roots and to follow the tangled routes of the tomato through the intertwining stories of Tomatl and the corporate tomato.

A group of popular educators from Mexico, the United States, and Canada created a skit at a 1994 conference dramatizing these two stories. "Tomasita Tells All: The True Story of the Abused Tomato" offers us a brief historical review of the shift from subsistence agriculture
(Tomato) to industrialized and globalized food production (the corporate tomato). A Mexican artist turned the drama into a cartoon story, excerpted below.

While the cartoons presented here simplify a long and complex history, they nonetheless reflect two distinct approaches to growing food that can be seen in contention not only across time but also in the present context. While the monocultural production depicted in the large fields of look-alike tomatoes predominates in the NAFTA era, subsistence agricultural traditions and sustainable farming practices persist not only among many Mexican campesinos but also in the north where community-based rural and urban agricultural initiatives are reclaiming more ecologically sustainable production practices. Tomasita's story is definitely tangled, like roots and routes, across both time and space.
There are, in fact, competing strategies, in dynamic interaction through the production, distribution, and consumption of the tomato. In this chapter, we trace Tomatlan's journey through history and across the continent, weaving two separate but interrelated stories. Two main characters introduce the contrasting approaches to growing food: Tomatlan is the homegrown tomato, named with the Indigenous name it was given in Aztec times; the corporate tomato is the fruit in its more familiar commodified form, produced in large quantities through multiple technological interventions. While the focus will be on the journey of the corporate tomato, we will periodically refer to the contrasting and shorter journey of Tomatlan, from precolonial to postcolonial times.

In tracing the trail from Mexican field to Canadian fast-food restaurant, we move through the three NAFTA countries, from south to north, on a journey that is clearly not a straight line. To simplify the story, I am dividing the process into three major stages following the trip north:

- the production of tomatoes in Mexico;
- their transport, trade, and distribution into the United States and Canada; and
- their commercialization and consumption in Canada.

Each stage will be graphically summarized, providing the traveler with a kind of road map. While the linear south-north trajectory suggested here reflects a predominant dynamic of the south producing for the north, all three phases—production, distribution, and consumption of tomatoes—take place in each of these three countries, as well as in others around the planet. This journey could, in fact, have many other starting and ending points, the processes described here playing out differently in other contexts.

I am building on the tradition of global commodity chain (GCC) analysis, an approach developed by Gary Gerlaffi and others to understand the current forms of capitalism in which production and consumption not only have crossed national boundaries but have been reorganized under a "structure of dense networked firms or enterprises." While my framing of the tomato story does not follow a classic commodity chain analysis, it does try to link the particular and general, the local and global aspects of tomato production and consumption.

Gerlaffi distinguishes between producer-driven commodity chains, in which transnational corporations control production networks, and buyer-driven commodity chains, in which large retailers and brand-named merchandisers shape and coordinate decentralized production networks while controlling design and marketing themselves. Because the corporate tomato moves from globalizing Mexican agribusiness and processing plants to Canadian supermarkets and restaurants that are also globalized, we will see both types of chains in their overlapping complexity.

This chapter foregrounds the story of the tomato, leaving the workers who move the tomato along this chain in the background for now. As the stories of women workers unfold in subsequent chapters, we will also see what commodity chain analysis suggests are the two primary factors in the restructuring of the global economy: the search for low-wage labor and the pursuit of organizational flexibility. What I bring to the commodity chain approach is an ecological perspective and a gendered analysis, integrating as well race, age, and regional differences.

In a popular education workshop with immigrant women in Toronto, Neema, a Trinidadian woman, described the global food system like this: "It seems like one big puzzle and we don't have all the pieces. So we've got to see if we can fit all the pieces together and get a clearer picture of what's going on." This is no easy task. In my particular telling of the tomato tale, the overall impression is of a long and twisty trail, a many-staged journey that no one understands in its
entirety. We were most struck by this fact as we interviewed campesino and company vice president, cashier and chief buyer alike: no one person has the whole picture; each actor in this complex chain perhaps has some sense of the steps that come just before and after his or hers, but sometimes not even that much.

Of course, each stage is perceived differently by each person engaged in it; these multiple subjectivities, in fact, make the story not only contradictory but also more human. It is a daunting task to piece together the puzzle. I have confronted roadblocks and detours, discovered diversions and surprising openings. In this telling, I have chosen to follow certain tangential paths and not others. This is a constantly changing process that I personally can't hope to unveil fully.

I am arbitrarily dividing the journey into twenty-one steps (for the corporate tomato's journey) and five stages (for Tomatl and alternative practices); each step or stage introduces a key issue to be explored later through the case studies of Mexican agribusiness and Canadian food retail and service industries. This brief review thus opens the windows to places and processes to be examined in more depth throughout the book. The tangled journeys make us realize we cannot separate our survival in the north from the survival of people in the south, nor the fate of human beings from the fate of the earth. The corporate journey is described in steps (numbers 1, 2, 3), while we can follow Tomatl's story (designated as stages and marked by Roman numerals—I, II, III) from the margins: the survival of more sustainable locally controlled growing practices.
Tomatl's Story from the Margins

STAGE I: TOMATO'S BEGINNINGS IN PRE-HISPANIC AMERICA

The tomato originated as a wild plant in the Andean region (what is now northwest Peru), its seeds then probably carried north by birds to what is now Mexico, centuries before the time of Christ. First domesticated by the Mayans and the Aztecs, the fruit was named *tomatl*, which in Nahuatl, the language of the Aztecs, means “something round and plump.” For centuries the tomato was a native crop grown by Indigenous peoples in Mexico to feed their families. Using traditional agricultural practices (chapter 6), they grew tomatoes in great variety, interplanted them with other crops, and rotated crops from year to year, in the context of complex local ecosystems. Wild tomato species, for example, supplied other varieties of tomatoes with resistance to nineteen major plant diseases.

