

ANALYSIS OF VERMONT'S FOOD SYSTEM

Understanding Consumer Demand

Can Vermont feed itself? How can we increase consumption of locally produced food? How much money is spent on local food in Vermont? What factors influence the purchasing behaviors and eating habits of Vermonters? How are Vermont food products marketed?

What we eat, where our food comes from, and how our food is grown, raised, and/or processed have defined major eras in human history, from hunting and gathering for sustenance for at least the past 200,000 years, to the advent of agriculture in a few regions of the world between 10,000 and 13,000 years ago. As articulated by Jared Diamond in his classic book, *Guns. Germs. and Steel*, it was the concentration of energy (i.e., calories from food) made possible by the domestication of certain food crops and animals that enabled the development of politically centralized, socially stratified, economically complex, and technologically innovative societies in just a few locations.²

For example, Diamond explains, 32 of the world's best 56 wild grasses (e.g., wheat) used as agricultural crops, and the wild ancestors of 13 of the 14 big animals (e.g. cows) domesticated before the 20th century could be found in Eurasia and nowhere else. This stroke of geographic fortune empowered Europeans to cross the Atlantic in 1492, setting in motion the "Columbian Exchange," a global blending of previously separated peoples, diseases, ideas, technologies, and foods. The globalization of food upended traditional ways of growing, raising, and cooking food—while simultaneously creating new traditions and transforming cultural identities and lifestyles. For example, potatoes and tomatoes from the Andes and tea from Southeast Asia have become synonymous with being Irish, Italian, and English.³

The Columbian Exchange reached Vermont in 1609, when Samuel de Champlain sailed down the lake that was later named after him. Indigenous peoples (e.g., Abenaki, Mohican, Pentacook) inhabited Vermont for thousands of years prior to 1609 and had developed a diverse, seasonal diet that resulted from hunting, gathering, and agriculture. This way of life was both dismantled and partially adopted by French and British migrants. After the Revolutionary War (1775 to 1783), the inhabitants of Vermont declared the area an independent republic and it remained that way until 1791, when it became the 14th state. During the past 220 years, subsistence in Vermont has largely been fulfilled by converting forests and other landscapes into farms, orchards, grazing ranges, gardens, and other food producing areas.

For example, the 1976 report of the Vermont Governor's Commission on Food, <u>Proposals for Vermont's Agriculture and Food Future</u>, harks back to a more self-sufficient time:

One hundred years ago Vermont produced most of the food it consumed. The quantity, quality and variety depended on local conditions. Most of the food eaten by Vermonters in those days was produced and preserved by their own efforts. This self-sufficiency was dictated by necessity; Vermonters did not choose to be self-sufficient, they had to be. A local diversified agriculture fed Vermont and also supplied many products to other areas of the Northeast.⁵

As Mark Kurlansky illustrates in *The Food of a Younger Land*, before supermarkets, chain restaurants, and frozen food, most people ate "local," "regional," "seasonal," and "traditional" foods—however these terms came to be understood after the Columbian Exchange muddied the waters. Kurlansky's book highlights vignettes written by the *Federal Writers Project* of the *Works Progress Administration* (WPA), which documented eating habits and traditions from various regions of the United States in the 1930s. Roaldus Richmond, a WPA chronicler of the eating habits of Vermonters, wrote:

As a rule Vermonters are not enthusiastic about salads or fish, favorites with the sophisticated, although Vermont gardens and Vermont lakes and streams offer a wealth of possibilities for both dishes. Fancy foods and frothy things are not popular in the state, whose people go for plain, solid, substantial foodstuffs.⁶

A picture of Vermont—"proud, free, and flinty"7—from its inception until the outbreak of World War II emerges from historical accounts. After World War II, however, a new phase of the Columbian Exchange radically transformed what we eat, where our food comes from, and how our food is grown, raised, and/or processed. A relatively fast switchover from human- and animal-based labor to fossil fuel-based inputs and mechanized equipment (e.g., tractors); the development of a national transportation infrastructure; and other technological improvements in production, processing, and storage (e.g., refrigeration) have increased the productivity of American agriculture, requiring fewer farmers to grow more food to reach dinner tables across the globe.

The industrialization of our food system happened in conjunction with major societal (e.g., women entering the workforce), political (e.g., the Cold War), economic (e.g., the transition to a service sector economy), medical (e.g., improvements in treatment), and technological (e.g., the ubiquity of automobiles and airplanes) shifts made possible by a transition to fossil energy.

On one hand, the benefits of this transition have been enormous: Today, the world is fed by a global food system, many millions of people are employed in the global food system, and all kinds of foods (e.g., coffee, chocolate, and bananas), cuisines (e.g., Thai, Indian, and Jamaican), and food delivery methods (e.g., vending machines, fast-food chains, and grocery stores) are available 24 hours a day in nearly every corner of the world.



Vermont women with canned goods.

On the other hand, from *East Food Nation* and *Super Size Me* to *The Omnivore's Dilemma* and *The End of Food*, criticisms of the industrial food system have emphasized its unintended health (e.g., increased obesity), societal (e.g., decline of family farms), economic (e.g., corporate monopolies or near monopolies of many food products), and ecological consequences (e.g., soil erosion). The crux of the matter today, Paul Roberts writes, is the "gap between food as an economic proposition and food as a biological phenomenon." The impetus to maximize profits by lowering expenses, increasing production scales, and accessing larger markets is, of course, a rational one. The issue, critics point out, is the unprecedented scale, speed, and consequences of the development of the industrial food system. For example, Roberts cites several remarkable statistics that demonstrate consolidation in the food system: Four businesses—*Tyson, Cargill, Swift*, and *National Beef Packing Company*—control 80% of the U.S. beef market. Half of all chicken production and 60% of all pork production are controlled by four

companies. Six retailers control half of the U.S. retail grocery market: *Walmart, Kroger, Albertsons, Safeway, Costco*, and *Ahold*. Three quarters or more of all breakfast cereals, snacks, and beer are manufactured by four companies.⁹

According to sociologist George Ritzer, the fast food chain *McDonald's*—which opened in 1940—literally and symbolically exemplifies the long reach of the industrialization of the global food system after World War II. Ritzer coined the phrase "the McDonaldization of Society" to describe "the process by which the principles of the fast-food restaurant are coming to dominate more and more sectors of American society as well as the rest of the world." Ritzer asserts that *McDonald's* has revolutionized the way we consume food by rationalizing these four principles:

- **Efficiency:** *McDonald's* has streamlined supply chains, product offerings, and the customer experience (e.g., drive thru windows).
- Calculability: McDonald's food products and marketing emphasize a good bargain: a lot of food can be had for a nominal amount of money.
- **Predictability:** *McDonald's* customers know that the food products they buy will look and taste the same in all places.
- Control: McDonald's controls a global supply chain, but Ritzer asserts that it also controls its employees (e.g., through de-skilling) and customers (e.g., through marketing and visual cues in each restaurant).¹⁰

Today, *McDonald's* claims that 64 million people are served daily at over 30,000 locations around the world. Many food and nonfood corporations (e.g., retailers, other fast-food restaurants, resorts, shopping malls) have copied this model, and cheap, convenient, preprepared food has steadily replaced meals cooked at home and flattened regional gastronomical differences.

As one of the few places that has not been literally or symbolically "McDonaldized," (e.g., Montpelier is the only state capital without a McDonald's) Vermont is one of the epicenters of a discussion about the future of our nation's food system.

This section explores renewed consumer interest in local food in the context of a global industrial food system. For example, most of the food Vermonters consume is now imported from elsewhere, and food imports have increased over the past decade. But Vermont also leads the nation in a countermovement toward local food: it has the highest per capita direct agricultural products sales (i.e., from farm stands, farmers'



Vermont farm stand circa 1939, possibly in Chittenden County.

markets, and community supported agriculture) in the country. Moreover, the <u>United Health Foundation</u> considers Vermont the healthiest state in the nation, and Vermonters tend to eat healthier than most Americans—38% of adult Vermonters eat fruit two or more times a day, tied for third in the nation, and 30% of adult Vermonters eat vegetables three or more times a day, tied for sixth in the nation.¹² But the percentage of overweight and obese Vermonters has also increased 4.8% and 63.7%, respectively, from 1995 to 2010¹³

This section attempts to answer these questions: Can Vermont feed itself? How much money is spent on local food purchases in Vermont? This section describes where our food comes from and where people buy food, and outlines key variables for understanding how to boost consumer demand for local food products. This section also reviews programs that provide consumer education and community outreach on food issues (e.g., food access programs), and documents some contemporary examples of the marketing of Vermont's food system to local and regional consumers.

PHOTO CREDIT: UVM Special Collections

GETTING TO 2020

Many of the goals of the Farm to Plate Strategic Plan aim to increase the amount of and demand for healthy, locally produced food for Vermonters and regional consumers:

Goal 1: Consumption of Vermont-produced food by Vermonters and regional consumers will measurably increase.

Goal 2: Consumers in institutional settings (e.g., K-12 schools, colleges, state agency cafeterias, hospitals) will consume more locally produced food.

Goal 3: Vermonters will exhibit fewer food-related health problems (e.g., obesity and diabetes).

Goal 10: All Vermonters will have a greater understanding of how to obtain, grow, store, and prepare nutritional food.

Goal 15: All Vermonters will have access to fresh, nutritionally balanced food that they can afford.

CURRENT CONDITIONS

Can Vermont Feed Itself?

Many Vermonters are interested in whether we can feed ourselves with local food production. Unfortunately, no comprehensive data exist to indicate exactly how much and what type of food Vermonters are currently consuming.

Numerous studies have measured the economic impact of increased consumption of locally grown foods, often using an input-output modeling system to measure broader, indirect impacts on jobs and income. Some research has measured the capacity of a given area to feed its population. For example, graduate students in the *Community Development and Applied Economics* department at the *University of Vermont* (UVM) attempted to calculate the "maximum percentage of local food" available by comparing the per capita market value of national production for major food categories with the per capita market value of food production in Vermont. A *University of Pennsylvania* graduate student, Beth McKellips, completed a study for the *Intervale Center* that

compared per capita average food consumption in the Northeast to Census of Agriculture data for Vermont food production to estimate the land required to meet consumer demand. Cornell University researchers completed a "complete-diet" study of the capacity of New York State to feed its citizens that identified 42 dietary patterns (e.g., "from low-fat, lacto-vegetarian, to high-fat, meat-rich omnivorous") and estimated how many people could be fed on these diets based on New York's available agricultural land. The researchers found that per capita land requirements increased with diets that included more meat. Other researchers have used population data and dietary guidelines to model the changes needed to meet public health recommendations with locally grown foods.

Ideally, up-to-date average food consumption data would be available (e.g., the data McKellips used is 16 years old). Alternatively, a complete-diet study would be preferable, but time and other constraints make it unfeasible to replicate such a study in Vermont as part of the F2P Strategic Plan. Consequently, the F2P Strategic Plan uses a combination of data sources and methods—the *food availability per capita estimates* of the *USDA Economic Research Service* (ERS) and the *dietary guidelines* (i.e., MyPlate) of the USDA—to approximate and contextualize Vermont food production and consumption.

Food availability per capita: Food availability per capita is commonly used as a proxy for food consumption, even though it does not measure actual consumption. The ERS calculates food availability by adding total annual national production, imports, and beginning stocks of foods within major commodity groups—dairy; meat, eggs, and nuts; fruits; vegetables; grains; oils and fats; and caloric sweeteners—and then subtracting exports, ending stocks, and nonfood uses. This number is then divided by population estimates for the area of interest to arrive at per capita estimates of available food for any given year. The ERS also attempts to account for food losses, from farms to retailers to consumers (e.g., spoilage and waste). Throughout the F2P Strategic Plan we use the "consumer weight"—which refers to the weight of the product at the time of purchase before losses at the consumer level (e.g., cooking loss, uneaten or spoiled food) have been subtracted—to reflect the state of a product at the time of purchase.

The per capita availability data allow for comparisons between regional food production and national averages. **These comparisons**, which are similar to the *location quotients* commonly used to compare industrial activities, can indicate how concentrated different kinds of food production are in various parts of the

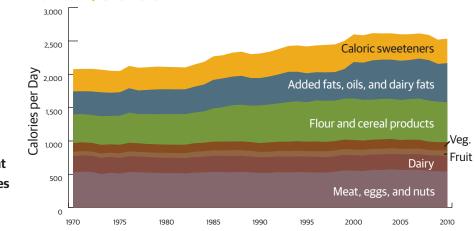
country. Table 3.1.2 (page 87) shows national food availability per capita data for major food categories and estimates how much food would be required to match these data for Vermont's 2010 population (n = 625,741). It also shows Vermont production estimates for selected foods as of the 2007 Census of Agriculture. Although the Census of Agriculture data are now five years old, they represent a solid baseline for comparison to the 2012 Census. More recent data on each food category is provided in Chapter 3, Section 3: Food Production. Finally, Table 3.1.2. estimates the per capita availability of Vermont-produced food for Vermont's population.

As can be seen in Table 3.1.2, with the exception of dairy products, apples, maple syrup, lamb, sweet corn, pumpkins, blueberries, and probably honey, Vermont agriculture produces nowhere near the national per capita availability estimates and comparatively little of many food products. Milk, apples, and maple syrup are the major Vermont agricultural products for human consumption; it makes sense that local production of these foods can match or exceed the per capita availability estimates. On the other hand, comparatively small amounts of grains, several types of meat, and many kinds of fruits and vegetables are produced in Vermont; it makes sense that they do not match the per capita availability estimates.

The ERS indicates that the real benefit of per capita availability estimates is to see long-term trends. For example, total per capita food availability in the United States essentially increased from 1970 to 2000, when it peaked at 1,077 pounds per person per year. Since then, per capita food availability in the United States has decreased. From 1970 to 2010, vegetables, grains, fats and oils, and sweeteners experienced major per capita availability gains, while meat, egg, nut, and fruit categories basically stayed the same and the dairy category experienced a major decrease in per capita availability. **These long-term trends provide some evidence of the interplay between supply and demand, as well as changing consumer preferences, the impact of public education campaigns, and emerging trends.**

MyPlate dietary guidelines: The USDA's MyPlate dietary guidelines vary by age and gender. For example, the guidelines provide recommendations for children and teenagers, as well as men and women 19 to 30 years old, 31 to 50 years old, and 51 plus years old. According to the 2010 U.S. Census (Table 3.1.1), males between the ages of 20 and 49 accounted for 39% (n = 120,402) of Vermont males, while males over 50 years old accounted for 36% (n = 110,601) of Vermont males, for a total of 75% of all

Figure 3.1.1: Average Daily per Capita Calories Available from U.S. Food Production, 1970-2010



Source: USDA ERS. Food Availability (Per Capita) Data System

males. Females between the ages of 20 and 49 accounted for 38% (n = 121,540) of all Vermont females, while females over 50 years old accounted for 39% (n = 122,943) of Vermont females, for a total of 77% of all females. Note that MyPlate provides guidelines for children ages 2 through 3, 4 through 8, 9 through 13, and 14 through 18, but the Census provides age breakdowns as under 5 years, and 5 to 19 years. Since this is the case, it is difficult to develop estimates of the amount of food required if Vermont matched dietary guidelines for ages 2 through 18. We consequently focus on ages 19 and up, where the MyPlate and Census age categories are more closely aligned.

Table 3.1.1: Vermont's 2010 Population

	Total	% of Total	Females	% of Category	Males	% of Category
Under 5 years	31,952	5.1%	15,613	48.9%	16,339	51.1%
5 to 19 years	118,303	18.9%	57,439	48.5%	60,864	51.5%
20 to 29 years	79,292	12.7%	38,897	49.0%	40,395	51.0%
30 to 49 years	162,650	26.0%	82,643	50.8%	80,007	49.2%
50+ years	233,544	37.3%	122,943	52.6%	110,601	47.4%
Total	625,741	100.0%	317,535	50.7%	308,206	49.3%

Source: U.S. Census, http://auickfacts.census.aov/afd/states/50000.html.

A divergence between the food availability per capita data and the MyPlate dietary guidelines provides some context for the recent changes in what we eat and how much we eat. For example, the MyPlate dietary guidelines suggest that half of every American's caloric intake should consist of fruits and vegetables, and the rest should preferably consist of whole grains, lean/low-fat proteins, fat-free or low-fat dairy products, and small amounts of oil and sugar. The guidelines recommend minimizing saturated fats and trans fats and avoiding "empty calories" from sugars and solid fats.

However, Figure 3.1.1 indicates that **from 1970 to 2010 the average daily per capita amount of calories available to every American increased 22%—from 2,076 calories to 2,534 calories.** Most of the increased availability came from growth in the per capita availability of flour and cereal products (an increase from 20.6% of all available calories in 1970 to 23.5% in 2010), and added fats, oils, and dairy fats (an increase from

Why Does Local Food Matter?

Renewed interest in and promotion of local food products does not ignore the realities of a global food system. One of the great joys of life, of course, is eating a diversity of foods from around the world. Despite the probability of increased climate variability, a hope is that future generations will be able to savor chocolate, coffee, tea, bananas, and other delights, wherever they may live.

Developing programs, policies, and preferences for strong local food systems is not a quixotic or nostalgic exercise. Rather, the proposition is that an increasingly strong local food system creates a healthier, more resilient foundation for linked—or nested—regional, national, and global food systems than the current industrial food system provides. At a minimum, a strong local food system is an insurance policy against social, economic, and ecological fluctuations. A strong local food system can also be a powerful catalyst for sustainable development activities that do the following:

- Support and meet consumer preferences, including for taste, quality, freshness, and healthy, safe ingredients.
- Encourage entrepreneurial activity, develop new markets, expand transactions, and increase dollars spent locally, including putting more money into farmers' pockets.
- Protect the "working landscape" and exert more control over how food is produced, processed, distributed, and disposed of.
- Build social capital and relationships between consumers and businesses throughout the food system.

about 16.7% of all available calories in 1970 to 23.2% in 2010). In contrast to the MyPlate dietary guidelines, added fats, oils, dairy fats, and caloric sweeteners equaled about 37.7% of per capita available calories in 2010, up from 32.7% of per capita available calories—grains, oils, and sweeteners—accounted for about 61.2% of per capita available calories from major food categories in 2010, up from 53.4% of per capita available calories in 1970. Fruits and vegetables combined accounted for 8.2% of per capita available calories in 2010, down from 9.4% in 1970.

As Table 3.1.3 (page 91) indicates, except for dairy products, Vermont produces nowhere near enough food to meet the USDA MyPlate dietary guidelines.

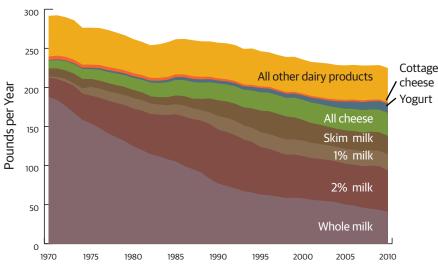
The rest of this section examines the per capita availability data and MyPlate dietary guidelines in more detail.