The Journey of the Corporate Tomato

Step 1: Colonial Conquest of the “Love Apple”

In the sixteenth century, the Spanish conquistadores received tomatoes as part of tributes from Indigenous peoples in the Americas and eventually took the plant back to Europe along with other natural riches they had “discovered.” There it was initially feared as poisonous and primarily considered decorative as a “love apple,” until Italians began to embrace it in their cuisine.
French settlers carried tomatoes to Quebec and Louisiana in the eighteenth century, and it was soon proclaimed medicinal and promoted by agricultural innovators such as Thomas Jefferson. Since then the tomato has been central to diets in the Americas and considered rich in vitamins (A and C) and minerals (calcium and potassium), especially when ripe. It has been bred into hundreds of hybrid forms; the most common big round red version, *Solanum lycopersicon* in Latin, is known in Mexico as *jitomate*. The tomato is now the most widely grown fruit in the Americas as well as the most heavily traded.

**Step 2: The Struggle for Land (campo)**

In recent decades, many Mexican *campesinos* (which means literally “of the land, or campo”) have lost access to lands for cultivating the plant, either individually or collectively in peasant communities. Indigenous peoples have struggled for land for centuries, especially after the Spaniards arrived and sent them to work as peons in the mines and plantations. Mestizo and Indigenous campesinos gained greater access to land through the Mexican Revolution (whose battle cry was “Land and liberty!”) and through agrarian reforms under President Lázaro Cárdenas in the 1930s (chapter 6). In the 1980s, Mexican neoliberal policies privatized *ejidos* (communal lands) and encouraged foreign investment, and in the 1990s, NAFTA increased agroexports. Since then, more and more campesinos from the southern states of Mexico have migrated to richer northern states to work as salaried labor for large agribusinesses. If they still own plots in their home regions, much of the land has been degraded through endless cycles of fertilizer and pesticide use.

Land, or the campo, is thus central to the story of the corporate tomato, particularly as it has become viewed as a natural resource and as private property by Western science and industrial capitalist interests, both national and international. The origins of the commodification of land are explored later in this chapter.

**Step 3: Monocultures Led by U.S. Industrial Agriculture**

Tomatoes were the first fruit produced for export in Mexico, beginning in the late 1880s, but their production intensified with the development of capitalist production in Sinaloa in the 1920s. Often financed by U.S. capital and inputs, Mexican companies adopted American industrial practices such as Taylorization, the assembly line production and standardization developed after World War I. The work was divided into small manageable units, and technology was introduced that didn’t depend on physical force, opening up jobs for women. In the late 1920s, U.S. surplus and protectionist policies forced Mexican producers to standardize packing tomatoes in wooden crates to compete with U.S. producers. In the 1950s, two technologies revolutionized tomato cultivation: the use of plastic covering that kept the plants from direct contact with the earth and the growth of seedlings in greenhouses. By 1994, tomatoes accounted for
22.6 percent of the fruit and vegetable production in Mexico, even though they took up only 3.5 percent of the arable land.10

Monocultural and cash crop production is a central feature of the global food system today. It has, however, eliminated many types of tomatoes; 80 percent of the varieties have been lost in this century alone.11 Now Indigenous and mestizo campesinos tend tomatoes as salaried workers in agribusinesses built on a Western scientific logic and rationalism. Each worker is relegated to a specific routinized task, in large monocrop fields or more recently in greenhouses (called “factories in the fields”), where the goal is to harvest thousands of tomatoes at the same time and in identical form.

This process is unveiled in rich detail through the stories of women workers in chapter 6. The industrialization of agriculture has, in fact, been accompanied by a feminization of agricultural labor, particularly in greenhouses and packing plants.
STAGE II: COMBINING SALARIED WORK WITH SUBSISTENCE AGRICULTURE

While large monocultural agribusinesses dominate tomato production in Mexico, the campesinos who work seasonally for them cannot survive without also cultivating their own staple crops. As the case study of Empaque Santa Rosa, the Mexican agribusiness, shows, the low wages of industrial agriculture are based on the assumption that workers will combine salaried work with subsistence agriculture. For the poorer Indigenous migrant farmworkers, this is becoming less possible as they must migrate to more and more harvests to survive and as they lose access to arable land in their home states. But many peasants such as Tomasa and Pablo, featured in chapter 6, maintain their subsistence knowledge and more environmentally sustainable practices by growing basic foods in plots on hillsides outside their village, working in their milpa (cornfield) after returning from picking tomatoes in large plantations. This double day not only assures their survival but keeps traditional knowledges alive alongside more industrialized practices. The interplanting of corn, squash, and beans (called the “three sisters” by North American Aboriginal people) uses the advantages of each crop to improve the growth of the others while maintaining the fertility of the soil.12

Step 4: Multinationals Control the Technological Package

Even though many tomato seeds originated in Mexico, they have now become the “intellectual property” of multinational companies, which claim patents on genetically modified forms of the seeds (see “The Genetic Moment and Neoliberalism,” later in this chapter). They have been recreated in thousands of varieties, hybridized and more recently genetically engineered by multinational agribusinesses such as the U.S.-based Calgene and Monsanto and their counterparts such as Western Seed of Mexico. In 1996, Western Seed created, for example, a seed that is immune to the whitefly that destroyed thousands of tons of tomato production in Autlán, Jalisco, in the early 1990s.13 These seeds, selling for $20,000 a kilogram and geared entirely to the export market, have also been altered with genes that make the tomatoes last much longer before ripening (“long shelf life” tomatoes), so they can make the journey from Mexico to Canada without rotting en route.

For many Indigenous peoples and campesinos, this has meant not only a loss of ownership and control of the seeds but also a loss of their own knowledge about how to grow tomatoes in endless varieties. Ironically, Mexican producers such as Empaque Santa Rosa must now buy tomato seeds from foreign companies in the United States, Israel, and France; they also hire French and Israeli engineers who bring a whole technological package that must be used with the seeds, as well as an entire production process adopting European and North American management and work practices.14

Agrochemicals are central components of the “technological package,” and their origins in the Green Revolution are examined later in this chapter. Long before tomato seedlings are planted in the ground, for example, the soil has been treated with fertilizers to enrich the soil for growth. As the
tomatoes grow, there is a constant barrage of a variety of agrochemicals—pesticides, herbicides, and fungicides—aimed at killing pests, bacteria, and fungi. Under the mantra of efficiency and productivity, they are heralded as making the plants grow faster, stronger, more uniform, and in greater quantity; they are also critical to the production of the blemish-free tomatoes demanded by the export market. The agrochemicals themselves are primarily imported from U.S. multinationals: Bayer, Dupont, Monsanto, Cargill. There is neither training in their use, however, nor protective gear provided for workers in fields where pesticides are sprayed by hand, combine, or small plane. Every year an estimated three million people are poisoned by pesticides.

STAGE III: ZAPATISTAS, NAFTA, AND FOOD

It is no coincidence that the poorest field-workers are Indigenous families from the south, forced away from their land for the myriad of reasons named earlier. Nor was it an accident that the Zapatistas chose 1 January 1994, the inaugural day of the North American Free Trade Agreement, as the moment for an uprising of Indigenous communities who have lost their land and livelihoods through colonial practices and neoliberal policies. The Zapatista struggle, for bread and dignity, has been transformed into an international movement that is reclaiming Indigenous rights and knowledges as critical not only for the survival of poor campesino communities but also for the survival of the planet. Food is a political centerpiece of this initiative, reflecting the continuing struggle for the land (campo) as well as for cultural identity of campesinos and Indigenous peoples.

Step 5: Gendered Fields: Women Workers Plant and Pick

Primarily young women plant the seeds in Empaque Santa Rosa's large greenhouses in Sinaloa and nurture them into seedlings, ready to be distributed to production sites in other parts of the country. Once shipped to Sirena, they are transplanted in the surrounding fields by the few full-time workers hired by Santa Rosa from neighboring villages. The young plants are watched carefully over the first few weeks, pruned by campesino women who pluck off the shoots so the stems
will grow thicker, faster, and straighter. If tomatoes grow from a main stalk, they take up less space, are less vulnerable to pests on the ground, and are easier to pick. When the plants reach a certain height, women workers tie the vines to strings that hold them up, so they can grow without being crushed on the ground.\footnote{17}

As one of the most labor-intensive crops, tomato picking requires many more person hours and careful work than does picking bananas, for example. While most agribusinesses in the United States now have mechanical harvesters that pick tomatoes very fast and in massive amounts, in most Mexican monocultural plantations, tomatoes are still handpicked by campesinos. Hired by the companies, many of them are Indigenous families who have been brought on a one- to two-day journey from the poorer southern states for the harvest season, and they live precariously in migrant labor camps near the fields.

At Empaque Santa Rosa, the tomato workers usually start picking tomatoes at 7:30 A.M., stop for a lunch at 10:30, and are finished by 2:30 P.M., by which time the sun has become unbearably hot. They pluck them fast, too, so that they can fill the quota of forty pails a day to earn their twenty-eight pesos (approximately U.S. $5 in 1997).\footnote{18} Both men and women (as well as children) pick tomatoes, but women pickers are considered more gentle, so there is less damage to the crop. Men, on the other hand, are the ones who stack crates on flatbed trailers that they pull by tractor from the field to the packing plant. This gender dynamic needs to be understood in the context of a machista culture perpetuated by an international sexual division of labor (chapter 6).

\textbf{Step 6: Selecting and Packing the Perfect Tomato}

Men unload the tomatoes in crates from the trucks and dump them into chutes that send them sailing into an agitated sea of 90 percent chlorinated water, a bath to remove the dirt, bacteria, and pesticide residue from their oversprayed skins. They are dried by blasts of warm air, then moved along on conveyor belts through another chute that coats them with wax. It keeps the
moisture in and the bacteria out, protecting the tomatoes from further breakdown during the long journey, but it also gives them a special shine that makes them more attractive to wholesalers and shoppers in the north.19

Not all tomatoes will make the longer trip north, as only the “best” are selected for export. To be chosen, they must be large, well-shaped, firm, and free of any cracks, scars, or blemishes. The “nimble fingers” that decide which tomato goes where belong to young women, many of them brought by Santa Rosa from its larger production site in Sinaloa to handle this delicate task. They sort the fruit according to grades and destinations but also by size (determined by how many fit into a box—e.g., 5 × 5s or 6 × 7s) and by color (from shades of green to red), because this is how the importers order them.20 In Santa Rosa’s packing plants, tomatoes are sorted by hand, while in the greenhouses, they are sorted partially by a computerized system that weighs and scans them by laser, then sends them down specific chutes for packing by size and color.

As the tomatoes move along the conveyor belt, primarily women sorters determine their destiny. If they are perfect by international standards, they are deemed “export quality” and divided into second and first grades.21 If they are regular sized, they go to belts for national consumption and are again categorized as second and first grade. The domestic tomatoes are sent to the big food terminals in Guadalajara and Mexico City, where they may be sold at one-third the price that they will draw internationally.