— ■ Dairy Products

Milk is the major food commodity produced in Vermont. The long-term trend in the per capita availability of "all plain milk" in the United States is down 38.5%, from 224.4 pounds (26.1 gallons) per year in 1970 to 138.0 pounds (16.0 gallons) in 2010. "All plain milk" is a summary category that includes whole milk, 2% milk, 1% milk, and skim milk. The overall decrease in all plain milk reflects a drop in whole milk availability (–78.3%), but also gains in the per capita availability of 2% milk (up 115.2%), 1% milk (up 1,193.6%), and skim milk (up 130.8%). Per capita availability of all cheeses (189.9%) and yogurt (1,531.4%) also increased, while total cottage cheese decreased (–54.1%) from 1970 to 20010. The per capita availability of all dairy products decreased about 23% from 291.7 pounds in 1970 to 224.8 pounds in 2010 (Figure 3.1.2).

The downward trend in fluid milk availability may reflect competition from other beverages (e.g., soft drinks¹⁹) and a more diverse U.S. population that does not normally drink milk.²⁰ Health concerns (e.g., concerns about cholesterol and saturated fats) may be behind the switch to lower-fat milk. Cheese consumption has increased for a variety of reasons, including the expanded use of cheese by pizza and other fast-food restaurants, increased consumption of cheese-rich Mexican and Italian foods, and an increased use of cheese by food manufacturers and consumers at home.²¹ According to one researcher, yogurt consumption in the United States has grown faster than any other food product from 2000 to 2010 as a result of its convenience, flavor, and

Figure 3.1.2: U.S. Per Capita Availability of Dairy Products, 1970-2010



Source: USDA ERS, Food Availability (Per Capita) Data System.

health benefits.²² Danone, the largest yogurt maker in the world, believes that yogurt consumption in the United States can double from 2010 to 2015.²³

Table 3.1.2 (page 87) compares the per capita availability of dairy products to Vermont dairy production. The first column shows U.S. per capita availability estimates for selected dairy products in 2007. All things being equal, if it were considered desirable or possible for Vermonters to match the per capita availability totals, over 143 million pounds of dairy products, including over 89 million pounds of fluid milk, would be required. This amount is equal to 7.1% of Vermont's dairy production in 2007. Or, to put it another way,

if no dairy products had been exported in 2007, Vermont dairy farmers would have produced enough milk for every Vermonter to have over 4,000 pounds of dairy products and dairy fats, including 1,780 pounds of milk, 956 pounds of cheese, 520 pounds of cultured products, and 806 pounds of butter and other products—all well above the national per capita availability estimates.

The MyPlate dietary guidelines for dairy products differ from other food categories because the suggestions—3 cups per day—are the same for all men and women over 9 years old (suggestions for children under 9 are 2 to 2.5 cups per day). The MyPlate dietary guidelines for dairy products indicate that it is desirable for Americans to

consume more dairy products than are available on a per capita basis. That is, 3 cups from the dairy group are recommended per day for everyone 9 years old or older. This is equal to 547.5 pounds of dairy group products for anyone 9 years old or older per year, compared to a total per capita availability of 230.0 pounds of all dairy products for Americans in 2007.

If it were desirable or possible for every Vermonter to match the USDA's dietary guidelines for dairy group products, then 336,515,401 pounds of dairy products would be required. This suggested requirement is equal to 16.5% of Vermont's total dairy production in 2007 (see Table 3.1.3, page 91).

Of course, some Vermonters are lactose intolerant, some are vegan, and some may not consume dairy products because of a taste preference or any number of other reasons. Although it is unrealistic to expect all Vermonters to consume the per capita amount of food available to them or to meet the dietary guidelines of the USDA, it is clear that Vermont produces significantly more dairy products than can be consumed in the state. Interestingly, Vermont's biggest agricultural commodity is also the food category that has seen the largest per capita availability decreases.

Dairy Per Capita Availability

Surplus: ≈2,397,465,197 pounds

MyPlate Dietary Guidelines for Dairy Products

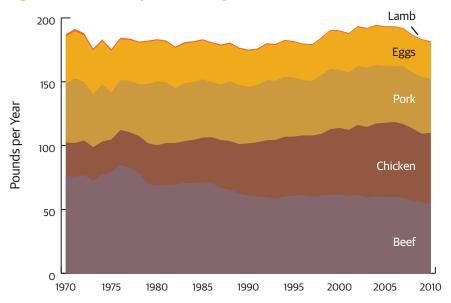
Surplus: ≥1,700,220,174 pounds

See Chapter 3, Section 3, Food Production: Dairy and Appendix B: Revitalizing Vermont's Dairy Industry for more information.

— ■ Meat

The national per capita availability of meat, fish, eggs, and nuts increased slightly, from 213.1 pounds in 1970 to 219.6 pounds in 2010. Beef, chicken, pork, lamb, and eggs accounted for about 83% of per capita available pounds in the total meat, fish, eggs, and nuts category in 2010, down from about 88% of per capita available pounds in 1970. The per capita availability of beef has declined about 29% over the past 40 years, from 76.2 pounds (or 35.7% of all pounds from beef, chicken, pork, lamb, and eggs) in 1970 to 54.3 pounds (or 24.7% of all pounds from beef, chicken, pork, lamb,

Figure 3.1.3: U.S. Per Capita Availability of Selected Meats, 1970-2010



Source: USDA ERS, Food Availability (Per Capita) Data System.

and eggs). This decrease likely reflects a trend away from red meat consumption for health reasons.²⁴ Lamb and pork availability were relatively constant over the past 40 years, egg availability decreased 21.6%, and chicken availability is up nearly 112%. In fact, chicken availability increased from 12.3% of per capita available pounds from beef, chicken, pork, and lamb in 1970 to 25.4% in 2010 (Figure 3.1.3).

Sam Comstock, a former *University of Vermont* (UVM) Livestock Specialist, applied U.S. per capita meat availability statistics to Vermont's population to arrive at Vermont per capita meat consumption proxies.²⁵ Comstock's white paper calculated how many live animals would be required if every Vermonter matched per capita averages (i.e., if Vermonters only ate meat produced in Vermont and not taking into account vegetarians, vegans, and others who do not eat meat). Replicating Comstock's method with 2007 ERS per capita meat availability data and 2007 Census of Agriculture livestock *sales* data for Vermont, we estimate that it would take 85,505 beef cattle, 11,951,255 chickens, 258,404 hogs, and 9,987 lambs to match per capita meat availability figures with just Vermont livestock.

Additionally, to match the per capita availability estimates for eggs, Vermont would need 18,334,211 pounds of eggs, equal to 146,673,688 eggs (assumes large eggs weighing 0.125 pounds) or 564,130 laying birds (assumes each bird lays 260 eggs per year). In comparison, the 2007 Census of Agriculture counted 223,605 egg-laying birds,²⁶ from which we estimate 7,267,163 pounds of eggs or 58,137,300 eggs.

As Table 3.1.2 indicates, except for lamb production, Vermont produces nowhere near the per capita meat availability estimates. According to a recent article in *Local Banquet*, upwards of 40,000 Vermont dairy cows are culled each year. Most of these cows are sent to Pennsylvania for slaughter and processing.²⁷ If these animals were included, then Vermont could match about half of the per capita beef availability estimates. Additionally, Comstock's research indicated that he believed that the Census of Agriculture data for hog estimates captured only half of the animals in Vermont, and it is highly likely that the Census significantly undercounts poultry production because of the large number of families raising small flocks for their own consumption.

The MyPlate dietary guidelines for females in the 19 to 30 year old category are 5.5 ounces of protein per day (125 pounds per year), and 5 ounces per day (114 pounds per year) for both the 31 to 50 year old and the over 50 year old categories. The MyPlate dietary guidelines for males in the 19 to 30 year old category are 6.5 ounces of protein per day (148 pounds per year), 6 ounces per day (137 pounds per year) for the 31 to 50 year old category, and 5.5 ounces (125 pounds per year) for the over 50 years old category. With 475,486 men and women over 20 in Vermont, 59,116,677 pounds of meat/protein would be required to meet the MyPlate dietary guidelines. In comparison, protein available from livestock sales and egg production in Vermont is estimated at somewhere between 15,379,672 and 32,773,672 pounds (Table 3.1.3).

Of course, people consume protein from a variety of sources and many people do not eat any meat. However, it is clear that 1) except for lamb, Vermont produces nowhere near enough meat to match national per capita meat availability figures with just Vermont livestock; 2) Vermont-produced meat allocated just to Vermonters yields very little meat per person; and 3) Vermont-produced meat allocated just to Vermonters comes nowhere close to matching USDA dietary guidelines for protein. The potential exists to significantly expand Vermont livestock production to meet local demand, but many hurdles must be addressed.

Meat Per Capita Availability

Deficit: ≈105,640,237 to 123,034,237 pounds

MyPlate Dietary Guidelines for Protein

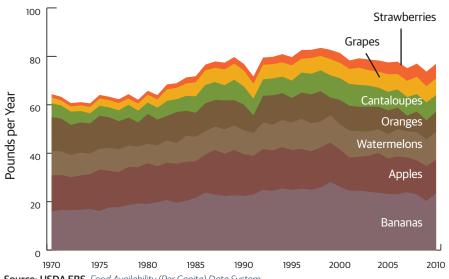
Deficit: ~26,343,005 to 43,737,005 pounds

See Chapter 3, Section 3, Food Production: Livestock for more information.

Fruits and Vegetables

The national per capita availability of all fresh fruit increased about 26.5% from 1970 to 2010, from 84.9 pounds to 107.4 pounds. Bananas, apples, watermelons, oranges, cantaloupes, grapes, and strawberries accounted for a little over 72.5% (76.9 pounds) of total fresh fruit availability in 2010, down from 75.8% (64.4 pounds) of total fresh fruit availability in 1970, indicating a wider variety of available fresh fruits over time (e.g., mangoes). Even with year-to-year variation in the per capita availability of each of these crops, overall availability increased steadily from 1970 to 1994. Per capita availability dropped after 1994 before picking up and peaking again in 1998. Since 1998, the total

Figure 3.1.4: U.S. Per Capita Availability of Selected Fruits, 1970-2010



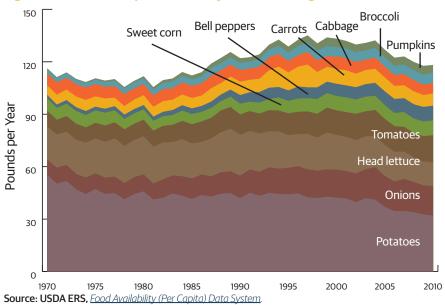
Source: USDA ERS. Food Availability (Per Capita) Data System.

per capita availability of fresh fruit declined—mainly due to decreases in the availability of bananas and oranges, likely due to weather problems—before picking back up in 2010 (Figure 3.1.4).

The 2007 Census of Agriculture reported 310 noncitrus fruit orchards on 3,547 acres in Vermont. Apples accounted for 91% of those acres, followed by grapes—assumed to be used for wine production—at nearly 5%. The 2007 Census of Agriculture also counted 344 berry farms on 705 acres, with blueberries and strawberries accounting for over 79% of berry acres.²⁸

The national per capita availability of fresh vegetables increased 17.6% from 1970 to 2010, from 132.5 pounds to 155.8 pounds. Potatoes, onions, lettuce, tomatoes, sweet corn, bell peppers, carrots, cabbage, cucumber, broccoli, and pumpkins accounted for 83.6% (130.3 pounds) of total fresh vegetable availability in 2010, down from 87.8% (116.3 pounds) of total fresh vegetable availability in 1970, indicating a wider variety of available fresh vegetables over time. Even with year-to-year variation in the per capita availability of each of these crops, overall availability generally increased steadily from 1970 to 2004. Per capita availability has dropped since then, mainly due to decreases in the per capita availability of potatoes and head lettuce (Figure 3.1.5).

Figure 3.1.5: U.S. Per Capita Availability of Selected Vegetables, 1970-2010



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The 2007 Census of Agriculture reported 494 vegetable farms on 2,855 acres in Vermont. Sweet corn (1,105 acres), pumpkins (420 acres), potatoes (266 acres), and lettuce (91 acres) accounted for about 66% of those acres.²⁹

The 2007 Census of Agriculture also indicated that Vermont had 68 acres of nuts, with walnuts accounting for about 62% of those acres.

To put Vermont fruit, vegetable, berry, and nut production in perspective, California produces the majority of fruits, vegetables, berries, and nuts grown in America, including:

99% of almonds	95% of celery	79% of romaine lettuce
76% of avocados	95% of garlic	98% of pistachios
94% of broccoli	90% of all grapes	89% of all strawberries
59% of cantaloupe	79% of head lettuce	32% of fresh tomatoes
69% of carrots	85% of leaf lettuce	99% of walnuts ³⁰

Additionally, China is the world's largest producer of apples, tomatoes, peaches, potatoes, garlic, sweet potatoes, pears, peas, mushrooms, and many other foods, including processed foods and juices. Food imports from China have tripled since 1990 (to nearly 4 billion pounds), despite widespread reports of food safety irregularities.³¹

If Vermont were to match the per capita availability estimates for selected fresh fruits and vegetables, then nearly 65 million pounds of fruit and over 101 million pounds of vegetables would have to be produced (Table 3.1.2). Using yield-per-acre estimates developed by Vern Grubinger, Vegetable and Berry Specialist at UVM Extension, 32 and other sources, we can provide conservative figures of fruit and vegetable production in Vermont for 2007. Our estimates indicate that Vermont can come very close to matching the per capita availability estimates for fresh fruits. However, this figure is misleading because apples accounted for about 90% of fresh fruit available in Vermont. Our estimates indicate that fresh vegetables grown in Vermont match less than half of the per capita availability estimates for fresh vegetables. Pumpkins alone provided about 40% of available pounds in Vermont, while sweet corn provided about 18%. Of course, these estimates do not take into account home, school, and public gardens.

We know that Vermonters come closer to reaching federal guidelines for fruit and vegetable consumption than most Americans: 38% of adult Vermonters eat fruit two or more times a day, tied for third in the nation, while 30% of adult Vermonters eat vegetables three or more times a day, tied for sixth in the nation (note that no state meets the *U.S. Department of Health and Human Services'* goals for fruit and vegetable consumption). However, to match the MyPlate dietary guidelines for adult Vermont men and women, 154,792,667 pounds of fruits and 216,708,621 pounds of vegetables would be required (Table 3.1.3). Although greenhouses and hoophouses are used in Vermont, the state's climate impacts its ability to produce fruits and vegetables year-round. As Table 3.1.2 indicates, Vermont's fruit and vegetable production is also heavily concentrated in apples, grapes (for wine), sweet corn, pumpkins, and potatoes.

Fruit Per Capita Availability

Deficit: ≈22,545,916 pounds

MyPlate Dietary Guidelines for Fruits

Deficit: ≈112,386,667 pounds

Vegetable Per Capita Availability

Deficit: ≈**61,041,968** pounds

MyPlate Dietary Guidelines for Vegetables

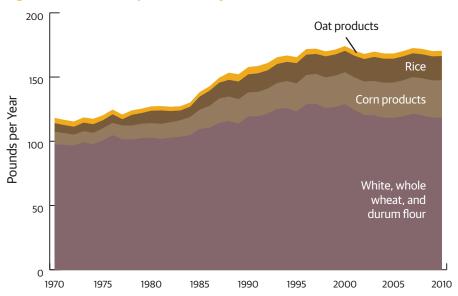
Deficit: ≈176,443,121 pounds

See Chapter 3, Section 3, Food Production: Fruits and Vegetables for more information.

— Grains

The per capita availability of all grains increased over 42% from 1970 to 2010, from 120.1 pounds to 171.5 pounds. White, whole wheat, and durum flour; corn products; rice; and oat products accounted for over 99.4% (170.5 pounds) of total grain availability in 2010 and 98.4% (118.2 pounds) in 1970. Per capita availability of corn products and rice increased steadily from 1970 to 2010, while oat product availability stayed relatively constant. In contrast, per capita white, whole wheat, and durum flour availability appears to have peaked in 1997 (Figure 31.6).

Figure 3.1.6: U.S. Per Capita Availability of Selected Grains, 1970-2010



Source: USDA ERS, Food Availability (Per Capita) Data System.

In the early years of French and English settlement, wheat, rye, barley, oats, and flax were all planted in Vermont. By 1800, the Champlain Valley became a major producer of wheat, and Vermont was briefly the biggest exporter in the nation. Midwestern competition in the late 19th century wiped out the New England wheat and small grain industries— the 2007 Census of Agriculture indicated only 379 acres in wheat in Vermont, yielding 86,677 pounds, 100 acres in rye, yielding 3,432 pounds, and 211 acres in oats, yielding 75,993 pounds.³⁴

If Vermont were to match the per capita availability estimates for grains, then over 101 million pounds of grains would have to be produced (Table 3.1.2). In 2007, Vermont produced less than 1% of this amount. Vermont did have over 90,000 acres in corn in 2007, but it is assumed that most of this corn was for livestock feed. We also assume that most of the acres in oats in 2007 were for livestock feed. To match the MyPlate dietary guidelines for grain consumption for adult males and females, Vermont would require 34,375,164 pounds (Table 3.1.3).

Over the past several years, *UVM Extension* and the *Northern Grain Growers Association* have been working closely with a growing number of Vermont farmers to rebuild the

grain industry. Several brands of Vermont wheat flour and breads made with Vermont flour can now be found in stores (e.g., <u>Gleason Grains</u>, <u>Red Hen Baking Company's Cyrus</u> <u>Pringle</u> bread). A few Vermont companies (e.g., <u>Nitty Gritty Grain Company</u>) are also now growing and selling corn meal.

Grain Per Capita Availability

Deficit: ≈101,141,366 pounds

MyPlate Dietary Guidelines for Grain Products

Deficit: ≈34,209,062 pounds

See Chapter 3, Section 3, Food Production: Grains, for more information.

— Fats and Oils

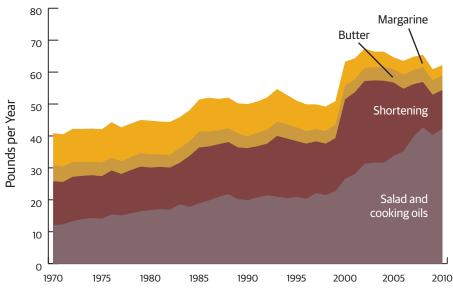
The per capita availability of all added fats and oils increased over 56.4% from 1970 to 2010, from 50.4 pounds to 78.8 pounds (Figure 3.1.7). Salad and cooking oils, shortening, butter, and margarine accounted for 78.9% (62.2 pounds) of total fat and oil availability in 2010, and 81.2% (41.0 pounds) in 1970. Salad and cooking oils include soybean, canola, sunflower, olive, and corn oils, and it is assumed that soybean oil constitutes the bulk of the salad and cooking oil available.

Vermont would have to produce over 51.5 million pounds of fats and oils to match the per capita availability estimates (Table 3.1.2). Current Vermont fat and oil production likely far exceeds this number due to butter production. We know that 19.9% (over 504 million pounds) of Vermont's dairy production was processed as cream, skim milk, skim condensed milk, butter, and milk powder in 2007. We do not know how much of this total was butter, but we assume that it was more than 51.5 million pounds.

A growing number of Vermont farmers are experimenting with oilseed crops for biodiesel production. Assuming that the vegetable oil produced by the approximately 400 acres in oilseeds in 2011 was first used as food, then about 28,000 gallons would be available (assumes 70 gallons of oil per acre).

To match the MyPlate dietary guidelines for fat and oil consumption for adult males and females in Vermont would require 9,708,350 pounds. Vermont

Figure 3.1.7: U.S. Per Capita Availability of Selected Fats and Oils, 1970-2010



Source: USDA ERS, Food Availability (Per Capita) Data System.

likely far exceeds this amount with butter alone—a solid fat that MyPlate dietary guidelines suggest cutting back on (Table 3.1.3).

Fats and Oils Per Capita Availability

Surplus: <453,116,994 pounds

MyPlate Dietary Guidelines for Fats and Oils

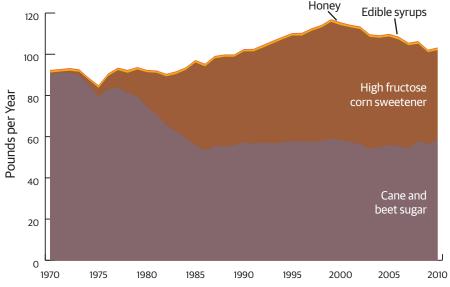
Surplus: <493,987,016 pounds

— Sugars and Sweeteners

The national per capita availability of sugars increased 10.5% from 1970 to 2010, from 106.0 pounds to 117.2 pounds (Figure 3.1.8). Cane and beet sugar, high fructose corn sweetener, honey, and edible syrups account for 88.2% (103.3 pounds) of sugar and sweetener availability in 2010, and 87.1% (92.4 pounds) in 1970.

Honey has been used as a sweetener throughout Europe, Asia, and Africa for at least 10,000 years, and indigenous peoples in the northeast of North America have likely produced maple syrup for thousands of years. Cane sugar was domesticated in New

Figure 3.1.8: U.S. Per Capita Availability of Selected Sweeteners, 1970-2010



Source: USDA ERS, Food Availability (Per Capita) Data System.

Guinea at least 10,000 years ago and could be found throughout Southeast Asia in ancient times. Crusaders brought sugar back from the Middle East in the 12th century, and the Columbian Exchange brought sugar to the Americas. Demand for cane sugar has been implicated in the colonization of tropical regions of the Americas and for driving the slave trade. ³⁵ Quotas and tariffs on imported cane sugar in the 1970s opened the door for high fructose corn syrup (HFCS) to be used as a sweetener. HFCS is now ubiquitous in processed foods (e.g., cookies, soda, juice, cereal, and ketchup), but production peaked in 1999, apparently due to consumer backlash. ³⁶

To match the per capita availabilty for sugars and sweeteners, Vermont would require 75,464,365 pounds (Table 3.1.2). The per capita availability data groups maple syrup with other edible syrups, so it is not immediately clear what proportion of the 0.4 pounds of edible syrups reported available in 2007 are from maple syrup. Using the ERS methodology, we can derive a per capita availability estimate by dividing national maple syrup production (1,517,000 gallons or 16,944,890 pounds in 2007) by the U.S. population (≈312,591,257), which yields about 0.005 gallons, or .05 pounds, per person. A total of 31,287 pounds would be needed for Vermont to match the per

Table 3.1.2: Food Availability per Capita for Selected Products, 2007

	U.S. per capita availability (consumer weight adjusted for loss)	Amount required if Vermont matched per capita availability	How much does Vermont produce?	Vermont per capita availability
	Pounds	Pounds	Pounds	Pounds
Total Dairy Products ^a	230.0	143,920,430	≈ 2,541,385,627	≈ 4,061
Selected dairy products	211.3	132,244,874	≈ 2,541,385,627	≈4,061
All plain milk	142.3	89,042,944	≈1,113,535,912 ^b	≈1,780
Plain whole milk	46.3	28,971,808	?	?
2% milk	52.7	32,976,551	?	?
1% milk	19.4	12,139,375	?	?
Skim milk	23.9	14,955,210	?	?
All cheese	28.7	17,958,767	≈598,011,529	≈956
Cultured products	12.4	7,759,188	≈325,188,134°	≈520
Yogurt	10.1	6,319,984	?	?
Cottage cheese	2.3	1,439,204	?	?
Butter, cream, milk powder, etc.d	27.9	17,483,975	≈504,650,052	≈806.5
Total Meat Products	221.2	138,413,909	>15,487,509 to 26,081,325	>24.7 to 41.7
Selected meat products	192.1	120,204,846	≈15,487,509 to 26,081,325	≈24.7 to 41.7
Beef	59.4	37,169,015 (85,505 beef cows)	≈6,800,184 - 17,394,000 (15,638 beef cows plus ≈40,000 dairy cows)	≈10.9 - 27.8
Chicken	57.5	35,980,108 (11,951,255 chickens)	≈342,466 (113,776 chickens)e	≈0.5
Pork	45.2	28,283,493 (258,404 hogs)	≈543,251 (4,968 hogs)	≈0.9
Egg ^f	29.3	18,334,211 (146,673,688 eggs)	≈7,375,000 (59,147,000 eggs)	≈ 11.8
Lamb	0.7	438,019 (9,987 lambs)	≈426,608 (9,262 ewes 1 year or older)	≈0.7

Table 3.1.2: Food Availability per Capita for Selected Products, 2007...continued

	U.S. per capita availability (consumer weight adjusted for loss)	Amount required if Vermont matched per capita availability	How much does Vermont produce?	Vermont per capita availability
	Pounds	Pounds	Pounds	Pounds
Total Fresh Fruits ^g	103.8	64,951,916	>42,406,000	>67.8
Selected fresh fruits	75.6	47,333,300	≈ 42,406,000	≈67.8
Bananas	23.9	14,955,210	0.0	0.0
Apples	14.4	8,996,752	≈38,010,000 ^h	≈60.7
Watermelons	10.8	6,753,286	≈120,000	≈0.2
Oranges	6.4	4,003,617	0.0	0.0
Cantaloupes	7.7	4,841,756	≈176,000	≈0.3
Grapes	6.7	4,217,341	≈1,336,000 - 1,670,000 ⁱ	≈2.1 - 2.7
Strawberries	5.2	3,252,467	≈1,850,000	≈2.9
Blueberries	0.5	312,871	≈2,250,000	≈3.6
Total Fresh Vegetables ^g	161.9	101,307,468	>40,265,500	>64.3
Selected fresh vegetables	136.4	85,351,072	≈40,265,500	≈64.3
Potatoes	34.7	21,742,975	≈6,650,000	≈10.6
Onions	18.3	11,471,999	≈760,000	≈1.2
Head lettuce ^j	15.6	9,760,340	≈355,000	≈0.6
Tomatoes (field)	14.2	8,869,786	≈2,730,000	≈4.4
Romaine and leaf lettuce	9.2	5,782,659	≈2,052,000	≈3.3
Sweet corn ^k	8.4	5,277,834	≈7,182,500	≈11.5
Bell pepper	7.9	4,971,914	≈920,000	≈1.5
Carrots	7.4	4,634,713	≈702,000	≈1.1

Table 3.1.2: Food Availability per Capita for Selected Products, 2007...continued

	U.S. per capita availability (consumer weight adjusted for loss)	Amount required if Vermont matched per capita availability	How much does Vermont produce?	Vermont per capita availability
	Pounds	Pounds	Pounds	Pounds
Selected fresh vegetables	136.4	85,351,072	≈40,265,500	≈64.3
Cabbage	6.3	3,975,501	≈1,110,000	≈1.8
Cucumbers	5.5	3,470,988	≈740,000	≈ 1.2
Broccoli	4.6	2,856,692	≈264,000	≈0.4
Pumpkins	4.0	2,513,111	≈16,800,000	≈26.8
Total Grains	161.9	101,307,468	≥166,102	≥0.3
Selected grains	161.3	100,681,727	≈166,102	≈0.3
White, whole wheat, and durum flour	110.7	69,269,529	≈86,677	≈0.14
Corn products	28.5	17,833,619	?	?
Rice	17.5	10,950,468	0.0	0.0
Oat products	4.1	2,565,538	≈75,993	≈0.12
Rye flour	0.4	250,296	≈3,432	≈0.005
Total Oils and Fats	82.4	51,561,058	<504,678,052	<806.5
Selected oils and fats	64.8	40,548,017	<504,678,052	<806.5
Salad and cooking oils	39.7	24,841,918	≈28,000	≈0.04
Shortening	16.5	10,324,726	0.0	0.0
Butter	4.4	2,753,260	<504,650,052 ^l	<806.5
Margarine	4.2	2,628,112	0.0	0.0

Table 3.1.2: Food Availability per Capita for Selected Products, 2007...continued

	U.S. per capita availability (consumer weight adjusted for loss)	Amount required if Vermont matched per capita availability	How much does Vermont produce?	Vermont per capita availability
	Pounds	Pounds	Pounds	Pounds
Total Caloric Sweeteners	120.6	75,464,365	>7,694,800	>12.3
Selected sweeteners	105.45	65,984,389	≈7,694,800	≈12.3
Cane and beet sugar	54.6	34,165,459	?	0.0
High fructose corn sugar	50.0	31,287,050	0.0	0.0
Honey	0.8	500,593	≈546,000	≈0.9
Maple	0.05	31,287	≈7,148,800	≈11.4

Table 3.1.2 Notes:

- a Based on data from the *Vermont Agency of Agriculture, Food and Markets*, we assume that 43.8% of Vermont's dairy production in 2007 was liquid milk; 23.5% was all cheeses; 12.8% was cultured products; and 19.9% was butter, milk powder, skim milk, skim condensed milk, and cream.
- b Number reflects 43.8% of Vermont's 2007 dairy production, but likely does not include skim milk.
- c Number reflects 12.8% of Vermont's 2007 dairy production, but may contain more than yogurt and cottage cheese.
- d MyPlate dietary guidelines do not consider butter, cream, and cream cheese as part of the dairy group. However, the way the data are reported from VAAFM does not make it possible to separate out milk powder or condensed milk from dairy fats such as butter and cream. U.S. per capita availability weight refers to weight from fat from butter, light cream, eggnog, sour cream, and cream cheese, as well as all dry milk products (i.e., milk powder) and all evaporated condensed milk.
- e Broiler sales from 2002 are used because 2007 sales figures are suppressed.
- f Assumes "large" eggs only. One large egg equals 0.125 pounds, as indicated by the USDA Food Safety and Inspection Service, www.fsis.usda.gov/Factsheets/Focus On Shell Eggs/index.asp#16.
- g Data on harvested acres of selected fruits and vegetables were collected from the 2007 Census of Agriculture and compared to middle-of-the-road "good" yield per acre estimates compiled by Vern Grubinger, Vegetable and Berry Specialist at the *University of Vermont Extension*, <u>www.uvm.edu/vtvegandberry/factsheets/vegetableberry/ields.pdf</u>. Yields for apples, grapes, head lettuce, and sweet corn are provided by different sources.
- h Data on Vermont's 2007 apple yield were collected from the USDA National Agricultural Statistics Service, *Noncitrus Fruits and Nuts Final Estimates* 2002-2007, http://usda01.library.cornell.edu/usda/nass/SB985/sb1011.pdf, December 2008, page 21.
- i Assumes a grape yield of 4 to 5 tons per acre. We also assume that most grapes harvested in Vermont are for wine production.
- j The national average head lettuce yield, 35,5000 pounds per acre in 2007, was used. Data were collected from http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1576.
- k Sweet corn yield = 6,500 pounds per acre in 2007, http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1564.
- I Number reflects 19.9% of Vermont's 2007 dairy production. Category includes cream, skim milk, skim condensed milk, butter, and milk powder. It is unclear how much of this total is butter, but we assume that it is more than 51 million pounds.

Table 3.1.3: Meeting USDA MyPlate Dietary Guidelines

USDA MyPlate dietary guidelines	Annual recommendations	Amount required if Vermont matched guidelines	How much does Vermont produce? (2007)	Surplus or deficit?
	Pounds	Pounds	Pounds	Pounds
Dairy				
Vermonters (Ages 10+)	547.5	306,126,413	≥2,036,735,575°	≥1,700,220,174 surplus
Vermonters (birth to age 9)	456.25	30,388,988		:_i,/00,220,i/ 13ulplus
	Subtotal	336,515,401	≥2,036,735,575	≥1,700,220,174 surplus
Protein				
Males (ages 20 - 49)	137 to 148	16,940,779		
Males (ages 50+)	125	13,876,969	15 407500 . 26 001 225	≈33,035,352 to 43,629,168 deficit
Females (ages 20 - 49)	114 to 125	14,283,427	≈15,487,509 to 26,081,325	
Females (ages 50+)	114	14,015,502		
	Subtotal	59,116,677	≈15,487,509 to 26,081,325	≈33,035,352 to 43,629,168 deficit
Fruits				
Males (ages 20 - 49)	365	43,946,730		
Males (ages 50+)	365	40,369,365	>42,406,000	≈112,386,667 deficit
Females (ages 20 - 49)	273.75 - 365	36,820,926	12,100,000	
Females (ages 50+)	273.75	33,655,646		
	Subtotal	154,792,667	>42,406,000	≈112,386,667 deficit
Vegetables				
Males (ages 20 - 49)	547.5	65,920,095		
Males (ages 50+)	456.25	50,461,706	>40,265,500 ≈17	≈176,443,121 deficit
Females (ages 20 - 49)	456.25	55,452,625	≈1/0,445,I.	
Females (ages 50+)	365	44,874,195		
	Subtotal	216,708,621	>40,265,500	≈176,443,121 deficit

Table 3.1.3: Meeting USDA MyPlate Dietary Guidelines...continued

USDA MyPlate dietary guidelines	Annual recommendations	Amount required if Vermont matched guidelines	How much does Vermont produce? (2007)	Surplus or deficit?
	Pounds	Pounds	Pounds	Pounds
Grains				
Males (ages 20 - 49)	79.8 to 91.2	10,074,101		
Males (ages 50+)	68.4	7,569,256	≈166,102	≈34,209,062 deficit
Females (ages 20 - 49)	68.4	8,317,894	100,102	1,203,002 deficit
Females (ages 50+)	68.4	8,413,912		
	Subtotal	34,375,163	≈166,102	≈34,209,062 deficit
Added Fats and Oils				
Males (ages 20 - 49)	21.7 to 25.3	2,755,340		
Males (ages 50+)	21.7	2,397,016	<504,650,052b	≈493,987,016 surplus
Females (ages 20 - 49)	18.0 to 21.7	2,755,340	СЭО Т,ОЭО,ОЭЕ	~+33,507,010 3di pida
Females (ages 50+)	18.0	2,755,340		
	Subtotal	10,663,036	<504,650,052	<493,987,016 surplus
	TOTAL	812,171,565	2,639,710,738 to 2,650,304,554	>1,827,539,173 surplus
	TOTAL without Dairy	464,993,128	98,325,111 to 108,918,927	>366,668,017 deficit

a Contributions from butter, cream, milk powder, skim milk, and skim condensed milk are not shown. MyPlate dietary guidelines do not consider butter, cream, and cream cheese as part of the dairy group.

b The way the data are reported from VAAFM does not make it possible to separate out milk powder or condensed milk from dairy fats such as butter and cream. If Vermont matched federal dietary guidelines for fat and oil consumption for adult males and females, then 9,708,350 pounds would be required. It is very likely that Vermont far exceeds this amount with butter, cream, and other dairy fats. Of course, calories from fats and oils should come from more than just butter, cream, and other dairy fats, and MyPlate dietary guidelines advise reducing consumption of solid fats (e.g., from butter).

c Total figure does not include empty calories, including maple syrup and honey.

capita availability estimate for maple syrup. **As the largest producer of real maple** syrup in the United States—equal to 40.8% of total production in 2011— Vermont far exceeds this amount.

Honey production in Vermont has fluctuated over the past two decades, but equaled 546,000 pounds in 2007.³⁷

If it were possible for Vermont adults to get all of their empty calories from sweeteners made from maple syrup, 21,347,809 pounds would be required. If it was possible for Vermont adults to get all of their empty calories from sweeteners made from honey, 17,345,095 pounds would be required.

If cane sugar, beet sugar, and HFCS were excluded, Vermont could match per capita honey and maple syrup availability (Vermont did have 31 acres in beets in 2007, but it is not clear how much, if any, was converted into sugar). However, Vermont would not be able to meet MyPlate dietary guidelines for empty calories with just honey and maple syrup.

See Chapter 3, Section 3, Food Production: Maple Syrup, and Chapter 3, Section 3, Food Production: Honey, for more information.

In this section, we have attempted to contextualize Vermont food production with national food availability per capita data and MyPlate dietary guidelines. Comparing Vermont's agricultural production with national per capita availability data revealed that Vermont agriculture is overwhelmingly concentrated in dairy products, apples, sweet corn, pumpkins, blueberries, and maple syrup. Vermont's production of honey and lamb also slightly exceeds the per capita availability of these products. A comparison of MyPlate dietary guidelines with Vermont food production revealed that Vermont can meet the dietary needs of its population with dairy products. Although Vermont's production of apples, blueberries, sweet corn, pumpkins, lamb, honey, and maple syrup exceed national per capita availability averages, Vermonters need more variety in each of these categories—for example, caloric intake of fruits should not be met solely with apples.

Although we do not know how much and what type of food Vermonters are currently consuming, this exercise has revealed that **Vermont food production is likely short—by hundreds of millions of pounds—for most fresh and lightly processed food products. Our estimates are conservative and very likely undercount the gap between local food production and consumption:** in Table 3.1.2 we highlighted *selected* food products that accounted for the majority—but not all—of available pounds and calories from the major food categories. We did not provide data for beer; wine; soda; coffee; tea; chocolate; canned, frozen, or processed foods; and many other food products. Nor did we count the 24% (n = 150,255) of Vermont's population under 19 years old. Finally, the MyPlate dietary guidelines reflect caloric intake suggestions for active, healthy people and many Vermonters eat more calories than are suggested for their age and gender.

In short, Vermont's food system has what the <u>Union of Concerned Scientists</u> calls a "scalability challenge." Ecological limits (e.g., climate, geography, and soil quality), existing food system infrastructure, types of farms, types of food produced, federal and state government policies and support, and many other factors impact the extent to which Vermont can ramp up food production. These issues are covered in the various subsections of *Chapter 3, Section 3: Food Production*.

Where Does Our Food Come From?

Vermont currently cannot feed itself with local production. Of course, in the five years since the last Census of Agriculture, Vermont's production of meat, fruits, vegetables, and grains may have increased, but likely not enough to appreciably close the MyPlate dietary guidelines gap with local production. So where does our food come from? As a practical matter, we know the major food-producing regions in the United States in terms of total exports (e.g., the

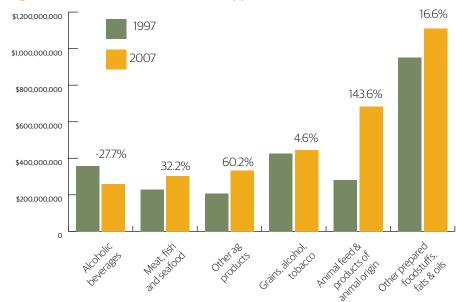
There are so many links in the process of getting food from being a raw material to on your plate in your house. It involves so many processes, unless you have a garden and eat raw food grown in your backyard. The reality of the situation is that food now comes from all over the planet. It's a global industrial system.