Women packers have even more responsibility with the tomatoes. They pick them up from depositories that have divided them by color but often have to re-sort them, checking on the sorters’ work. Then they put them gently but quickly into boxes. It’s a contradictory tension for these women because they are paid by the box and not by the day (as the sorters are); so they try to put several tomatoes into boxes at the same time, while also being careful not
to damage the fruit. The contents are inspected before being closed. In the past few years, as Empaque Santa Rosa has more fully entered the global export market, little round stickers are pasted on the skin of the tomatoes before they are packed up and sent off. Also delicately applied by women, these stickers indicate the particular variety of tomato, according to an international numbering system (e.g., Roma tomatoes are #4064, while cherry tomatoes are #4796).22

Step 7: Tomatoes, Trade, and Agroexports

It is easy to tell the difference between those destined for local or export markets: if they're going north, they're packed in cardboard boxes with “Mexican tomatoes” written in English on the outside, often with Styrofoam or plastic dividers that hold each tomato in place; those chosen for domestic consumption are packed, without separators, in wooden crates marked with the company's Mexican label, Empaque Santa Rosa. The real rejects are dropped unceremoniously through a big chute into a truck outside the packing plant and sold to local farmers as animal feed.

Once packed and stickered, the boxes that will carry the tomatoes north are sealed, stacked, wrapped, and moved by men working in the packing plant. They are stacked into skids of 108 boxes and wrapped with a plastic netting that keeps them intact en route. Bar codes are also stuck on the skids by ticketers (usually men); when scanned, the lines on the bar code identify the company, tomato variety, the field they were grown in, the day they were packed, and so forth, allowing inventory to be recorded and problems to be traced.23 An additional sticker bears a number identifying the worker who packed and inspected the boxes at the point of origin. Men driving motorized forklifts deposit most skids directly on to big trailer trucks, while leaving others in temporary storage.

Structural adjustment programs and neoliberal policies in Mexico in the 1980s encouraged agroexports, and NAFTA in the 1990s opened the doors for competition with northern producers. As we will see in chapter 6, tomatoes are one of the few Mexican crops to really “win” with NAFTA, because Mexico maintains the comparative advantage with more intense and consistent sun, easier access to land, and cheaper labor than the United States and Canada. Empaque Santa Rosa, for example, used to produce tomatoes as much for domestic production as for export, but it now sends 85 percent of its harvest north across the border; an ever-increasing number of greenhouse operations produce cherry tomatoes entirely for export. Mexico ships seven hundred thousand tons of tomatoes annually to the United States and Canada.24 Prices are better in the north, and with the asymmetry of currencies and wages, companies like Santa Rosa can make much more money in the export market.

Tomatoes are ordered by international brokers who request them not only in specific sizes, but also in different shades, from green to red (1 = green, 6 = red).25 Their journey north may be delayed while the company owners wait for the prices in the United States to rise so they can be sold for more profit. Thus, they might be stored away in refrigerated rooms at the packing plants or near the food terminals, at a temperature that keeps them from ripening too fast, remaining there for a few days up to a week, until the market is more favorable. When the producers decide to fill an order, then, depending on the color requested as well as the destination, the tomatoes may be gassed with ethylene, the same substance that naturally causes ripening, so that the ripening process, temporarily slowed down, is now speeded up. The doors of the storage rooms are closed for twenty-four hours, while the tomatoes are gassed, as the ethylene is dangerous for humans to inhale.
Step 8: Erratic Weathers: El Niño or Global Warming?

Besides being sprayed incessantly with chemicals, tomatoes have been subjected recently to intense rains and even freak snowstorms. If a premature freeze occurs in the fields, the juice and pulp of the tomato freeze like ice, as though they had been put in a refrigerator. The journey for some tomatoes dead-ends here, causing the company economic losses and ending the works season prematurely for thousands of poor campesinos.

These erratic weather conditions are often blamed on El Niño, which originated in Peru and is caused by the clashing of hot and cold currents off the Pacific coast. But many contend that human intervention is also affecting global weather patterns, and crops have suffered from their erratic nature in recent years. Global warming is particularly accelerated by the emission of greenhouse gases into the atmosphere, slowly depleting the ozone layer. Among the greatest culprits of this process are the large trucks that transport food long distances, the focus of step 10.

Step 9: Detour to Del Monte Processing Adds "Value"

Second-rate tomatoes are sent in wooden crates to the major food terminals (in Guadalajara, Mexico City, and Monterrey), to local markets, and sometimes to food-processing plants. Santa Rosa, for example, supplies Del Monte with tomatoes for processing into canned tomatoes, ketchup, or salsa at its plant in Irapuato, Guanajuato. Tomatoes received at Del Monte are dumped into an assembly line production that moves them along to be weighed and washed, sorted and mashed, then processed through cooking tanks, evaporating tanks, and pasteurizing tanks. Again, primarily women workers fill the bottles through tubes, and the bottles are capped, cooled, labeled, and packed into boxes.26

While one might think Del Monte would prefer overripe tomatoes for processing, they actually prefer firmer varieties, so that the tomatoes won't get caught in the automated conveyor systems and mess up the technology for transporting them into the plant.27 More and more, however, ketchup producers like Del Monte are buying tomato paste rather than whole tomatoes, because the paste-making business draws on cheap labor and facilitates the process for the manufacturer. In bottled form, tomatoes join many other processed and frozen foods that are increasingly replacing fresh food in North America; they are sometimes called "value-added" products, although the real added value is reflected mainly in the price.

Step 10: Trucking: A Nonstop Dash North with Perishable Goods

Empaque Santa Rosa owns a few of its own trailer trucks to transport tomatoes to both domestic and northern markets; they guzzle fossil fuel and also contribute to the depletion of the ozone layer. More often, however, Santa Rosa contracts independent truckers to deliver tomatoes to the Mexican–U.S. border at Nogales. It often hires UTTSU, for example, a trucking company whose refrigerated units can carry fifty thousand-pound shipments of fresh produce. The tomatoes are sometimes precooled in a hydrocooling machine that brings their core temperature from 75 degrees down to 34 degrees, because if the temperature drops from 75 to 34 during the two-day journey north, the fruit might deteriorate.

Trucking is a male job, further described in chapter 5. Truckers often work in pairs, so that one can sleep in the back of the cab, while the other takes over the driving. The trip to Nogales from Sirena may take thirty to forty hours, depending how many drivers there are; time is of the essence, because tomatoes are highly perishable and preferred at a certain ripeness, but not
overripe. Their average life span, in fact, is 4.7 days, so the faster the drive, the quicker they arrive, and the more market days remain for the critical activity of selling them.

We now enter the second phase of the journey of the corporate tomato from Mexico to Canada, highlighting issues of trade and transport, inspection and distribution. While it involves processes in all three NAFTA countries, this phase is clearly controlled by U.S. regulatory agencies, political interests, and multinational corporate needs. Contending political, economic, and legal interests converge in activities around the borders, especially the highly charged U.S.–Mexican line.

Step 11: Controlling the Gates: Dumping, Drugs, and Deportees

To better control and facilitate the border inspection process, the U. S. Department of Agriculture (USDA) has installed its own inspectors within many Mexican agroexport plants to check the tomatoes before they’re even loaded into the trailer trucks. Mexican environmental laws are not as strict as those in the United States and Canada, though NAFTA has provided some pressure to “harmonize.” U.S.-based companies, however, sometimes “dump” pesticides in Mexico after they have been banned in their own country. The problem comes back to haunt them when tomatoes are exported back to the United States, carrying higher concentrations of agrochemicals and threatening the health of U.S. consumers.

The USDA hopes to eventually complete all inspections at the point of origin, in the Mexican plants where the tomatoes are packed. Nonetheless, loads of tomatoes are inspected again and again along the route to the border, and the trucks carrying them are stopped regularly by inspectors at four checkpoints. Usually it is not the tomatoes that interest them as much as other possible cargo that could be smuggled within the trucks, such as narcotics or Mexicans seeking illegal entry into the United States. Narcotraffic is actually a much more lucrative (and volatile) enterprise than tomato production, and a lot of the border activity centers on attempts to control or eradicate it.
The border patrol complex is located in a sandy ravine with desert brush competing with large-armed spotlights and police cruisers on the hillside, a veritable militarized zone. U.S. Customs officials, guns bulging at their hips, check for truck fraud and narcotics; the work of sniffing dogs has recently been complemented by high-tech X-ray equipment which can scan entire truckloads for suspicious objects. The increasing drug trade is just one more sign of deepening despair and uncontrollable violence in both countries, but particularly Mexico.

The U.S. government and Mexican government have joined forces to address this matter.

Second to drugs is concern for the growing number of desperate Mexicans who try to escape poverty and unemployment, by illegally crossing the border, seeking work in the United States where they earn in one hour what they would make in a day at home. Horror stories abound about the ways they try to smuggle themselves in, under truck cabs, amid produce, or across rivers at night, and about how they are often captured, mistreated, and sent back to Mexico. It's ironic that tomatoes, as well as capital, are so welcome in the north, while Mexican workers are not, except when they are wanted for menial tasks, at specific times, and under limited conditions (chapter 5).

Tomatoes account for 56 percent of the cargo of the nine hundred to thirteen hundred big trailer trucks that cross the Nogales border daily. Truck traffic has been increasing at such a dramatic pace since NAFTA (in peak season in 1998, over twenty-seven thousand trucks crossed here in one month) that new lanes are being added to the highway to ease the congestion.

Step 12: Checking for Quality: Appearance Matters

Most food inspection actually takes place on the Mexican side of the border.

At the complex of the Confederation of Agricultural Associations (CAADES), in Nogales, Sonora, six kilometers south of the U.S. border, tomatoes are run through a series of checks by the USDA officials. First they weigh the trucks, to be sure they don't surpass the total limit of eighty-eight thousand pounds; if the loaded trucks are overweight, they must unload and reload the tomatoes in smaller trucks. Then a USDA inspector goes through a truckload and randomly samples boxes of tomatoes at the top, middle, and bottom of a skid. Ten boxes are opened and inspected at a time. An inspector also measures a few sample tomatoes with a metal frame to confirm their proclaimed size: from 4 x 4 to 7 x 7, referring to how many will fit into one layer of a standard box.

Some tomatoes get their temperature taken to be sure that the refrigeration of the truck has not failed; if they were packed pink and register higher than 50 degrees, they may be deteriorating too fast and are turned back. Of the long list of potential "quality defects" and "condition defects" used to check the tomatoes, most (such as "smoothness" and "color") relate primarily to the appearance of the fruit. To be deemed suitable as a U.S. No. 1 grade, no more than 10 percent of a load can have either quality defects or condition defects.
Step 13: The Line Is Drawn: Border of Inequalities

There is a stark contrast at the border between the huts dotting the hillsides on the Mexican side and the more elegant homes on the U.S. side; just as the price of tomatoes rises the minute they cross the line, the wages and standard of living also rise. The way business is organized on both sides of the border area also reflects this asymmetry between nations. A growing number of maquiladora plants, set up since the 1960s in the northern Mexican border by multinational companies, employ thousands of young women in assembling electronics, in piecing together garments, and, in lesser quantity, in food processing. On the U.S. side, on the other hand, an immense infrastructure of administrative offices and warehouses has been established to facilitate the speedy movement of tomatoes beyond the border to northern consumers. The border thus also separates the workers in the south (Mexico) from the managers in the north (the United States).