-Chittenden - Franklin - Grand Isle focus group participant top 10 agricultural export states in 2010 were California, Iowa, Texas, Illinois, Nebraska, Minnesota, Kansas, Indiana, North Dakota, and Missouri³⁹) and by food category (e.g., most fresh fruits and vegetables grown in the United States are grown in California, Florida, Washington, Idaho, and Wisconsin).

Every five years, the Bureau of Transportation Statistics' <u>Commodity Flow Survey</u> (CFS) provides an estimate of the amount of "domestic shipments," including food products, that take place between the states. For example, in 2007, shipments <u>from</u> Vermont to the rest of the United States had the lowest value of any state—\$19.4 billion. **From** 1997 to 2007, the value of food products shipped into Vermont grew from over \$2.5 billion to over \$3.2 billion (adjusted for inflation to 2010 dollars; the 1997 estimate does not include cereal grains, but the 2007 estimate for cereal grains—\$33 million—is included). As Figure 3.1.9 indicates, from 1997 to 2007, Vermont increased its imports of meat, fish, seafood, prepared foods, grains, and other agricultural products (only alcoholic beverages saw a decline in import value).

Food products made up \$3.2 billion (12.7%) of the market value and 6.3 billion pounds (13.0%) of the weight of all shipments into Vermont in 2007. Other prepared foodstuffs, a catch-all category that includes dairy products, fruits and vegetables, frozen and processed products, coffee, tea, sugars, soft drinks, and oils, accounted for over \$1.1 billion (35.1%) of the market value and about 1.3 billion pounds (20.5%) of the weight of food shipments into Vermont. Animal feed and products of an animal origin, which include pet food, accounted for \$703 million (21.6%) of the market value and about 2.9 billion pounds (45.9%) of the weight of food shipments. If we exclude animal feed and products of an animal origin, food shipments into Vermont in 2007 weighed 3.4 billion pounds and had a market value of over \$2.5 billion. Tobacco products should obviously not be counted as food, but the CFS does not make it easy to separate them out from the grains and alcohol category. This estimate also includes the weight of packaging—which is likely significant—but it is not possible to separate that out either. And this total includes food produced in Vermont and shipped in Vermont. Nevertheless, these data are consistent with our estimates from the previous section and reveal a sizable gap between what Vermont's farmers produce and what its citizens consume.

Figure 3.1.9: Value of Food Products Shipped into Vermont



Source: Bureau of Labor Statistics, Commodity Flow Survey, multiple years.

From 1997 to 2007 a trend of increasing food imports is clear, but the data understate the growth in our dependence on food from outside Vermont. A catch-all category in the CFS is "mixed freight." In 1997, only 1.5% of all shipments into Vermont were categorized as mixed freight. By 2007, mixed freight had grown to over 9% of all inbound shipments. Presumably, this reflects the growth of warehouse clubs and supercenters that carry a wide variety of products. In any case, it means that the contents of at least 9% of all shipments can no longer be identified. Additionally, the CFS accounts only for domestic shipments and consequently does not include food imports from other countries (e.g., Canada).

The USDA ERS reports that imports of food into the United States increased from \$55 billion in 1998 to nearly \$82 billion to 2007 (adjusted for inflation to 2010 dollars).⁴⁰ As a point of comparison, the market value of agricultural production in the United States was over \$312 billion in 2007 (note that this figure does not include processed foods).⁴¹ Growth in imports was largely generated by value-added, "consumer ready" products and not raw commodities, although *Food & Water Watch*, a nonprofit consumer

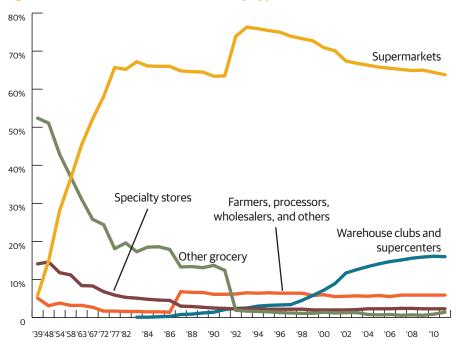
watchdog organization, reports that one of five fresh fruits and fresh vegetables consumed by Americans in 2007 were imported. *Food & Water Watch* also indicates that about 50% of orange, apple, and grape juice is now imported.⁴²

Free trade agreements have catalyzed increased imports: for example, Canada and Mexico, members of the North American Free Trade Agreement (NAFTA), account for the largest share of food imports to the United States; a free trade agreement with Australia has increased imports of milk powder, and a free trade agreement with Chile has led to increased imports of fresh fruit and vegetables. Consumer demand for an increasingly diverse diet (e.g., mangoes, papayas) has also led to increased imports from tropical regions and developing countries. Finally, a growing percentage of imports come from food processing industries based in the United States that offshore some aspects of their processing to foreign countries (e.g., to reduce expenses or be closer to supplies) before bringing their products back in the country. For example, the USDA ERS indicates that there is evidence that peaches produced in the United States were shipped to Thailand in metal containers where they were then repackaged as ready-to-eat peaches (i.e., in plastic cups) and imported back to the United States.⁴³

Where Do We Buy Food?

The Columbian Exchange simultaneously expanded the variety and quantity of food products available around the world while diminishing local self-sufficiency. The latest incarnation of the Columbian Exchange—McDonaldization—has also changed the way people buy and consume food. The USDA *Economic Research Service* has been tracking where Americans buy food for decades. There was a shift in the post-war era from small locally owned grocery and specialty stores to increasingly larger supermarkets and eventually warehouse clubs and supercenters (Figure 3.1.10). Supermarkets, warehouse clubs, and supercenters now account for about 80% of all food purchased for consumption at home.

Figure 3.1.10: U.S. Sales of Food at Home by Type of Outlet, 1939-2011



Source: USDA Economic Research Service, <u>www.ers.usda.gov/briefing/cpifoodandexpenditures/Data/table16.htm.</u> **Note:** "Other grocery" includes traditional small / neighborhood stores that predated large modern supermarkets. Some still exist, but their percentage of total sales has declined from over 50% to less than 4%. "Specialty stores" offer less than a full range of products and focus primarily on one or more related product areas such as seafood, baked goods, and cheese.

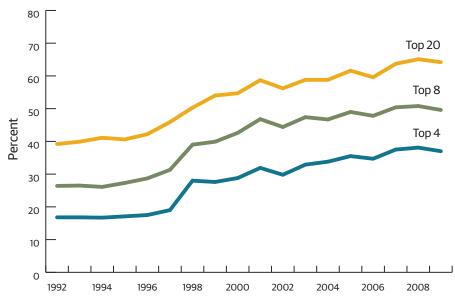
Grocery Stores, Warehouse Clubs, and Supercenters

The shift to grocery stores, warehouse clubs, and supercenters reflects a significant concentration in the market. For example, the USDA ERS reports that the acquisition of *Albertsons* by *Supervalu* boosted its rank from the eighth-largest grocery chain in 2005 to the fourth-largest in 2009. The top 4 grocery stores in the United States accounted for 16.8% of all grocery sales in 1992 and 37.0% in 2009; the top 8 grocery stores accounted for 26.4% of all grocery sales in 1992 and 49.6% in 2009; and the top 20 grocery stores accounted for 39.2% of sales in 1992 and 64.2% in 2009 (Figure 3.1.11). In the past 20 years, the grocery industry has changed as the number of supercenters and warehouse clubs has expanded. Once made up of an array of mom-and-pop stores

and various national, regional, and local supermarket outlets, the grocery market is now significantly controlled by *Walmart* and *Sam's Club* (a membership-only, warehousestyle store owned by *Walmart*). It is not possible with publicly available data to parse out what percentage of *Walmart's* revenues are from food sales compared to nonfood sales, but *Supermarket News* reported that *Walmart* accounted for about 27.5% (\$264.2 billion) of sales by North American businesses that sell retail and wholesale food in 2011. This is more than the next four biggest retailers combined (i.e., \$241.2 billion from *Kroger, Costco, Supervalu,* and *Safeway*).⁴⁴ USDA ERS reports that the top 15 multinational retailers account for more than 30% of global supermarket sales.⁴⁵

The rise of warehouse clubs and supercenters has meant an increase in the size of stores. The *Food Marketing Institute* reports that median store size increased from 35,100 square feet in 1994 to 46,000 square feet in 2010, a 31% increase.⁴⁶

Figure 3.1.11: Top 4, 8, and 20 Firms' Share of U.S. Grocery Store Sales, 1992-2009



Source: USDA Economic Research Service, <u>www.ers.usda.gov/Briefing/FoodMarketingSystem/</u> foodretailing.htm.

According to the 2007 *Economic Census*, **retail food and beverage sales equaled about 17% (\$1.7 billion) of all retail sales in Vermont, and supermarket sales made up 92% (\$1.56 billion) of total retail food and beverage sales (Table 3.1.4, adjusted for inflation to 2010 dollars). In the context of the goals of the F2P Strategic Plan, retail concentration creates significant barriers for small farmers and processors that wish to sell through supermarkets (i.e., where most Vermonters buy their food). The business model of supermarkets, warehouse clubs, and supercenters requires low pricing, scale, standardization, and fees to gain access to shelf space. All of these criteria work against the capabilities and interests of small farmers and processors.**

Table 3.1.4: Total Vermont Retail Food and Beverage Sales, 2007

2007 North American Industrial Classification System (NAICS) code	Sales	% of Total Retail	% of Total Food and Beverage
44-45 Retail trade	\$10,074,162,411	100%	
445 Total food and beverage	\$1,699,646,375	16.9%	100%
44511 Supermarkets	\$1,558,493,041	15.5%	91.7%
44512 Convenience stores	\$98,553,481	1.0%	5.8%
4452 Specialty food stores	\$28,685,567	0.3%	1.7%

Source: 2007 Economic Census, www.census.gov/econ/census07/.

Over the past 10 years, traditional grocers have been losing market share to stores that appeal to consumers interested in local, fresh, healthy, and organic products. For example, large natural food markets such as *Whole Foods* and *Trader Joe's* have implemented guidelines for local sourcing, and offer premium private-label products or ready-to-eat meals that provide consumers convenient products that are perceived as better quality than traditional generic or store brands. In 2011, *Whole Foods* (\$9 billion) and *Trader Joe's* (\$8.5 billion) ranked 19th and 21st, respectively, in North American retail and wholesale sales (equal to 6.6% of *Walmart's* sales).⁴⁷ In 2006, *Walmart* started carrying organic food,⁴⁸ and now all of the major traditional chains do as well (e.g., *Kroger, Costco, Safeway*, and *Target*). *Nielsen* also reports that warehouse clubs and superstores have recently begun offering fresh foods, including bakery products.⁴⁹ Thus far, national chains that specialize in natural foods (e.g., *Whole Foods, Trader Joe's*) are not doing business in Vermont.

Although grocery stores, warehouse clubs, and supercenters have been slow to incorporate local food sourcing, many are now offering more local, fresh, and organic foods. For example, *Hannaford*, *Shaw's*, and *Price Chopper* identify "local" sections where a select group of Vermont products can be found or use signs to indicate that a product is locally sourced. According to 80 respondents to the <u>Vermont Grocers</u>. <u>Association</u> annual survey, there has been an increase in demand for local products in the last 5 years and that trend is expected to continue:

- 77% indicated that they believe the demand for local food will increase over the next 5-10 years.
- 40% said they would increase the volume and variety of locally produced food for sale in their store.
- 38% indicated that they have increased the shelf space in their store devoted to local food over the last 5 years; while 56% indicated there was no change in shelf space devoted to local food.⁵⁰

We sell to the big chain groceries, they buy our onions, but my customers were saying they couldn't find my onions. I know they're there, I mean I'm delivering it to them and I don't think they're throwing them out. So I finally go over and there's a little bucket with my onions hiding completely surrounded by all these other onions without hardly a sign on it.

It comes down to the four P's of retailing – Profit, Products, Placement, and Promotion. You have to do the same thing for local goods as you do for potato chips. Why is it that the grocery department knows how to merchandise stuff and the produce department is still acting like they're in kindergarten with magic markers on random pieces of cardboard?

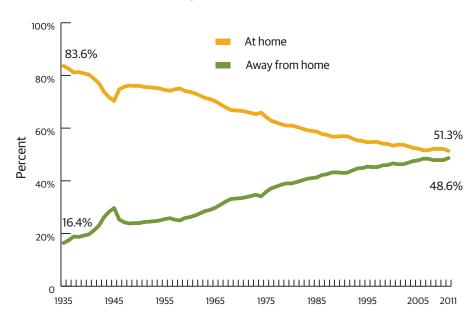
-Windham County focus group participant

Restaurants and Fast-Food Chains

Most of the food Americans buy for preparation at home is purchased at grocery stores, supermarkets, warehouse clubs, and supercenters, but there has also been a major shift toward purchases of food prepared away from home. In 1935, about 84% of food expenditures were made on products that were prepared back at home. By 2011, that percentage had decreased to 51.3%. Meanwhile, purchases of food prepared away from home increased from 16% in 1935, to 48.6% in 2011 (Figure 3.1.12). That is,

Americans now spend nearly half of their food dollars on food prepared away from home, mainly at full-service and fast-food restaurants (39.3% and 37.5% of total away from home food sales, respectively, in 2010). The USDA ERS indicates that demographic changes, including rising incomes, an aging population, smaller household sizes, and an increasingly high proportion of households containing single

Figure 3.1.12: Expenditures for Food at Home and Food Prepared Away from Home as a Share of All Food Expenditures



Source: USDA Economic Research Service, Tables 2 and 3, www.ers.usda.gov/Briefing/ CPIFoodAndExpenditures/Data/Expenditures_tables/table2.htm and www.ers.usda.gov/Briefing/ CPIFoodAndExpenditures/Data/Expenditures_tables/table3.htm. people or multiple adults without live-at-home children, are behind this transition.⁵¹ Eric Schlosser, author of *Fast Food Nation*, also stresses convenience, ubiquity, automobility, and marketing aimed at children (e.g., Happy Meals),⁵² while George Ritzer emphasizes the principles of McDonaldization applied across the economy.⁵³

According to <u>OSR Magazine</u>, the top 10 fast-food chains in the United States generated over \$94 billion in sales in 2010, with <u>McDonald's</u> leading the way (Table 3.1.5). Many superstores, gas stations, and fast-food chains are also practicing "channel blurring"; that is, stores such as <u>Walmart</u> and <u>Target</u> are hosting fast-food chains such as <u>Pizza</u> Hut and <u>Target</u> Bell 54

Table 3.1.5: Top Ten Fast-Food Chains, 2010

Fast Food Chains	2010 U.S. Sales	Number of Stores
McDonald's	\$32,395,000,000	14,027
Subway	\$10,600,000,000	23,850
Burger King	\$8,600,000,000	7,253
Wendy's	\$8,340,000,000	7,253
Starbucks	\$7,560,000,000	11,131
Taco Bell	\$6,900,000,000	5,634
Dunkin' Donuts	\$6,000,000,000	6,772
Pizza Hut	\$5,400,000,000	7,542
KFC	\$4,700,000,000	5,055
Sonic	\$3,619,000,000	3,572

Source: QSR Magazine, www.asrmaaazine.com/reports/top-50-sorted-rank.

The globalization of the food system has also helped full-service restaurants by providing low-cost, lightly processed products that are easy for chefs and staff to handle, such as pre-washed salad mixes, julienned carrots, chopped garlic, and assorted canned goods. These convenient products are labor-savers for restaurants, caterers, and institutions, which may help to lower costs for customers.

According to the 2007 *Economic Census*, sales from food service and drinking places equaled over 47% (\$635 million) of all accommodations and food services sales in Vermont.

Full service restaurants generated 32% of sales from all accommodations and food services establishments in Vermont, which is similar to the national average of 39%. However, sales from limited-service restaurants (i.e., fast-food restaurants) were only 15% of all sales from accomodations and food services—well below the national average of 37% (Table 3.1.6, adjusted for inflation to 2010 dollars). This may reflect the fact that Vermont has comparatively fewer fast-food chains than most states.

As a point of comparison, the <u>Vermont Department of Taxes</u> provides data on taxable meal receipts. In 2010, nearly \$800 million in receipts were collected. We assume that most of this amount was spent by residents, but the exact amount is not knowable. In addition, many visitors have second homes and cook at least some meals at home, but we can't estimate those expenditures.

Table 3.1.6: Total Vermont Food Service and Drinking Places Sales, 2007

2007 NAICS code	Sales	% of Total NAICS 72	% of Total NAICS 722
72 Accommodations and Food Services	\$1,339,651,669	100%	
722 Food service and drinking places	\$635,557,593	47.4%	100%
722110 Full-service restaurants	\$429,929,214	32.1%	67.6%
722111 Limited-service restaurants	\$205,135,145	15.3%	32.3%
722112 Cafeterias, grill buffets, and buffets	\$493,235	0.03%	0.1%
Vermont Department of Taxes		Recei	pts
2010 statewide taxable meals receipts			\$793,676,924

Source: 2007 Economic Census, <u>www.census.gov/econ/census07/</u>. Vermont Department of Taxes, <u>www.state.vt.us/tax/pdf/word.excel/statistics/2010/mr_fy_2010_update.pdf</u>.

In recent years, more local foods are finding their way onto restaurant menus across the country. An annual survey of professional chef members of the <u>American Culinary Federation</u> conducted by the <u>National Restaurant Association</u> found that locally grown produce, locally sourced meats and seafood, and sustainability ranked first, second, and third in hot trends for 2010.⁵⁵

For over 10 years, organizations such as the <u>Vermont Fresh Network</u> (VFN) have encouraged this trend by helping to get more local foods into area restaurants. The VFN links farmers and food producers with local chefs and helps build consumer awareness through marketing materials. Consumers across the state recognize VFN members through the prominent display of VFN logos in restaurant windows. VFN membership has grown to over 300 restaurants, farms, food producers, co-ops, distributors, and educational institutions across the state. VFN estimates that network chefs purchased nearly \$8.5 million from Vermont farms and food producers in 2010 through distributors, farm deliveries, and direct purchases at farmers' markets and farm stands.

Although some restaurants add Vermont products as their budgets allows, others feature local foods as the main ingredients. Restaurants such as *Kismet* in Montpelier and *Claire's Restaurant and Bar* in Hardwick build their menus around what is seasonally available from local producers and have become popular as a result of their good food and their commitment to local sourcing. *Claire's Restaurant* has gained additional notoriety from its innovative business model that borrowed from the success of CSA farms by financing start-up costs through community shares held by local residents.

— ■ Food Cooperatives

Consumer-owned retail food cooperatives are a primary distribution channel for small to midsize local producers in Vermont. Food co-ops are consumer owned grocery stores that may offer price discounts to members; stock whole foods and bulk products; and are committed to purchasing natural, organic, and locally grown products. Often having started out as small food-buying clubs, co-ops in Vermont have expanded to larger storefronts that offer full grocery, deli, meat and cheese, bulk food, and health and beauty products.

The Neighboring Food Cooperative
Association (NFCA), a network of 20
regional food co-ops—the majority of
which are located in Vermont (13 out of
20)—has a combined membership of
more than 80,000 individuals, employs
over 1,400 people, and had annual

We have pictures up of our local farmers and people know who they are and know when they buy their stuff, they are supporting them.

–Upper Valley focus group participant

revenues of \$185 million in 2009. NFCA members share marketing, education, and outreach strategies, and partner on regional product sourcing.

Co-ops are committed to building food system awareness, and they provide information to consumers and advocate for public policies and programs regarding food, public health, and sustainability issues. Buying local is a core principle, so food co-ops develop relationships with local producers and visibly promote local farms to their consumers. A 2008 survey of 10 Vermont food co-ops found that they purchased almost \$19 million in produce and processed foods from within 100 miles of the stores. Regionally, co-ops spent \$33 million for local products, including \$10 million for fresh farm products (e.g., fruit, eggs, vegetables, and meat), \$18 million for processed foods (e.g., bread, cheese, and sauces), and \$5 million for other local products.

National food scares and reports on conditions at factory farms have helped fuel growing consumer demand for organic products that are local, hormone-free, non-GMO, and free-range or grass-fed. Betsy Black, Outreach Coordinator with the *Cooperative Fund of New England*, indicates that despite the recent recession, Vermont's food co-ops are growing: "There's nothing but good news in [the] marketplace, even in this recession the co-ops are coming in at 3-5% increases in sales and are expanding outside the traditional crowd. Co-ops have increased their market penetration to those who said 'organic what?' just 10 years ago."

<u>City Market</u> in Burlington reported a 7.5% increase in sales during the recession in 2009, selling about \$4 million in locally grown foods with room to grow. <u>City Market's</u> General Manager, Clem Nilan, said: "We could easily double or triple that amount if more was available. We have a lot of holes that we would like to fill with local foods." Last year, <u>City Market</u> set a goal to offer at least 1,000 Vermont-produced products, yet far exceeded that benchmark by selling 1,700 home-grown products. Nilan estimated

that 65 cents of every dollar spent at *City Market* stays in Vermont. "When we buy from local producers, even more of our money stays in Vermont. Our state's number one export is money; our number one import is food. So growing more local food is a great way to make Vermont's economy more sustainable."

— Direct Sales

Two recent USDA ERS reports point out that local food supply chains handle a relatively small—but growing—portion of total food product demand. In local food supply chains, food producers are more likely than national chains to provide people with detailed information about where and by whom products were produced. **Producers receive a greater share of retail prices than they do in mainstream chains in the areas**

It's a social thing – the customers actually form relationships with the farmers they want their food from, whether it's the market or the CSA. You form that relationship and form trust knowing that the food you're getting is going to be good.

Bennington focus group participant

studied by the USDA ERS, ranging from about equal to more than seven times the price received in mainstream chains.⁵⁷

According to the 2007 Census of Agriculture, direct-to-consumer marketing (e.g., farm stands, farmers' markets, and community supported agriculture) nationwide amounted to \$1.3 billion in sales, compared with \$768 million in 1997 (adjusted for inflation to 2010 dollars). ⁵⁸ The 2007 Census of Agriculture found that direct sales in Vermont increased from \$8.79 million in 1997 to \$24.7 million in 2007 (adjusted for inflation to 2010 dollars). At about \$39.54 per person, Vermont has the highest per capita direct sales in the nation—more than twice as high as the closest New England state (Figure 3.1.13).

Farmers' Markets: The growing number of farmers' markets across the country is one indication of increased consumer demand for local food products. According to the USDA's <u>Agricultural Marketing Service</u>, the number of farmers' markets rose from 2,756 in 1998 to 7,175 in 2011 and approached close to \$1 billion in annual sales. The <u>Northeast Organic Farmina Association of Vermont</u> (NOFA Vermont) reported that

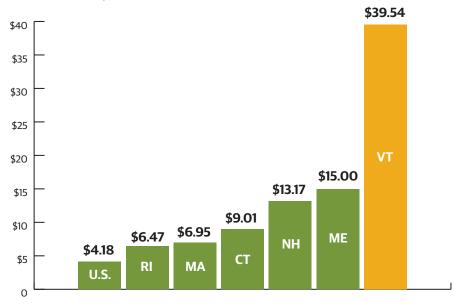
Vermont had 87 farmers' markets in 2010, up 358% from 19 farmers' markets in 1986. NOFA Vermont's 2010 farmers' market survey had 65 reporting markets, including 49 that provided sales figures. In 2010, sales from agricultural products totaled \$4,974,775, while sales from processed food totaled \$2,062,120.⁵⁹

Farmers' markets in Vermont range in size, scale, and scope. The largest markets average between 40 and 50 vendors each week and offer a variety of agricultural products, prepared foods, craft items, and entertainment. Others are small, volunteerrun markets with a handful of vendors. According to *NOFA Vermont*, the average mileage driven to farmers' markets by vendors was under 20 miles, which indicates that the markets provide consumers easy access to a variety of local farms and products. Farmers' markets also provide opportunities for experimentation, with more growers extending the season of certain crops, and providing consumers with increased variety.

Community Supported Agriculture: An increasing number of consumers are buying direct from farmers through community supported agriculture organizations, or CSAs. In a CSA, consumers pay a set price up front in exchange for boxes of mixed produce or other goods that are either picked up or delivered. CSAs can help stabilize income streams for farmers, while providing consumers with a mixed variety of weekly farm-fresh products. The 2007 Census of Agriculture indicates that 12,549 farms marketed products through CSAs in the United States, including 164 farms in Vermont (2.3% of all farms in the state). NOFA Vermont lists 86 CSAs (including 39 organic CSAs) that provide consumers with local vegetables, eggs, dairy, cheeses, fruits and berries, flowers, meat, maple syrup, cider, honey, bread, bakery items, and canned goods. GI

Increased consumer interest in the CSA model has created a bottleneck in supply with farms selling shares quickly and often maintaining waiting lists of potential customers. The increasing demand for CSAs has pushed more growers to diversify and produce more winter-hardy and storage crops. Farmers offering winter shares often partner with neighboring farms or food businesses to provide members with a greater variety of products. Vermont businesses are also expressing interest in the CSA model as a potential benefit to employees or as a drop-off location for worksite share deliveries (see sidebar). A 2007 survey of 301 farms in Chittenden and surrounding counties conducted by the *Intervale Center* found strong interest in a multi-farm CSA model

Figure 3.1.13: New England per Capita Direct Sales (Farmers' Markets, Farm Stands, and CSAs), 2007



Source: USDA 2007 Census of Agriculture, many states, <u>www.agcensus.usda.gov/Publications/2007/</u>
<u>Full Report/Volume 1. Chapter 1 State Level/index.asp.</u>

because it "opens the door for expansion past the limits of any one farm while also maintaining this essential relationship between individual growers and households." ⁶²

How Much Money Do Americans Spend on Food?

The USDA estimates that Americans spent \$1.3 trillion on food in 2011, up 352% from \$277 billion in 1935 (adjusted for inflation to 2010 dollars).⁶³ As a percentage of household budgets, however, food costs have declined significantly in the United States over the past 80 years. Although the average household spent more than 20% of disposable income on food in 1935, today the figure is less than 10% (Figure 3.1.14). Some of the decline reflects increases in other household expenses such as housing, health care, transportation, and child care, but improved efficiency and relentless competition in the global food industry has contributed to sustained cost decreases for the average American family.

RAFFL's Farm to Workplace Program

In the summer of 2009, Rutland Area Farm.
and Food Link (RAFFL) piloted a workplace
farm share delivery program to 65 employees
at the Rutland Regional Medical Center
(RRMC) and the Rutland Area Visiting Nurse.
Association & Hospice. Initially, RRMC wanted
to establish a farmers' market at the hospital,
but area farmers were disinclined to start
another market day. Instead, the traditional
CSA model brought to the workplace proved
to be a popular alternative. The program was
so well received that the project now includes
115 employees at five area businesses with
winter shares available. "We weren't planning
on expanding this program," said Tara Kelly



RAFFL Farm to Workplace event.

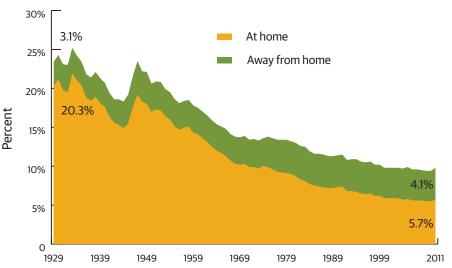
from RAFFL, "but the idea had legs behind it in terms of popularity, and there was so much demand from other area businesses."

Although most businesses provide some coordination and act as the host site for deliveries to individual employees enrolled in the program, some employers offer farm shares as a benefit for employee wellness. The owner of *Foley Services*, for example, purchases five farm shares that are available for employees to share.

The workplace farm share delivery program expanded the market for local farm foods beyond the typical localvore consumer. Most participants had never been part of a CSA before and a high percentage rarely go to farmers' markets. Through surveys and observations, RAFFL found that people receiving farm shares at their workplace liked the convenience and helping local farms succeed, and are increasingly invested in the mission behind the local food movement.

"There is tremendous room for growth," Kelly observed. "Farmers in the area have plenty of capacity to expand to this market, and more farms are looking to replace other income streams with this type of direct-purchase arrangement. In two short years of running the program, we've had really enthusiastic responses, yet we're only serving around 6% of the total employee base in Rutland."

Figure 3.1.14: Food Expenditures at Home and Away from Home as a Percent of Family and Individual Disposable Income, 1929-2011



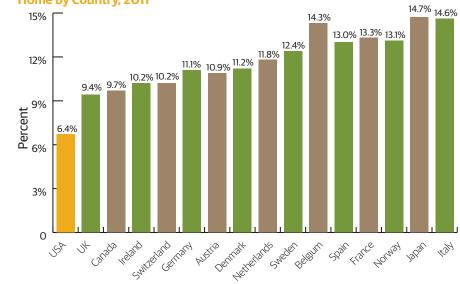
Source: USDA Economic Research Service, Table 7, <u>www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/Expenditures tables/table7.htm</u>.

Compared to people in other Western countries, Americans spend considerably less for food. In 2011, household expenditures for food in the United States averaged 6.4% of all household expenditures. People in other industrialized nations spend 10 to 20% of their income on food—roughly two or three times more than Americans do (Figure 3.1.15).

Not surprisingly, the vast majority of food purchases in the United States are made by families and individuals (80%), but businesses and governments account for a little over 18% of the total. Institutions such as public schools, hospitals, colleges and universities, prisons, and nursing homes make up the lion's share of business and government food purchasing.⁶⁴

America's huge land base, the rise of large farm and feedlot operations, mostly low fossil fuel prices over the past 80 years, the use of low-cost migrant labor, the increased use of synthetic fertilizers and pesticides, international trade tariffs, and government support programs, including massive federal expenditures to irrigate the West and

Figure 3.1.15: Percentage of Household Expenditures for Food Consumed at Home by Country, 2011



Source: USDA Economic Research Service, Table 97, <u>www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/Expenditures tables/</u>.

build a national transportation network, have meant that American agriculture is able to achieve economies of scale that keep food costs low. The principles of McDonaldization—efficiency, predictability, calculability, and control—applied to food production, processing, distribution, and marketing have also contributed to a cheap food paradigm.

── How Much Money Do Vermonters Spend on Food?

Unfortunately, data on how much money Vermonters spend on food does not exist because food expenditure data are not reported at the state level by the USDA. The *Economic Census*, conducted every five years by the U.S. Census Bureau, is one option for trying to understand food expenditures. The Economic Census reported over **\$2.3 billion in total sales at Vermont food and beverage stores and food service and drinking places in 2007** (adjusted for inflation to 2010 dollars). Grocery stores accounted for over \$1.5 billion (62.5%) of that total, followed by full-service restaurants at about \$430 million (18.4%) and limited-service restaurants at \$205 million (8.8%). These figures, however, include non-food items, as well as purchases by non-residents,

and do not take into account purchases by Vermonters who work and shop in bordering states.⁶⁶

As a point of comparison, the value of sales from grocery stores in Vermont in 2007 was equal to 0.3% of total U.S. grocery store sales, the value of full-service restaurant sales was equal to 0.2% of total U.S. restaurant sales, and the value of limited-service restaurant sales was equal to 0.1% of total U.S. limited-service restaurant sales.

The *Commodity Flow Survey* data referenced earlier provides a second reference point: food shipments into Vermont in 2007 had a market value of over \$2.5 billion. This figure includes cigarettes and must be discounted, but it corroborates the idea that total food sales are somewhere in the ballpark of \$2 billion.

A third option for determining how much Vermonters spend on food is the *Consumer Expenditure Survey* (CEX), a joint project of the *U.S. Census Bureau* and the *Bureau of Labor Statistics* (BLS). The CEX is an annual survey that collects information from over 120,000 households and families on their buying habits (i.e., expenditures), income, and household characteristics. The CEX is especially helpful because it covers food consumed at home and away from home. On the other hand, although the size of the national sample is substantial, the CEX does not report data for individual states.⁶⁷

The CEX shows food expenditures for households by quintiles of income. In 2010, the third (middle) quintile had an average income of \$45,552 before taxes, per household. This figure is below the median income for Vermont, so it makes our subsequent estimates conservative. The CEX reported that, on average, the households in this quintile spent \$5,596 for food in 2010. Using the latest figure for the number of households in Vermont (n = 256,442 households), we estimate that Vermonters spent \$1.43 billion for food in 2010 (Table 3.1.7), although this figure should be reduced somewhat because food purchased away from home includes purchases by Vermonters while on vacation or conducting business in other states or countries.

Based on these sources of available data, we believe it is reasonable to assume that residents, visitors, and institutions spent at least \$2 billion—and likely more—annually for food in Vermont from 2007 to 2011 (Table 3.1.7).

Table 3.1.7: Estimates of Total Food Expenditures in Vermont

	Category	Total
1. Census	Total sales at Vermont food and beverage stores and food service and drinking places	\$2,335,203,968
2. CFS	Value of food products shipped into Vermont	\$2,551,511,422
	Total annual food purchases per household	\$5,596
	At home	\$3,433
CEX	Away from home	\$2,164
3.0	Estimated total resident food expenditures	\$1,435,049,432
	At home	\$880,365,386
	Away from home (not all in Vermont)	\$554,940,488
	Estimated Total Vermont Food Expenditures	>\$2,000,000,000

Estimating Local Food Purchases

F2P researchers have been working with Dr. David Conner, Dr. Linda Berlin, and graduate student Florence Bécot at UVM to estimate the value of local food purchases in Vermont. Researchers made direct inquiries to several types of data sources:

- Institutional food service operations that purchase and serve locally grown foods, including K-12 schools, colleges and universities, and hospitals
- Statewide nonprofit organizations that conduct surveys on sales at farmers' markets, community supported agriculture, sales to restaurants and hospitals
- Produce distributors and food hubs
- Retailers (mainstream grocery stores and natural food stores)
- State government

<u>Direct sales</u> (e.g., from farmstands, u-pick, farmers' markets, and CSAs) were acquired from the 2007 Census of Agriculture and adjusted for inflation to 2010 dollars.⁶⁸

How Much Money Spent for Food Goes to Farmers?

The ERS recently modified the way it measures what food dollars pay for—from the "marketing bill" series, which was discontinued because of measurement problems, to the new "food dollar" series. ⁶⁵ The food dollar series indicates that the amount of money paid to farmers (i.e., the "farm share") for each dollar spent on food was 14.1 cents in 2010, while everything else—including processing, distribution, and retailing—accounted for 85.9 cents. **The farm share decreased 50% from 1993 to 2010** (adjusted for inflation to 2010 dollars).

Farm Share

Marketing Share

THE UNITED STATES OF AMERICA

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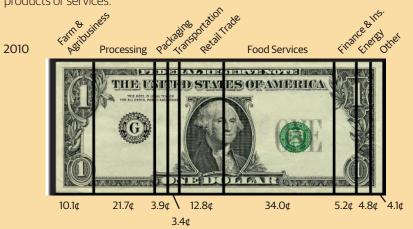
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14.1¢ 85.9¢

The food dollar series also provides an "industry group" measurement. In this instance, the "Farm & Agribusiness" group differs from the farm share (i.e., it is 10.1 cents instead of 14.1 cents) because it does not include nonfarm value-added products or services.



Source: USDA Economic Research Service, www.ers.usda.gov/data-products/food-dollar-series

Data on "nonemployer" sales—which refers to sales generated by sole proprietors, partnerships, and corporations—for food manufacturing in 2009 was gathered from the Census Bureau and adjusted for inflation to 2010 dollars. Note that we are assuming that all sales from small food manufacturers take place in Vermont, even though this must not be the case. As a point of comparison, the value of all food manufacturing in Vermont in 2007 was over \$2.5 billion. We assume that most of these manufactured food products are exported out of Vermont, but we do not know the market value or weight of food exports.

Data on local food sales recorded by chefs and restaurants were obtained from the Vermont Fresh Network. Local food sales from co-ops or local grocers refers only to data from the Brattleboro Food Co-op, Buffalo Mountain Food Coop and Cafe, City.

Market/Onion River Co-op, Hunger Mountain Co-op, Middlebury Natural Foods Co-op, Putney Food Co-op, and South Royalton Market. Higher education refers only to UVM, Bennington College, Green Mountain College, Johnson State College, and Middlebury.

College. The hospitals estimate comes from only one hospital. The Farm to School figure refers to data from the Burlington School District, Green Mountain Farm-to-School, and Windham Farm and Food Network. In each case, members of the research team asked for total 2010 sales of locally grown foods. The data were then analyzed by the team for credibility and to detect and eliminate double counting.

Table 3.1.8: Estimates of Local Food Expenditures in Vermont

Category	Total
Direct sales	\$24,739,273
Small food manufacturers	\$9,825,340
Chefs/restaurants	\$8,483,475
Co-op grocers	\$6,100,000
Higher education	\$1,448,915
Hospitals	\$800,000
Farm to School	\$180,860
State government	\$172,327
Total	>\$51,750,190

PHOTO CREDIT: Josh Larkir

We conservatively estimate that local purchases make up 2.5% (>\$51 million, Table 3.1.8) of all food purchases. However, we are still awaiting data from several key sources, including food distributors and grocery stores. Because most people buy their food at grocery stores, we believe that local purchases at grocery stores (e.g., milk, Ben & Jerry's ice cream, Green Mountain Coffee Roasters coffee, King Arthur Flour products, apples, and maple syrup) may constitute an additional \$50 million in sales, for a total of over 5% (\$100 million) of all food purchases.