Step 14: Keeping Pests and Pesticides at Bay

Truckers that have passed the inspection in Nogales, Sonora, on the Mexican side, and are transporting tomatoes from a reputable agribusiness, can pass through the rapid transit lane, merely handing in the paperwork and moving quickly north. Others, however, may be directed into the U.S. Customs complex on the Arizona side of the border, for further inspections by the FDA and USDA. The Food and Drug Administration officials randomly select a box from a truck and cut a chunk out of a sample tomato to send to an FDA lab in Phoenix, Arizona. About 1 percent of the produce are tested for pesticide residues. This is one way officials can check to see whether Mexican tomato producers are following the standards re-
The acceptable levels of pesticide residue permitted in the United States. The lab testing may take a few weeks, by which time the chemically suspect tomatoes may have already been unwittingly digested by U.S. or Canadian consumers. Growers whose produce is proven to have certain chemicals\(^\text{32}\) above the legal limit are warned that enforcement action might be taken if the problem continues.

What can be detected more immediately, however, are the pests or plant life that may be carried inadvertently in the trucks or boxes in which the tomatoes are packed. USDA botanists don rubber gloves and check the fruit for microbes or markings (a hard scar may be evidence of a pest). If found defective, they may be sent back to Mexico for domestic consumption, sent on to Canada “in bond” (quarantined and wrapped with unbreakable metal straps), or sprayed by a Nogales fumigation company, with USDA officials monitoring the process.\(^\text{35}\) If, on the other hand, all goes well in the inspection, the border-crossing process will be complete within three to four hours, and the tomatoes are given official entry into the United States.

**Step 15: Exporting/Importing: Brokers and Wholesalers**

When a Mexican trucker is not certified to cross the border, he will pay an American trucker $20 to drive the truck through customs and to a warehouse a few miles north of the border. The warehouses are owned by exporters as well as brokers; Empaque Santa Rosa, for example, has its own office on the U.S. side to manage international sales and distribution within the United States and into Canada. The skids are unloaded in thirty to sixty minutes and stored temporarily in the warehouse. Throughout the day, brokers arrange sales by phone, fax, and increasingly by E-mail. This is clearly a man’s world, and tomatoes are constantly repacked and reloaded on the trucks of brokers or distributors for U.S. and Canadian wholesalers and retailers.

The Blue Book lists hundreds of wholesalers and retailers in the United States and Canada who purchase tomatoes, especially during peak season. Loblaw supermarkets in Ontario, for example, brings up three truckloads of tomatoes daily from the Nogales border. Like other wholesalers and retailers in Canada, they deal with brokers or shippers in Nogales who receive their orders and seek out the best deal from warehouses in the area.

It takes about three days in refrigerated trucks (kept at 48 degrees Fahrenheit) for the tomatoes to reach Ontario from the Mexican border; if coming from Florida it’s only two days, while from California it may be four. Three National Grocers trucks leave Nogales daily filled with three key varieties of tomatoes: the extra large Romas, vine ripes, and Gas Greens. Loblaw has its own warehouse, National Grocers, near the Toronto airport, open seven days a week, twenty-four hours a day, and employing one thousand people (mainly men). Supplying Loblaw, Zehrs, Value-Mart, No Frills, and some Atlantic chains, National Grocers also brings tomatoes in by air daily from around the world (France, Morocco, the Canary Islands, and Israel), especially between December and February when local hothouse production is closed down because of cold weather.
STAGE IV: CHALLENGING GLOBALIZED PRODUCTION:
ECOLOGICAL FOOTPRINT

Activists and academics concerned about the often hidden ecological costs of production and distribution in a global food system that depends on moving tomatoes long distances have developed tools for measuring the impact of such practices. Neither transportation, which is heavily subsidized by government, nor environmental degradation (exacerbated both by the burning of fossil fuels and by the hydrofluorocarbons in refrigerated units of trucks) appears either in the balance sheet of the companies or in the price we pay as consumers. One such tool, the ecological footprint, developed by William Rees, calculates both primary energy consumption and carbon dioxide emissions.

The footprints below represent the contrasting energy costs of producing tomatoes in Mexico and in Ontario greenhouses for Canadian consumption. Of the tomatoes imported annually into Ontario, 74 percent were from the United States, 22 percent were from Mexico, and 4 percent were from other countries. In 1997, Ontario’s forty thousand tons of tomato imports (from North America) traveled over ninety-one million kilometers (i.e., 2,320 kilometers/ton). A recent study estimates that most tomatoes enter Toronto by truck but that North American imports emit 221 tons of carbon dioxide into the atmosphere while the transportation of Ontario greenhouse tomatoes only emitted 67 tons. Air transport is even more damaging to the environment; according to a 1994 SAFE Alliance study, tomatoes arriving by air contributed 1,206 grams/ton • kilometer, compared to 207 for road travel, 30 for water, and 41 for rail.

THE ECOLOGICAL FOOTPRINT

North American Imports 2.85 times larger than Ontario Greenhouse tomatoes
Step 16: A More Permeable Border: Slipping into Canada

It's difficult to know how many Mexican tomatoes actually make it into Canada. One-quarter of the tomatoes sold in Ontario come directly from Mexico, but this doesn't include those that are shipped from Mexico to border states, then repacked under new U.S. trademarks and sent on to Canada. While the journey from Nogales to Sarnia may take as long as the Sirena–Nogales trip within Mexico, tomatoes have a much easier time at the Canadian border. Fortunately, the elongated inspection at the Mexican–U.S. border is not repeated, because the standards in the United States and Canada are pretty much the same. If the tomatoes pass as U.S. No. 1 grade tomatoes in Nogales, they're considered certified and won't be inspected again at the Canadian border.

Truckers who, since the deregulation of transportation in the late 1980s and NAFTA in the early 1990s, cross the border more regularly merely present a “confirmation of sale,” which has often been previously faxed or sent electronically to both Canadian Customs and the Canadian Food Inspection Agency (CFIA). A small number (about 4 percent) of the shipments are inspected by customs officials (and dogs), usually initiated as a search for contraband (drugs, weapons, liquor, tobacco), and secondarily a check on the quality of the tomatoes. If the fresh produce smells or appears spoiled, a CFIA inspector will be called in.

Tomatoes are the subject of intense communications between the brokers (shippers) at the U.S.–Mexican border, and U.S. and Canadian buyers (wholesalers), and then again between the brokers at the Canadian border and the buyers awaiting the arrival of fresh tomatoes. Ontario Produce, one of the key wholesalers at the Ontario Food Terminal, for example, has its own brokers negotiating the crossing of tomato shipments at Sarnia, Ontario. Ontario Produce faxes its record of the load, and its broker helps shepherd it across the Sarnia border. Customs officials check the shipper’s manifest and the buyer’s manifest, and if there are no problems, the tomatoes are allowed to enter Canada.
Finally, we move on to the third phase of the corporate tomato’s journey north, as it is received, inspected, and distributed in Canada, to terminals and then to supermarkets and fast-food restaurants.

Step 17: The Morning Zoo: Food Terminals Work While We Sleep

Tomatoes are delivered (by truck via Sarnia) to the Ontario Food Terminal, often in the middle of the night, to be ready for sale when wholesalers and retailers arrive from 4 A.M. on.\textsuperscript{42} Ontario Produce,\textsuperscript{43} one of largest of the twenty companies in the terminal, has eight buyers who order tomatoes from all over the world (Belgium, Spain, Italy, Mexico); while most are beefsteak tomatoes from Florida, they also buy tear drops, cherry, hothouse, and Roma (demanded by the ethnic market), and sell eleven truckloads a day. Ontario Produce sends its own three trucks out to pick up orders as well as to receive deliveries. If they arrive too early, the trucks may have to wait for hours before unloading, while wholesalers close down for a couple of hours to clean up and prepare displays of the best samples for the following day.

Once unloaded at the terminal, the tomatoes may be returned to refrigerated storage units, similar to the ones in Sirena, but with computerized temperature control, where they’re kept at a temperature of 36 to 40 degrees. These units are equipped with catalytic generators to produce ethylene, a liquid that when released creates vapor that accelerates the ripening of the fruit. Signs around the heavily locked door warn of its highly flammable nature, indicating that smoking around it could cause an explosion. Whether or not the tomatoes are gassed depends on demand and price.

Wholesalers (or jobbers) like Joyce Foods arrive in the early morning to buy for fast-food restaurants, the primary customers for tomatoes. They prefer the firmer Florida tomatoes (without any
markings) because they are more sliceable (e.g., for McDonald's Arch Deluxe or for pizzas). While importers and wholesalers have noted an increase in Mexican tomatoes since NAFTA, they are often too watery for fast-food use. Tomatoes that have been traveling several days from Mexico ripen at different times and, to different degrees, suffer from stem puncture, or deteriorate. Importers can claim for damages, but this involves lengthy court procedures, so they may just send them to be repacked. Women workers at Bell City packers near Toronto, for example, eliminate the decayed tomatoes, wash them again, and re-sort them into six different colors through a computerized laser system and a mechanized assembly line similar to the one in the Santa Rosa greenhouse in Mexico.

STAGE V: LOCAL TOMATOES PICKED BY MEXICAN HANDS

In the summertime, fewer tomatoes are imported from Mexico, since Canadians can get them fresh from local farmers. Even the sales manager at Ontario Produce recognizes the difference: “Anything that is grown locally has a better taste than the imported merchandise. If you compare it with the local stuff, it is totally different, just like night and day.”

There is also a growing greenhouse production of hothouse tomatoes in Ontario year-round. The climate can be carefully controlled in these sophisticated glass greenhouses, and the production is more predictable. Many people also prefer them, because they can ripen on the vine and thus are tastier than tomatoes picked green and sent on the long journey north from Mexico. With a growing demand for organic tomatoes, biological methods of pest control are being used in greenhouses as well.

National Grocers buys tomatoes for Loblaws from Mennonite farmers in western and southern Ontario. Ironically, many of the locally produced tomatoes are harvested by Mexican migrant farm-workers, men and women, who come north every summer as part of a government program called FARMS. Irena Gonzalez, for example, has been coming for thirteen years from July to October. While she is still only paid at minimum wage, she makes in an hour in Canada what she would make in a day in Mexico picking tomatoes (chapter 5).

Step 18: Designer Supermarkets and Multicultural Labels

A mixture of corporate tomatoes and (in season) locally grown tomatoes is delivered to Loblaws supermarkets, where they become part of a simulated village market within megastores, which now combine selling groceries with gourmet takeout, dry cleaning, pharmacy, photo processing, plant nurseries, art galleries, and even banking (see chapter 4). The produce section has been moved to the front of stores to create the illusion of being closer to the source of food. The walls surrounding the tomatoes are brightly colored and well lit. With their waxed shiny surfaces, they are arranged artfully on carts, under umbrellas and a sign that says “Fresh from the Fields.”

As part of a global retail market, Loblaws now proclaims that “Food Means the World to Us.” Having come from Mexico, tomatoes are part of its global reach, either in fresh form or
processed into one of Loblaws' corporate brand President's Choice sauces, Italian style plum tomatoes, or salsas and tacos being promoted in colorful Latino-style aisles, introducing Canadians and its multicultural population not only to new tastes but to new ways of being. The seduction of consumers into lifestyle foods and an illusion of diversity is a key theme in the story of Loblaws that unfolds in chapter 4.