Understanding Consumer Demand

As previously noted, Vermont has a food production "scalability" challenge. However, although most of our food comes from out of state, a small but growing percentage of total food sales are made up of local food purchases, and many Vermonters are interested in increasing the amount of local food products they eat. The rest of the sections in *Chapter 3* deal with how to strengthen Vermont's food production, processing, distribution, and nutrient management infrastructure. This section and Goal 1 of the F2P Strategic Plan call for encouraging consumer demand of local food products as a way of boosting local food production, as well as driving more value to food producers, increasing local food access to all Vermonters, protecting the working landscape, building social capital, and encouraging healthy eating habits. A substantial body of academic, marketing, and "grey" literature on the attitudes and behaviors of "green shoppers," "environmentally responsible food choice," "socially conscious consumer behavior," "healthy nutrition environments," and "environmentally significant behavior" begins to orient the discussion of how we can advance toward that goal.⁷⁰

The literature on socially or environmentally responsible consumption—a concept that includes local and organic food products—suggests that the number of consumers in these categories are growing. However, this literature also highlights four important points: 1) a disconnect exists between attitudes and behaviors (e.g., the *Deloitte* Green Shopper report found that 98% of people surveyed would buy green products, but only 22% actually did); 2) there is no unified or coherent view of what constitutes a socially or environmentally responsible consumer; 3) evidence of the willingness of consumers to pay more for local and/or organic food products is conflicting; and 4) consumer education and marketing activities need to strive for "moments of

maximum influence" throughout the consumer decision-making process: from initial consideration and active evaluation, to closure (i.e., buying brands) and postpurchase experiences.

Of course, it is the case that specific kinds of products are narrowly marketed to specific kinds of consumers (e.g., a wine business has a different strategy for reaching consumers than a candy business does). In general, however, the literature recommends viewing socially or environmentally responsible consumption as a set of behaviors that move along an "adoption curve" (e.g., from unaware to unsure to influenced to proactive to committed) and that vary by:



A Saturday tradition: Montpelier's farmers' market.

- Sociodemographic segments (e.g., age, gender, education, race, marital status, the presence of children, and place of residence)
- Attitudinal factors (e.g., values, emotions, lifestyles, beliefs, political views)
- Fersonal, household, or organizational capacities (e.g., knowledge, skills, resources)
- Habit or routine, intuition, norms
- Contextual factors (e.g., the physical ease or difficulty of specific actions; capabilities and constraints provided by technology and the built environment).

Sociodemographic Segments

Some literature indicates that people in specific sociodemographic segments are more inclined to buy food products from environmentally responsible producers. For example, one summary suggested that "highly educated women under 50 years old in higher-earning households with children, with some knowledge about environment-friendly

production methods as well as environmental and health risks" are more likely to make such purchases. However, other reports say that **interest in socially or environmentally responsible purchasing is "diversely spread along all income ranges, age brackets, education levels, and various household sizes."** Although limited data are available, a number of <u>Vermonter Polls</u> have indicated an overwhelming belief across demographics in the importance of healthy eating habits; quality ingredients; and "food, farms, and nutrition" education as a way to help children stay healthy—as well as support for labeling genetically modified food.⁷¹

— ■ Attitudinal Factors

In recent years, consumer awareness about the benefits of buying local foods has increased with the growth of the "localvore" movement and the proliferation of articles, books, documentaries, and other media that compare and contrast the industrial food system with local food systems. This awareness has manifested in tangible ways; for example, Vermont led the nation in per capita direct sales of local food according to the 2007 Census of Agriculture.

We've seen a lot of changes in the last 20 years in terms of demand. It's been nice. A lot of books have been written and movies have come out in the last two or three years that have allowed us to have discussions with our customers at another level which before you could only have with other farmers.

–Upper Valley focus group participant

The USDA *Local Food Systems* study cited a recent national survey conducted by the *Food Marketing Institute* that shows that although local food consumers are demographically diverse, they are very similar in their motivations for buying local: 82% cited "freshness," 75% chose "support for the local economy," and 58% selected "knowing the source of the product" as reasons for buying local food. Additionally, the literature, as well as F2P focus groups, interviews, and summits, identify a multitude of other reasons consumers may seek out local foods, including taste; to satisfy a desire for quality and eating in season; to foster a closer connection with farmers and food producers; nutrition and health concerns; convenience and availability; to express a preference for certain agricultural production and distribution practices (e.g.,

opposition to GMOs and pesticides); to reduce food insecurity and build local food resiliency; to mitigate environmental degradation, including climate change; to reduce fossil fuel consumption and food miles traveled and to mitigate peak oil; and to ensure the humane treatment of animals and food system workers.

Since this is the case, the literature suggests that **education and/or marketing** campaigns that seek to advance local food purchases need to focus on multiple attitudinal dimensions and attempt to understand where, for example, "local" or "Vermont" or "mitigate climate change" fit in the overall purchase decision-making process.

For example, if we take the purchasing behavior adoption curve developed by *Deloitte* as a starting point, their analysis suggests that a certain segment of the population—"unaware" consumers—do not hold "sustainability" or "local" or "green" as conscious purchasing values and are unlikely to do so. On the other side of the spectrum, "committed" consumers hold "sustainability," "green," and "local" as dominant purchasing values and no education or marketing efforts are required to change their behavior. Rather, it is in the middle, where "unsure" (i.e., green is not currently a major value), "influenced" (i.e., green can be a "tiebreaker" in purchasing decisions), and "proactive" (i.e., green is an important value) consumers can be influenced by education and marketing campaigns that appeal to multiple values, emotions, lifestyles, and so on.

Personal, Household, and Organizational Capacities

Regardless of the level of attitudinal alignment with purchasing local foods, the capacity of each consumer to act affects purchasing decisions and eating habits. Sociodemographic factors (e.g., income, education) clearly impact the purchasing decisions of consumers. For example, **cost** was a major purchasing barrier identified in the literature on socially or environmentally responsible consumption, as well as in F2P focus groups and interviews. Nearly one third of respondents to a Vermonter Poll cited income and cost as obstacles for purchasing more local foods, whereas the top two barriers to sourcing locally produced food in a 2010 *Vermont Grocers Association* member survey were price and availability. A 2007 Vermonter Poll on hunger and food security in Vermont found that 62% of respondents experienced one or more barriers in providing nutritious food for themselves or family members, with cost, time, and accessibility/availability tagged as the top three barriers.⁷⁵

However, other factors may come into play even when cost is a major obstacle. For example, this F2P focus group participant identified a range of considerations that their family takes into account, including personal values, cost, convenience, and gardening abilities:

"When you are doing your purchasing, you have to go through these levels of questions: one, can I buy it local? and two, does it make sense to buy it local? For myself and my family, the food we buy is the closest to our home. A combination of the healthiest and most affordable. We will buy Booth Brothers because I can walk about 100 yards to the convenience store and we go through a lot of milk. It's also the most affordable, even in the convenience store. We will also buy factory processed, factory feedlot ground beef or chicken at Hannafords because we can walk there on the way home from work. It's the most affordable combination because we are in that category or being just above the low-income level as a family so we have to make those trade-offs. During the summer gardening season, we will grow and forage more. We will sacrifice diversity to eat what we have. We will eat sugar snap peas for four weeks if we have them."

Each consumer brings repertories of action, mental tool-kits, past experiences, social representations (i.e., how they would like to be perceived), and other cognitive practices to purchasing decisions. For example, some people have more adventurous eating habits and actively seek out novel tastes, ingredients, and experiences, including local food, no matter the cost.

How people navigate, consume, and retain information also varies by source (e.g., advertising, the internet, food labels, store displays, experts, friends), content, accuracy, timeliness, learning style, and other factors. For example, *Aunt Jemima* syrup is made from corn syrup and other sweeteners, but many people grow up mistakenly believing that it is "real" (i.e., maple) syrup. Some research indicates that consumer confusion (e.g., due to competing claims) at the point of purchase can inhibit purchasing behavior.

The literature, as well as F2P focus groups and interviews, identified two important variables for understanding and motivating purchasing behavior: **efficacy and experience**. Research indicates that consumers are more likely to move from attitude to behavior when their action can be seen to be effective and "make a difference" in the world (e.g., buying Fair Trade coffee). Additionally, the experience of growing and preparing

Does Local Food Cost More?

About 36% of adult Americans are obese, and most Americans do not follow federal dietary recommendations. A common explanation for this condition is that healthier foods are more expensive than less healthy foods. The USDA ERS recently investigated this assumption by comparing the prices of healthy (e.g., fruits and vegetables) and less healthy foods (e.g., foods that are high in saturated fat, added sugar, or sodium, or that contribute little to meeting dietary recommendations) using three different price metrics: the price of food energy (\$/calorie), the price by edible weight (\$/100 edible grams), and the price of an average portion (\$/average portion).

The USDA ERS found that healthy food is cheaper than less healthy foods when measured by the price of edible weight and the price of an average portion. Healthy foods cost more than less healthy foods when measured by food energy. That is, foods high in calories (e.g., cookies) tend to be cheaper than foods low in calories (e.g., fruit). The authors of this study indicated that **it is not possible to conclude that healthier foods are more expensive than less healthy foods.** However, they also noted that most consumers do not have access to these price metrics at the point of purchase and that, in any event, taste, convenience, and other factors may outweigh a desire to follow dietary guidelines.⁷²

In the preceding example, we assume that the cost of local foods approximates the cost of healthy foods, but we also have some information that directly compares the cost of local and nonlocal food. A 2009 market basket study in lowa found that the mean price per pound of vegetables purchased at farmers' markets was less than the price for nonlocal supermarket vegetables, although the difference was not statistically significant. ⁷³ In 2011, *NOFA Vermont* analyzed the cost of a market basket of conventional and organic vegetables, blueberries, and eggs at farmers' markets and grocery stores. The author found that **most conventional food items were cheaper at grocery stores, although prices were comparable.**

The author believes that economies of scale explain the statistically significant price differences between conventional eggs, potatoes, and tomatoes purchased at grocery stores and those purchased at farmers' markets. **This study also found that all of the organic food items sampled were cheaper at farmers' markets.** ⁷⁴

food (e.g., through backyard, school, and community gardening) and serving food (e.g., students and food service staff) are said to improve the understanding and appreciation of the costs and benefits of local food. For example, an Upper Valley focus group participant explained: "I've told this story before about growing black beans. I had five 6-foot rows in my little garden and was so excited about it. By the time I shelled it, I had a quart jar of black beans. So now when I see *Butterworks Farm* charging \$3 a pound for black beans, I think to myself 'Oh, what a bargain!" **Helping people in the middle section of the local food adoption curve develop their capacities to act (e.g., through cultivating experiences and demonstrating efficacy) is a key takeaway message from the literature.**

─ Habit, Routine, and Intuition

"No native Vermonter goes without doughnuts for breakfast, even if mother $[\operatorname{sic}]$ has to get up before-hand to make them."

Kurlansky, The Food of a Younger Land, (referring to 1930s Vermont), p. 30.

Economic experiments have demonstrated that **people make decisions based on automatic, effortless, emotional, and habitual** *intuitions*. Intuitive decisions are "skilled, unproblematic, and reasonably successful" because they are based on accessible reference points or prototypes of past experiences. On one level, these habits and intuitive decisions are specific to individuals, households, and organizations. For example, as a simple experiment move the location of your recycling bin from its usual spot to a new location. How many times will you visit the original location before changing your habit? At a societal or global level, however, the McDonaldization of the food system has meant that corporate and government agents are directly involved in shaping preferences and experiences through advertising; the development and configuration of the built environment; agricultural, food system, and education policies; and technological innovations (e.g., microwaves and microwavable food). As a result, **consumers are primed from an early age to assume and expect convenience, predictability, and calculability in their food purchases.** Because this is the case, the literature emphasizes the critical importance of **convenience**.

Buying local food has to be convenient for consumers, and local food procurement must be made easier for grocery stores, where most people shop. As indicated earlier,

Vermont produces comparatively little of most food products. However, convenience goes beyond the availability of local food products to include prominence (e.g., placement on shelves), food outlet location, and accessibility (e.g., prices and promotions). For example, the NOFA Vermont price comparison study noted that because organic food products were more expensive at grocery stores, some consumers may conclude that organic food is not accessible to them. However, the study found

People are so disconnected from their food. There are cultural reasons why people want to stay with fast food and junk food because they've grown up on it and that's what they love. I think it's one of the things we have to appreciate and accept, and not lecture them or look down our noses.

–Windham focus group participant

that organic food was cheaper at farmers' markets than at grocery stores, which may make it accessible financially, but perhaps not geographically or culturally (i.e., some consumers may feel "out of place" at farmers' markets). A <u>2010 Vermonter Poll</u> commissioned by NOFA Vermont found that 80% of Vermonters visited a farmers' market at least once in 2009, while 20% of those surveyed had zero visits. A <u>2012 Vermonter Poll</u> commissioned by VSJF found that 84% of Vermonters reportedly had purchased food from a farmers' market in 2011; 29% had purchased food through a CSA; and 86% had purchased food from a farm stand or some other direct way from a farmer.

Even if Vermont produces comparatively little of most food products, the *NOFA Vermont* price study noted that farmers' markets have an opportunity to alter impressions and distinguish themselves as cheap sources of organic food for all consumers (*UVM Extension* has developed a helpful resource— a report on *market prices* for organic and direct market fruits, vegetables, and berries). Consumer education and marketing campaigns that emphasize that farmers' markets are for everyone (including low-income Vermonters) and that emphasize additional benefits such as social networking and the "event" aspects of shopping may entice more participation. One participant at an Upper Valley focus group described "how fun it is to shop at farmers' markets—the music and all the milling about and talking to people, the sense of community. It's something that is a growing phenomenon that has satisfied something in people."

Quality, consistency, and seasonality are other dimensions that must be addressed by education campaigns aimed at expanding local purchasing. As a F2P focus group participant noted, "Another thing that is tough for a lot of consumers is that Americans are used to seeing a tomato that always looks the same. Then all of a sudden, we've got local produce and sometimes it has a little mark on it, sometimes it's green, sometimes it's long. There are a lot of people that can't get their head around the variety." Education campaigns that help familiarize consumers with the diversity, seasonality, shape, and coloration of local foods can help to shift expectations.

— Contextual Factors

Even if attitudes and capacities for purchasing local food are in alignment, an infinite number of conditions in the world can enable or constrain purchasing behavior, from weather-related events (e.g., crop damage from drought), natural disasters (e.g., earthquakes, hurricanes), and wars, to technological disasters (e.g., an earthquake and tsunami triggered a nuclear meltdown at Fukushima, leading to the contamination of surrounding agricultural lands), bad publicity (e.g., pink slime), and popular culture (e.g., *The Biggest Loser* TV show). Setting aside the universe of issues over which we have no control, the literature examines three "nutrition environments" in which at least a modicum of consumer control can be exercised:

- Organizational nutrition environments: food options in organized settings (e.g., schools, workplaces, state government offices).
- Consumer nutrition environments: food product availability; prominence (e.g., information and promotions and store space); and accessibility (e.g., how easily consumers can locate items within stores and their costs).
- Community nutrition environments: the number of food stores by type and location within a defined geographical area.

Consumers include people responsible for food purchases on behalf of others (e.g., produce managers at grocery stores) in each of these interrelated nutrition environments.

Organizational nutrition environments: Local food is increasingly being served at educational institutions, government offices, private businesses (e.g., the *National Life cafeteria*), and hospitals in Vermont. For example, an estimated 200 out of 420 schools in Vermont have some type of *Farm to School* program. A recent study of 632

third-, fourth-, and fifth-graders at 12 Vermont public schools found that more years of Farm to School participation increased the probability that students eat more fruits and vegetables. Each care all the Health Care (FAHC) in Burlington was one of the first hospitals to sign the Healthy Food in Health Care pledge, a national effort to improve food services at hospitals. FAHC is a member of the Vermont Fresh Network, maintains a garden, and serves nutritionally dense, minimally processed foods including a variety of local fruits, vegetables, meats, and honey. RAFFL's workplace CSA program (page 98) is delivering local food to health care facilities, and many businesses, such as Dealer.com, buy CSA shares for their employees. A new Local Foods Administrator at the Vermont Agency of Agriculture is working on a pilot project to establish five CSA drop-off sites at state buildings in 2012. If successful, this project could then be expanded to all state office buildings. In each of these examples, advocacy organizations (e.g., Vermont FEED) and organizational champions (e.g., food purchasers, preparers, and facilitators) are important gateways for incorporating local foods.

Consumer nutrition environments: Locally produced food is commonly available at farmers' markets, co-ops, and farm stands, and through CSAs. The grocery store model, however, has historically not been set up to handle the limited supplies and varying levels of quality and forms of packaging typical from small and medium-sized farms (See Appendix C: Connectina the Dots for more information). As demand for local food has increased in recent years, the Deloitte study argues that retailers have been slow to embrace opportunities presented by green shoppers. The USDA local food system summary report points out that few studies of retailer perspectives of local food procurement have been completed, but the literature does indicate that sales increase as shelf space for grocery items increase. Local food shelf space in Vermont grocery stores has not been systematically evaluated, and local food sales figures could not be obtained as part of the F2P research process. However, many grocery stores now have Vermont "touch points" that highlight maple syrup and other local food products. Deloitte and others argue that retailers need to provide consistent, aligned messaging in stores (e.g., labeling, signs, displays), online, and through advertising (e.g., local food coupons in weekly circulars) to take advantage of the local food opportunity.

Community nutrition environments: The McDonaldization of the food system transformed Americans' eating habits and the physical infrastructure of American

communities: 24-hour drive-thrus, supermarket chains, and convenience stores are ubiquitous in most places. These areas are sometimes dubbed "food swamps." A different kind of landscape, "food deserts," which refer to low-income census tracts in which a substantial number of residents have low access to grocery stores, are also evident across many parts of the United States, including Vermont's Northeast Kingdom. He USDA has also developed a kind of hybrid measure, the modified retail food environment index (mRFEI), which measures the number of healthy and less-healthy food retailers in a census tract. An mRFEI score of zero generally corresponds to the food desert concept, and low scores indicate places where snack foods inundate healthier foods. An mRFEI map of Vermont shows low scores for most of Franklin County, Rutland County, and the southern part of the state. He was a some store of the state. He state. He state.

The mRFEI metric is limited to the extent that it does not account for actual food products in healthy and less healthy stores, and it currently does not capture farmers' markets. In any event, local food products are not commonly available in the grocery stores and fast-food chains in either food swamps or food deserts.

Many direct sales market outlets—food co-ops, farmers' markets, farm stands, and CSAs—exist in Vermont, and survey results and official statistics indicate that many Vermonters are buying food from these places. There are also many consumer education organizations and programs that provide healthy living, nutrition, and food production advice and hands-on experiences, particularly to low-income Vermonters (Table 3.1.9).

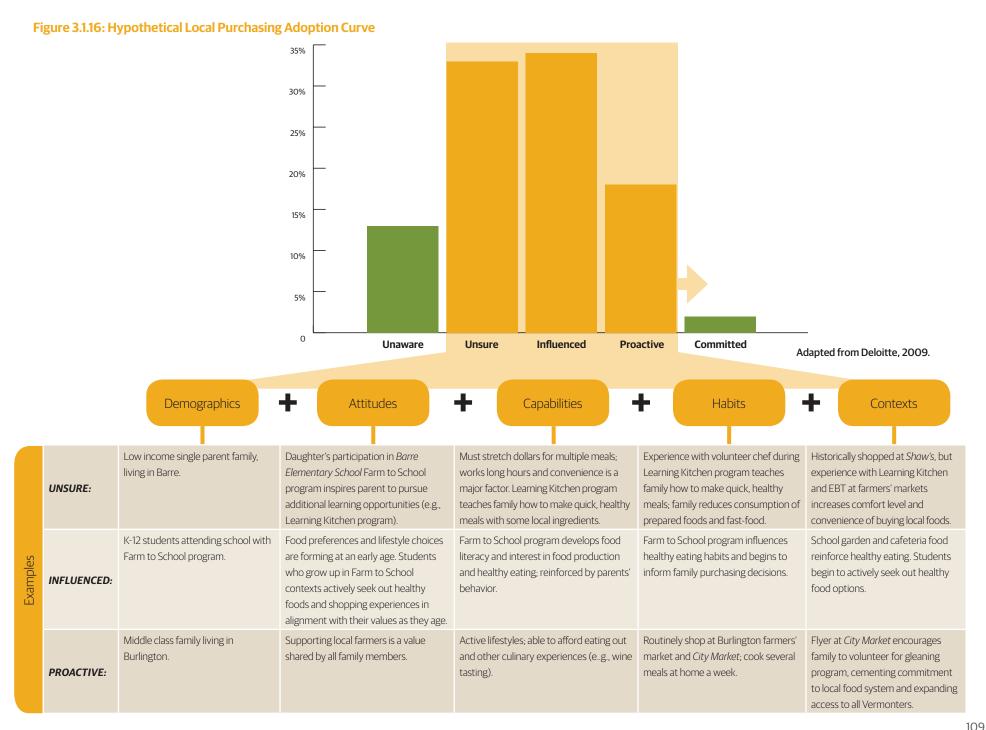
<u>Vermont Community Garden Network</u> provides a directory of community and school gardens, and new ones are popping up across the state, including the <u>Fresh Start Community Farm</u> in Newport. There are fewer instances of new stores being developed, but a new food co-op is under development in Bennington (identified as a food desert by the USDA).

Figure 3.1.16 provides a hypothetical—and generic—depiction of how consumer education, community outreach, and marketing organizations and programs can strategically move people along the local food purchases adoption curve—from unsure to influenced, from influenced to proactive, and from proactive to committed. In short, touch points that help to align combinations of attitudinal factors (e.g., values); socio-demographic factors (e.g., where a person grew up); habits (e.g., brand loyalty); personal, household,

and organizational capabilities; and contextual factors (e.g., nutrition environments) can increase the likelihood that people will choose to buy local food and remain loyal customers after purchases are made.

In summary, Americans have access to more food and more information than at any other moment in human history, but unhealthy eating habits and food-related health problems have become pervasive. Consumer demand for local food is growing, and a stated goal of the F2P Strategic Plan is to develop programs and policies that support those preferences. However, no magic bullet will make people eat healthier or buy more local food. Rather, the literature recommends viewing, for example, local food purchases as a set of behaviors that move along an adoption curve and that vary by combinations of attitudinal factors (e.g., values); sociodemographic factors (e.g., where a person grew up); habits (e.g., brand loyalty); personal, household, and organizational capabilities; and contextual factors (e.g., nutrition environments).

For example, a recent study of 632 students at 12 Vermont schools participating in Farm to School activities identified clusters of "personal constructs"—"Knowledgeable with Peer Support," "Self Confident and Needs Reinforcement," and "Needs Broad Based Interventions"—that exemplified their attitudes and behaviors toward fruits and vegetables. The study found that combinations of variables—home behaviors, parental modeling, facilitation, encouragement, more years of farm to school participation, and having met a farmer—increased the likelihood that a student was Knowledgeable with Peer Support, was Self Confident and Needs Reinforcement, and ate more fruits and vegetables. Students clustered under the heading "Needs Broad Based Interventions" scored low on all indices, including parental modeling and facilitation and fruit and vegetable consumption. Se



Food-Related Health Issues

The increased availability of cheaper food, larger portion sizes, the reliance on high-calorie ingredients, and other lifestyle choices have led to an epidemic of health problems. According to the *Centers for Disease Control and Prevention* (CDC), 35.7% of adult Americans (over 78 million people) were considered obese* in 2009-2010, and 17% of children and adolescents ages 2 to 19 were obese.⁷⁷

In 2010, 58.5% of Vermont adults were considered overweight or obese (Figure

We've had a CSA for three years now and I have had people lose weight that really needed to lose weight. They started eating a salad everyday and lost weight. I've had people say they've decreased their prescription medicines. I've had people say that they felt better and had more energy because they've paid and committed to the veggies. Unlike a farmer's market where people don't buy anything this week because they still have stuff in the fridge, with a CSA model they've already paid for it so they better eat it. They take it on as a challenge to finish everything and they feel better. It's good for me, it's good for them, and it's good for the whole population.

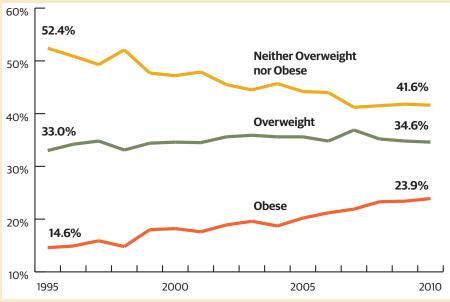
—Upper Valley focus group participant

3.1.17). Obesity increases the risk of many serious health conditions, including heart disease and type 2 diabetes. One study found that obesity accounted for 27% of the increase in U.S. medical costs from 1987 to 2001.⁷⁸ A recent study estimates that 16.5% of national spending on health care is due to obesity.⁷⁹ **The University of Vermont's** *James M. Jeffords Vermont Legislative Research Service* estimates that obesity costs the state over \$600 million annually.

The CDC estimates that cases of diagnosed diabetes increased from less than 1% of the U.S. population in 1958 to over 8.3% in 2010, while many millions more have undiagnosed diabetes (i.e., the CDC estimates that at least 25.8 million Americans have diabetes). The <u>Vermont Department of Health</u> estimates that nearly 9% (55,000) of Vermonters have diabetes, and Franklin and Caledonia counties have the highest percentages of adults with diabetes in Vermont. The country of the country

Additionally, the consolidation of food processing facilities and the global reach of the industrial food system mean that foodborne illnesses generated in one location can quickly spread. The CDC estimates that each year 48 million foodborne illnesses occur, more than 128,000 persons are hospitalized, and 3,000 die. Most of the pathogens tracked by the CDC originate with animals that spread contamination when slaughtered or that contaminate the environments they live in. *Salmonella* is the most

Figure 3.1.17: Overweight and Obese Adult Vermonters, 1995-2010



Source: Centers for Disease Control and Prevention, <u>www.cdc.gov/obesity/data/adult.html</u>.

common variety of foodborne illness, and the CDC reports that infections from this bacteria have gone up over the past 15 years. 82

Although the <u>United Health Foundation</u> ranks Vermont as the healthiest state in the country in 2011, the overweight, obesity, and diabetes trends continue to move in the wrong direction. At least 50 programs related to obesity were identified by the recent <u>Vermont Healthy Weight Initiative</u>, but the impact of these programs is not easy to ascertain with publicly available information. The F2P Network and Vermont's health care organizations should do the following:

- Review the findings and legislative priorities put forth by the <u>Vermont Healthy</u> <u>Weight Initiative Working Group</u> and by the <u>Vermont Attorney General</u> and identify actions for the F2P Network to take.
- Review "<u>Vermont Programs Related to Obesity</u>" and collect additional information on the impacts of these programs.
- Support programs that model, teach, and support healthy lifestyles in child care programs, K through 12 schools, and at workplaces.

^{*}Obesity and overweight are defined using the <u>Body Mass Index</u> (BMI) calculator. For example, an adult with a BMI between 25 and 29.9 is considered overweight, while an adult with a BMI over 30 is considered obese.

Consumer Education and Community Outreach

Strong criticisms of the industrialization of the food system have been advanced for as long as the process has been underway. None other than Karl Marx described a "metabolic rift" that developed as the soils of the European countryside were depleted to feed urban centers (i.e., nutrients normally cycled back into the soil ended up as pollution in cities). A cascading effect ensued as soil depletion in Europe led to imports of guano from Peru and Chile, which led to ecosystem degradation in those places and eventual war between Peru and Chile.⁸⁷ Upton Sinclair famously aimed for the public's heart but hit its stomach with *The Jungle*, his graphic novel about early 20th-century unsafe meat processing practices in Chicago.⁸⁸ Aldo Leopold's classic, *A Sand County Almanac*, warned that "We abuse land because we regard it as a commodity belonging to us" and pleaded for a land ethic that enlarged our sense of community to include the natural world.⁸⁹ Rachel Carson kicked off the modern environmental movement with *Silent Spring*, a lamentation on the use and impact of chemical pesticides.⁹⁰ Wendell Berry has long argued that industrial agriculture emanates from and reinforces the worst characteristics of human culture.⁹¹

A new generation of critics—<u>Anne Lappé</u>, <u>Marion Nestle</u>, <u>Vandana Shiva</u>, <u>Masanobu Eukuoka</u>, <u>Tom Philpott</u>, <u>Michael Pollan</u>, and <u>Mark Bittman</u>—and organizations are analyzing and reporting on the unintended health (e.g., obesity), societal (e.g., decline of family farms), economic (e.g., corporate monopolies or near monopolies of many food products), and ecological consequences of industrial agriculture. Local food proponents across the United States, including in Vermont, are alternatively advocating for a different paradigm for what we eat; where our food comes from; and how our food is grown, raised, and processed that emphasizes health and nutrition, food literacy and reskilling, spreading dollars locally, mitigating ecological degradation, and building community.

Throughout the F2P stakeholder input process, consumer education was among the top three most frequently mentioned needs for strengthening Vermont's food system. For example, stakeholders mentioned that education campaigns should provide consumers with information about the benefits of buying locally and regionally produced food, including addressing any price barriers with specific information on prices from direct market outlets compared to supermarket

prices, the hidden costs of imported food, profiles of farm families is actually benefitting from their purchases, the multiplier effects of local food purchases, and so on. This section reviews some of the organizations and programs that—alone or in partnership—offer consumer education and community outreach

Everything comes down to educating the public. If the people demand it and the people want it, and they understand the value of it, then it will happen.

—NEK focus group participant

programs, including Farm to School programs, increasing the amount of local food served at higher education institutions, and improving the understanding and ability of Vermonters to obtain, grow, store, and prepare nutritional food (Table 3.1.8).



Coventry Village School (Green Mountain Farm-to-School program) students and teachers celebrate a harvest.

PHOTO CREDIT: Green Mountain Farm-to-School

Goal 1: Consumption of Vermont-produced food by Vermonters and regional consumers will measurably increase.

Organizations Researching Consumer Behavior.

Educational Institutions: Many departments at the *University of Vermont* (e.g., *Community Development and Applied Economics, Center for Sustainable Agriculture*) have students and professors who are researching consumer behavior and other food system issues. Other institutions (e.g., *Green Mountain College, Sterling College*) are also developing strong food system research capacities. Some of Vermont's food system nonprofits (e.g., *NOFA Vermont, Vermont FEED*) have also conducted research to understand consumer behavior. A running list of all types of food system research has been compiled by the *UVM Food Systems Spire*, but it does not include studies from non-UVM institutions. A *spreadsheet* of F2P related food systems research was also compiled by graduate students at UVM.

Goal 2: Consumers in institutional settings (e.g., K-12 schools, colleges, state agency cafeterias, hospitals, prisons) will consume more locally produced food.

Organizations Providing Food System Education and Working to Get Local Food in K through 12 Schools.

Nonprofit Organizations: Vermont's Farm to School network—Vermont FEED (Food Works, NOFA Vermont, Shelburne Farms), Green Mountain Farm-to-School, and many other organizations—provide classroom, cafeteria, and community workshops and courses for students, parents, teachers, and cafeteria workers. Many schools also have gardens, and harvested food is served in cafeterias. As noted earlier, research on the Vermont FEED program identified combinations of variables (e.g., having met a farmer) that move students along a fruit and vegetable consumption adoption curve. 92

Government Agencies: The <u>Vermont Agency of Agriculture. Food and Markets</u> (VAAFM) has several personnel involved in raising and distributing grant money for Farm to School programs, as well as helping to facilitate Vermont's Farm to School network.

Organizations Working to Get Local Food in Institutions of Higher Education.

Educational Institutions: Sodexo is the dining services purveyor for many higher education institutions in Vermont, including University of Vermont Dining Services, Johnson State College, Castleton State College, Champlain College, Lyndon State College, Norwich University, St. Michael's College, Southern Vermont College, and Vermont Technical College. Sodexo is currently working with these institutions and the VAAFM to explore opportunities for sourcing more local food (e.g., identifying food producers to make direct purchases from). Smaller dining service firms supply Middlebury College. Green Mountain College, Marlboro College. College of St. Joseph. Landmark College, and Bennington College. Sterling College and Goddard College grow a significant portion of their own food or source directly from Vermont food system businesses. In many instances, these educational institutions indicate a commitment to buying local food, some identify the food producers they source from, and UVM has recently started providing a percentage breakdown of food purchases by category.

<u>NOFA Vermont's</u> recent institutional purchasing study identified over \$11 million in spending that could potentially be replaced with local fruits, vegetables, and eggs. Local institutions cite support for local farmers as their number one motivation for buying local.

Goal 3: Vermonters will exhibit fewer food-related health problems (e.g., obesity and diabetes).

Goal 10: All Vermonters will have a greater understanding of how to obtain, grow, store, and prepare nutritional food.

Goal 15: All Vermonters will have access to fresh, nutritionally balanced food that they can afford.

Many organizations and programs—alone and in partnership—aim to improve health, expand access to food (particularly to low-income Vermonters), and provide food literacy education. <u>Chapter 4. Section 1. Food Security in Vermont</u>, and <u>Appendix D:</u> <u>Dissolving the Double Bind</u> provide in-depth descriptions of many of the organizations and programs listed here. Readers are encouraged to review those sections for more information.

Organizations Working to Instill Good Eating Habits, Improve Human Health, and Improve the Understanding and Ability of Vermonters to Obtain, Grow, Store, and Prepare Nutritional Food.

Nonprofit Organizations: As noted previously, there is evidence that Farm to School programs operated by many nonprofits in Vermont increase the consumption of fruits and vegetables by children.

Vermont also has a substantial charitable food system, composed of the <u>Vermont</u>. <u>Foodbank</u>, food shelves, soup kitchens, community meal sites, gleaning programs, state agencies, advocacy organizations, and businesses that make food donations. Most of these organizations are working to accomplish Goals 1, 3, 10, and 15. For example, the <u>Good Food Good Medicine</u> program at <u>Food Works</u> teaches low income Vermonters new skills (e.g., gardening and preserving) while encouraging healthy eating habits (see sidebar on page 116).

Or, for example, <u>Hunger Free Vermont</u> is an education and advocacy organization that coordinates many activities, including helping parents enroll their children in free or reduced-fee school meal programs, establishing and expanding after-school and summer meal programs, working with the <u>Department for Children and Families</u> to expand <u>3SquaresVT</u> access, and collaborating with UVM's <u>Expanded Food and Nutrition Education Program</u> (EFNEP) to offer the <u>Learning Kitchen</u>, a nutrition education course for low-income Vermonters.

Many nonprofits (*NOFA Vermont, Vermont Community Garden Network*), regional food centers (e.g., the *Intervale Center*), and other community groups (e.g., *Transition Town Vermont*) offer food system education and outreach programs, including workshops (e.g., canning), courses, conferences, hands- on experiences (e.g., gardening), and technical assistance (e.g., the *Center for an Agricultural Economy* operates the *Vermont Food Venture Center*—a kitchen incubator for specialty food producers).

Government Agencies: The <u>Vermont Agency of Human Services</u> has several departments that encourage health and wellness, particularly for at-risk populations. The <u>Department of Health</u> administers several programs and provides online information on exercise, diet, and <u>worksite wellness</u>: <u>Fit and Healthy Vermonters</u>, <u>Eat for Health</u>, <u>Get Moving Vermont</u>, and <u>Fit and Healthy Kids</u>. The <u>Vermont Department of Disabilities</u>.

Aging and Independent Living and the Department for Children and Families administer or work with other organizations (e.g., NOFA Vermont, Vermont Foodbank, Community, Action Agencies, and Area Agencies on Aging,) to administer 3SquaresVT, the Commodity Supplemental Food Program (CSFP), the Senior Farmers' Market Nutrition Program, the Special Supplemental Nutrition Program for Women. Infants and Children (WIC), and Farm to Family coupons. Additionally, the Vermont Department of Forests. Parks and Recreation has created the Venture Vermont Outdoor Challenge to encourage Vermonters to spend more time outdoors.

Hospitals: Several of Vermont's hospitals—*Eletcher Allen Health Care*, *Brattleboro Memorial Hospital*, *Gifford Medical Center*, *Northeastern Vermont Regional Hospital*, and *Southwestern Vermont Health Care*—are working to improve the health of patients, customers, and their communities by providing fresh, local food. Several of these hospitals are signatories of *Healthy Food in Health Care* (a national campaign to improve food services at health care facilities), are members of the *Vermont Fresh Network*, or serve food grown in their own gardens.

Educational Institutions: Vermont's Farm to School network is composed of schools, school districts, teachers, principals, food service staff, and administrators committed to food system education and healthy meals, in addition to the nonprofit support organizations. Vermont's institutions of higher education offer many food system degree programs and skill-building courses, including UVM Extension's <u>Master Gardener</u> program, the <u>UVM Department of Nutrition and Food Sciences</u>, <u>New England Culinary</u> <u>Institute</u>, and the <u>Farm and Food Project</u> at <u>Green Mountain College</u>. <u>Chapter 4. Section 2:</u> <u>Food System Education</u> describes Vermont's food system degree programs in detail.

Many of Vermont's higher education institutions that offer food system degree programs also participate in community outreach activities. For example, the UVM Center for Sustainable Agriculture and EFNEP offered the <u>Around the Table</u> pilot program to participants in Chittenden County and the Northeast Kingdom in 2010-2011. The program was designed as a series of classes that provided participants tools to increase self-sufficiency (e.g., through container gardening, food preservation, and composting), sourced food from local farmers, provided recipes that integrated locally and seasonally available products, and helped participants access local food in a cost-effective manner. The pilot program was held in partnership with many community

Good Food Good Medicine

Food Works at Two Rivers Center's Good Food Good Medicine program takes a seasonal approach to good health and nutrition at two low-income housing sites in Barre. In the spring and summer months, residents at Highgate and Green Acres apartments grow their own food in community gardens or in raised container beds; the fall focus is on harvest, food preservation, and seasonal cooking. A monthly community meal continues throughout the winter with special



Good Food Good Medicine community meal.

attention paid to health, wellness, and herbalism.

The program not only increases residents' food security and independence, but also has reintroduced participants to skills that weren't passed down in the last few decades. "We're finding a strong desire by people to relearn new skills," said Joseph Kiefer of *Food Works*, "and we realized that to have a long-term impact on people's lives, it took a sustained commitment to relationship building throughout the year."