Step 19: High-Tech Tomatoes and Computerized Cashiers

Corporate tomatoes can be purchased in fresh or processed form, and they are either punched in or scanned at the supermarket checkout lane. Fresh tomatoes are given PLU (product look-up) codes either on tickets or on stickers. Because they are of variable weight, they must first be weighed and their PLU numbers punched in to calculate their price. If a cashier is not sure of the type of tomato (nine different varieties are sold by Loblaws), she may check the visual inventory on her computer screen. Canned tomatoes or bottled salsa, on the other hand, can be quickly swiped through the scanner; their bar codes are read by a laser beam, and the type and price appear immediately on a printed receipt.

Global food production has become highly technologized in recent decades, and work practices have been transformed by the information revolution. The high-tech corporate tomato mediates a complex relationship between the worker and the technology: the electronic devices that control pricing and inventory, for example, can also monitor the productivity of cashiers such as Marissa, featured in chapter 4.
Step 20: Fast Food: Homogenized Tomatoes and Toys

McDonald's, which traditionally has targeted a young market, doesn't include tomatoes in the Big Mac, since many children don't like them. In 1996, however, when the fast-food giant's domestic sales were slipping, it created the Arch Deluxe for grown-ups, adding tomatoes; in 1999, it was replaced by the Big Xtra. McDonald's prefers to buy Florida beefsteak tomatoes that are pulpiest, firmer, and easier to slice for a hamburger bun, while the tastier Mexican produce are juicier and more likely to fall apart. It is clearly a question of appearance and not of taste. The draw of McDonald's is often more the lifestyle, reflected in the glossy ads, billboards, TV commercials, toys, and videos that promote dominant popular culture. At the final destination of the corporate tomato, it becomes clear that tomatoes and hamburgers are not just food, nor even mere commodities, but symbols of a way of life. The cultural experience of food consumption is examined in depth in chapter 3.

Perfectly sliced tomatoes on a cookie-cutter hamburger and bun are part of a global trend toward homogenized diets. In fact, the term McDonaldization is now equated with this rationalizing and homogenizing process, which is built on principles of efficiency, calculability, predictability, and control; other businesses and social institutions are increasingly modeled on practices similar to the fast-food restaurant. The resulting loss of both biodiversity and cultural diversity are key themes explored in the case studies (chapters 3, 4, and 6).

The standardization of meals also fits a frantic lifestyle that devalues the preparation or savoring of food such as tomatoes, and the experience of commensality, or enjoying sharing a meal as an intimate social act. Homogenized consumption patterns in Canada parallel the monocultural production of tomatoes in the Mexican fields, both representing dominant practices at either end of the current global food system.

Step 21: Waste or Surplus: Compost or Charity?

There is a "paradox of hunger" reflected by a deepening poverty in the context of a relatively affluent Canada. Food retail giants such as Loblaw's are by far the largest donors to a burgeoning network of food banks. Besides getting a tax write-off for its contribution, Loblaw's also invites customers to buy goods, such as canned tomatoes, and add them to a donation box in the store. There are critics of this practice, and food bank organizers complain that the kind of items donated aren't always the most needed. Organic producers such as tomatoes, however, are disposed of in a different way; in collaboration with Organic Resources, Loblaw's uses a system of underground holding tanks where wasted tomatoes are stored until they can be recycled as compost on experimental farms outside of Toronto. McDonald's takes a "total life cycle" approach to solid waste, where possible trying to recycle and/or compost solid waste, such as corrugated paper.

STAGE VI: FULL CIRCLE: SEEDS IN THE MULTICULTURAL CITY

Tomato is well and alive and living in Toronto. One sunny May day, I made my way to Field to Table, the warehouse where FoodShare Metro Toronto is promoting a variety of food alternatives for low-income communities (chapter 8). Lauren Baker, who helped me trace the corporate tomato journey for two years, today sells me heritage tomato seedlings that she has grown on the
first certified organic rooftop garden in Canada. There she has transformed organic waste into rich composting soil, which is then recycled in diverse urban agricultural projects.

Part of a growing food security movement, FoodShare recently launched a new project, entitled “Seeds of Our City.” It draws on the rich knowledges of ethnic communities that are now part of Toronto’s multicultural population and that have brought their own growing practices and food traditions to community gardens sprouting all over the city. They are vibrant examples of the survival and recovery of more ecologically sustainable growing traditions built on a closer relationship between production and consumption.

After taking my new seeds and native plants home to my backyard garden, I attended an afternoon cultural event at the Native Canadian Centre, also in downtown Toronto. As part of the Mayworks Festival of Working People and the Arts, a concert releasing a CD, *Food for Chiapas*, offered music, drumming, poetry, and comedy by Latin American and native artists of diverse origins but all now living in Toronto. The benefit was also an educational event, reminding us of the struggles of Indigenous campesinos in Chiapas, whose access to land and to traditional practices has been threatened over centuries by the production of the corporate tomato (chapter 6). Since the implementation of NAFTA in January 1994, the Zapatista movement has strengthened the resistance of these people fighting for food, for land, and for dignity and has drawn international solidarity from many sectors of civil society. Their vision is also to reclaim a more just and sustainable relationship to the earth, one that recovers the practices of Tomatl in the twenty-first century.

These two events embodied the struggle and the hope of Indigenous Mexican campesinos and Canadian natives and immigrants alike, joined by others who question the impact of the journey of the corporate tomato, and who are reclaiming traditions and creating new alternatives, elaborated in chapter 8.