Classes include the entire family, with children eager to help cook meals and grow their own food, which leads to exposure to new vegetables, such as rutabagas, parsnips, and Chioggia beets. "Part of it includes retraining the tongue to local, healthy foods and withdrawing from high-fat, high-salt, industrial diets," Kiefer said. "Meanwhile, the backyard herbalism classes help to address many of the health and wellness issues people are facing, such as weak immune and respiratory systems." Participants grow their own herbs and learn to make teas, vinegars, and tinctures to support their overall health and wellness.

hosts, including the <u>Healthy Cities Youth Initiative</u>, the <u>Visiting Nurse Association</u>, <u>Burlington Area Community Gardens</u>, the <u>Milton Family Community Center</u>, <u>Northeast Kingdom Community Action</u>, the <u>Sheffield Food Pantry</u>, and <u>Saint Johnsbury Head Start</u>. Participants enjoyed the farm connection with each class, and had the most positive feedback about field trip to farms.⁹³ **Businesses and Industry Associations** (not shown on Table 3.1.9): Many of Vermont's food system businesses (e.g., *Cabot Creamery Cooperative, King Arthur Elour*) offer classes and demos and provide food donations. Vermont's food system industry associations (e.g., *Vermont Beekeepers Association*, *Northern Grain Growers Association*) also offer workshops, tours, and educational materials to members and the general public.

Market Outlets (not shown on Table 3.1.9): Vermont's food co-ops and natural foods stores (e.g., *Healthy Living, Hunger Mountain Co-op*) carry local foods and typically offer cooking, health, and nutrition demonstrations and classes. Many of the larger grocery stores in Vermont now have "Vermont" sections, but usually not classes or workshops. The *Vermont Fresh Network* (VFN) connects local food producers with restaurants and food service providers and gives consumers a visual cue—the VFN logo in restaurant windows—that local food is being served.

With the Vermont Fresh Network logo, people going into restaurants know that the chef has a relationship with farmers. I would love to see those more in schools because then it starts to be an image icon that students start to look at when they go out with their family.

–Central Vermont focus group participant

Food system education and community outreach programs are offered by many types of organizations to many types of audiences. In general, however, evaluations of the design and effectiveness of these programs are not easy to find, common metrics of success are not widely shared, and we do not have a good understanding of the types and effectiveness of education and outreach provided by businesses and industry associations (including an understanding of whether some industry associations are doing more, less, better, or worse than others).

Table 3.1.9: Vermont Consumer Education Organizations and Programs

Table 3.1.9: Vermont Consumer Education Organizations and Programs			
Organizations providing food system education and working to get local food in K through 12 schools			
Vermont Farm to School Programs www.farmtoschool.org/VT/programs.htm Directory of Farm to School programs.	Vermont Agency of Agriculture, Food and Markets www.vermontagriculture.com/education/farmtoschool/index.html Grant program for schools to develop Farm to School programs and integrate local foods.		
Organizations working to get local food	l in institutions of higher education		
Bennington College www.bennington.edu/Students/HoursInfo/Dining- Hall MenuInformation.aspx	Castleton State College www.farmplate.com/local-food/dining-services/ sodexo-castleton-state-college-castleton-vt Supplier: Sodexo	Champlain College www.champlain.edu/dining-services.html Supplier: Sodexo. Vermont Fresh Network Member.	College of St. Joseph www.csj.edu/student-life/campus-life/food- service/ Supplier: Fitz-Vogt & Associates
Goddard College www.goddard.edu/about-goddard/policies-disclo- sure/institutional-initiatives/sustainability-goddard Supplier: School garden and Food Works.	Green Mountain College www.greenmtn.edu/farm_food/local-food.aspx Supplier: School farm and Chartwells.	Johnson State College www.farmplate.com/local-food/dining-services/ sodexo-johnson-state-college-johnson-vt Supplier: Sodexo.	Landmark College www.landmark.edu/campus-life/residential-life1/ dining/ Supplier: Chartwells.
Lyndon State College www.lyndonstate.edu/students-faculty-staff/ offices-services/food-services/ Supplier: Sodexo.	Marlboro College www.marlboro.edu/resources/foodservice/ Supplier: Metz Culinary Management. Maintains organic farm.	Middlebury College www.middlebury.edu/sustainability/food/dining Supplier: School farm and Reinhart Burlington Food Service. Vermont Fresh Network Member.	Norwich University www.norwichdining.com Supplier: Sodexo.
St. Michael's College www.smcvtdining.com Supplier: Sodexo.	Sterling College www.sterlingcollege.edu/kitchen.html Supplier: School farm and local businesses.	Southern Vermont College www.svc.edu/student/food.html Supplier: Sodexo.	University of Vermont http://uds.uvm.edu/social.html Supplier: Sodexo.
Vermont Student Assistance Corporation www.vsac.org Supplier: Sodexo. Vermont Fresh Network Member.	Vermont Technical College www.vtc.edu/right.php/pid/29/sid/347 Supplier: Sodexo.		
Organizations working to instill good eating habits, improve human health, and improve the understanding and ability of Vermonters to obtain, grow, store, and prepare nutritional food			
STATE GOVERNMENT			
Vermont Agency of Agriculture, Food and Markets www.vermontagriculture.com Agriview publication; Food Safety and Consumer Protection Division.	Vermont Agency of Human Services http://humanservices.vermont.gov Departments of Health; Children and Families; Disabilities, Aging and Independent Living.	Department for Children and Families http://healthvermont.gov/family Fit and Healthy Vermonters program; Girls on Track; WIC.	Department of Disabilities, Aging and Independent Living http://ddas.vermont.gov 3SquaresVT; Commodity Supplemental Food Program; Senior Farmers' Market Nutrition Program.
STATE GOVERNMENT		COMMUNITY ACTION COUNCILS	
Department of Health http://healthvermont.gov Fit and Healthy Vermonters program; Eat for Health; Get Moving Vermont; Fit and Healthy Kids; WIC; food safety.	Department of Forests, Parks and Recreation www.vtstateparks.com/htm/venturevt.htm Venture Vermont Outdoor Challenge.	BROC (Bennington, Rutland) www.broc.org/foodnutrition.php Food shelf; Farm to Family coupons; 3SquaresVT; Child and Adult Care Food Program.	Central Vermont Community Action Council www.cvcac.org Food shelves; 3SquaresVT; Farm to Family coupons.

Table 3.1.9: Vermont Consumer Education Organizations and Programs

Organizations working to instill good eating habits, improve human health, and improve the understanding and ability of Vermonters to obtain, grow, store, and prepare nutritional food			
COMMUNITY ACTION COUNCILS			AREA AGENCIES ON AGING
Chittenden Community Action www.feedingchittenden.org Chittenden Emergency Food Shelf.	Northeast Kingdom Community Action www.nekca.org Food shelves.	Southeastern Vermont Community Action www.sevca.org/3squaresvt-food-stamps Food shelves; 3SquaresVT.	Central Vermont Council on Aging www.cvcoa.org/senior-meals-food.html Meals on Wheels; community meals; 3SquaresVT; Farm to Family coupons; food shelves; CSFP.
AREA AGENCIES ON AGING			
Champlain Valley Agency on Aging www.cvaa.org Meals on Wheels; community meals.	Area Agency of Aging for Northeastern Vermont www.nevaaa.org/images/local%20foods%20 year%203.pdf Meals on Wheels; 3SquaresVT: Local Foods Initiative.	Council on Aging for Southeastern Vermont www.seniorsolutionsvt.org/meals-nutrition Meals on Wheels, community meals; 3SquaresVT; Farm to Family coupons; food shelves; CSFP; nutrition counseling.	Southwestern Vermont Council on Aging http://svcoa.org/programs.php?id=3 Meals on Wheels; community meals.
HOSPITALS / HEALTH CARE			
Brattleboro Memorial Hospital www.bmhvt.org/services/nutrition-services Healthy Food in Health Care signatory; Vermont Fresh Network Member; Windham County Farm to School member; lists local suppliers; summer farmers' market; nutrition counseling.	Brattleboro Retreat www.brattlebororetreat.org Sources local food through Black River Produce.	Central Vermont Medical Center www.cvmc.org Healthy Food in Health Care signatory; lists local suppliers; NECI trained staff.	Fletcher Allen Health Care www.fletcherallen.org Healthy Food in Health Care signatory; operates Center for Nutrition and Healthy Food Systems; Vermont Fresh Network Member; lists local suppliers; maintains garden; honey supplied by nutrition worker.
Gifford Medical Center www.giffordmed.org/services/nutrition_food.shtml Offers locally grown produce on menu.	Northeastern Vermont Regional Hospital www.nvrh.org/interior.php/pid/5/sid/38/tid/102 Healthy Food in Health Care signatory; Vermont Fresh Network Member.	Northwestern Medical Center www.northwesternmedicalcenter.org Vermont Fresh Network Member.	Porter Medical Center http://portermedical.org Vermont Fresh Network Member.
HOSPITALS / HEALTH CARE	OSPITALS / HEALTH CARE HIGHER EDUCATION INSTITUTIONS		
Southwestern Vermont Medical Center http://svhealthcare.org Healthy Food in Health Care signatory.	Green Mountain College www.greenmtn.edu/farm_food.aspx Sustainable Agriculture and Food Production major; Farm and Food Project; Cerridwen Farm.	Johnson State College www.jsc.edu Health Sciences major.	Middlebury College www.middlebury.edu/sustainability/food Campus farm.
HIGHER EDUCATION INSTITUTIONS			
New England Culinary Institute www.neci.edu Culinary Arts; Baking and Pastry Arts; and Hospitality and Restaurant Management majors.	Sterling College www.sterlingcollege.edu Sustainable Agriculture major; campus farm; Vermont's Table summer program.	University of Vermont www.uvm.edu Food Systems Spire; College of Agriculture and Life Sciences; Department of Nutrition and Food Sciences; Dairy Center of Excellence; Extension; Master Gardener program; Field Days; Institute for Artisan Cheese; Center for Sustainable Agriculture; Food Systems minor; Preveterinary program.	Vermont Technical College www.vtc.edu Diversified Agriculture, Agribusiness Management Technology, and Veterinary Technology majors.

Table 3.1.9: Vermont Consumer Education Organizations and Programs

Organizations working to instill good eating habits, improve human health, and improve the understanding and ability of Vermonters to obtain, grow, store, and prepare nutritional food

NONPROFIT ORGANIZATIONS (NOT FOOD HUBS OR REGIONAL FOOD CENTERS)

Hunger Free Vermont www.hungerfreevt.org Learning Kitchen program; establishing and expanding free or reduced-fee school meal programs, as well as after-school and summer meal programs; 3SquaresVT outreach.	NOFA Vermont http://nofavt.org Farm to School; workshops; conferences; directories of farmers' markets, CSAs, and farm stands; educational materials; organic certification and other technical assistance.	Shelburne Farm www.shelburnefarms.org Farm to School; Preschool Adventures program; field trips; summer camps; educational materials; online marketplace.	Slow Food Vermont www.vermontslowfood.org Cooking classes; community events (e.g., potlucks).
Vermont Community Garden Network www.burlingtongardens.org Increasing food literacy through garden-based education and participation in food production.	Vermont Farm to School Programs <i>www.farmtoschool.org/VT/programs.htm</i> Directory of Farm to School programs.	Vermont Foodbank wwwtfoodbank.org Vermont's largest hunger-relief organization; food distribution to shelves, shelters, meal sites; youth programs; community kitchen; gleaning program; Kingsbury Farm.	Vermont Fresh Network www.vermontfresh.net Connects food producers and restaurants; provides education to restaurant staff; holds community events.
FOOD HUBS OR REGIONAL FOOD CENTE	RS		
Addison County Relocalization Network http://www.acornvt.org Tour de Farms bike ride; Guide to Local Foods and Farms; Wholesale Collaborative; community events: workshops, conferences.	Building a Local Economy http://balevt.org Locally Grown Guide for White River Valley; Local Fest community event.	Bennington Farm to Plate Council www.bf2p.org Local food directory; annual local food banquet at Bennington Museum; Meals on Wheels Farm to Folks program.	The Center for an Agricultural Economy www.hardwickagriculture.org Operates Vermont Food Venture Center; conducts tours, workshops, and events; community garden; development of regional NEK food system plan.
First Branch Sustainability Network Organizing "Four Rivers Regional Food Center Project;" supports Chelsea Farmers' Market.	Food Works at Two Rivers Center http://foodworksvermont.org Online marketplace; gardening and cooking programs; Good Food Good Medicine program; food preservation; holds community events.	Post Oil Solutions www.postoilsolutions.org Brattleboro Winter Farmers' Market; Townshend Common Farmers' Market; community events (e.g., classes); Great Falls Food Hub.	Green Mountain Farm Direct http://greenmountainfarmdirect.org Regional food distributor that connects farmers to schools and institutions in northern Vermont; mobile farmers' market project.
Intervale Center www.intervale.org Farm incubator; food hub—CSA program; gleaning program; business assistance; nursery and compost products; community events.	Local Resource Network http://localresourcenetwork.org Local food directory; community events.	Mad River Food Hub http://madriverfoodhub.com Food processing and storage facility.	Pompanoosuc Agricultural Society http://forage.ning.com Networking website; investigating food processing and storage facility.
Rutland Area Farm and Food Link www.rutlandfarmandfood.org Locally Grown Guide; community events; Farm to Workplace CSA; Grow a Row program; Everyday Chef project.	St. Johnsbury Local Food Alliance http://stjlocalfoodalliance.org Online marketplace; local food directory; community events.	Vital Communities - Valley Food and Farm www.vitalcommunities.org/agriculture Valley Farm & Food Guide; new farmer meet ups; community events.	
Windham Farm and Food Network Windham-Farm-and-Food-Network Online marketplace.	TRANSITION TOWN	COMMUNITY GROUP	
	Transition Vermont http://transitionvermont.ning.com Networking website; many Transition Towns in Vermont provide community events and skill-building workshops.	Waterbury-Duxbury Food Council Community events; conducted "Community Food System Assessment;" consumer education and marketing; Local Land Link program.	

Marketing of Vermont Food Products

─ The Value of the Vermont Brand

McDonald's has an annual marketing budget estimated to exceed \$2 billion⁹⁴—or about the same as our estimate of total Vermont food expenditures. When advertising budgets from PepsiCo, Coca-Cola, Kraft Foods, Wal Mart, General Mills, Nestle, Dole, Kellogg's, and dozens of other major food companies are taken into account, it is clear that food markets are decidedly uneven: marketers of Vermont food products cannot compete with marketing dollars alone. How do Vermont's state government, food system businesses, industry associations, and nonprofits market Vermont food products?

The VAAFM operated a "Seal of Quality" program from 1982 until it was discontinued in March 2010 "due to the lack of industry quality standards and the lack of staffing and funding resources at" the VAAFM.95 The VAAFM also operated a <u>Buy Local</u> campaign, and the marketing materials are still available on



Discontinued Vermont Seal of Quality.

their website, even though this campaign has also been discontinued. A new "Made in Vermont" branding program is being developed by VAAFM, the <u>Vermont Agency of Commerce and Community Development</u>, <u>Vermont Department of Tourism and Marketing</u> (VDTM), and the <u>Chief Marketing Officer</u> to promote food products, wood products, and crafts. The Made in Vermont brand will be a self-certification program that requires that facilities be located in Vermont and meet the <u>Vermont Origin Rule</u> and applicable VAAFM and/or <u>Department of Health</u> requirements. The program is intended to 1) lower barriers of market entry for Vermont products, 2) improve sales over unbranded products, 3) improve the competitive position of Vermont products in the marketplace, and 4) create leverage for new and existing brands.

What assets or attributes characterize the "Vermont brand"? From 2007 to 2009, the <u>Vermont Council on Rural Development</u> led the <u>Council on the Future of Vermont</u>, a project designed to gauge Vermonters' perceptions about the future of the state. This report found that the **working landscape is Vermont's most valued characteristic**,

with almost all respondents agreeing that it is key to Vermont's future.

The Council also found that protecting this working landscape is a critical part of protecting the value of the Vermont brand. A <u>Vermont Working Lands</u>
<u>Enterprise Program</u> was subsequently created by the Vermont Legislature in 2012 to provide funding to food system and forest products businesses.

It seems to me like you could package Vermont poo, put a sticker on it, and it would sell like hotcakes because there is that trust and understanding that it's a high quality product.

–Upper Valley focus group participant

In 2010, the VDTM released the most up-to-date and comprehensive research on the Vermont brand currently available. Research performed by *Resource Systems Group Inc.* focused on perceptions of vacationers from Massachusetts, the greater New York City region, Montreal, Toronto, and Ottawa, as well as Vermonters experiencing new areas of the state as visitors. **An "unspoiled landscape" was viewed as an important attribute that Vermont "owns." More specifically, the image most associated with Vermont in summer was a scene of cows grazing with a red barn in the background. These results show that a working landscape defines a positive Vermont experience for many visitors.** Creative culinary choices ranked low in visitors' priorities when choosing a Vermont vacation. Although some visitors may care about this attribute, others likely have not yet made a strong connection between the farmland vistas they value and great dining experiences.⁹⁶

Substantial feedback from Vermonters and tourists from two recent reports, then, indicate that Vermont's working landscape is a major selling point. The VDTM markets Vermont experiences—including working landscape experiences—via web, radio, print, outdoor advertising, and social media in Boston, New York City, and Montreal, as well as attending international trade shows and maintaining the *Vermontvacation* website. The VDTM also markets Vermont's working landscape through vacation packages and cross-promotions with, for example, sugar-makers, cheese-makers, and restaurants. The VDTM estimates that at least 10 million people visited Vermont in 2009—many of whom were attracted by the beauty of the landscape. These visitors spent over \$1.42 billion, generated about \$200 million in tax and fee revenues, and contributed to the employment of 33,530 people.⁹⁷

Conventional wisdom suggests that the Vermont brand and the branding of Vermont food products are mutually reinforcing: Vermont's wholesome reputation enhances the value of Vermont food products, and the quality of Vermont food products enhance Vermont's reputation. For example, the *Ben & Jerry's* factory tour is the most popular tourist destination in Vermont. **Strangely, however, relatively little publicly available research exists on the intersection of the value of the Vermont brand and the marketing of Vermont food products.**

Of course, many food system businesses use Vermont's reputation to their advantage (see sidebar), but there has been no systematic assessment of how they market their products, where they market their products, or the size of their marketing budgets. A 2006 study by <u>Cabot Creamery Cooperative</u> and VDTM explicitly investigated visitor perceptions of Vermont and of—what at the time was considered—a signature Vermont food product (Cabot cheese). This study reported that maple syrup, ice cream, and cheese are the products most associated with Vermont (e.g., 93.8% of respondents associated maple syrup with Vermont). Seventy-five percent of respondents reported knowledge of the Cabot brand, and visitors also reported higher loyalty to Cabot after spending time in Vermont. Sampling Cabot cheese while in Vermont improved the level of loyalty after leaving the state. As with the 2010 VDTM survey, this study showed areas in which Vermont food producers could capture greater interest from visitors. For example, although respondents clearly associate food items with Vermont products, slightly fewer than half described Vermont products as "high quality."98 Interestingly, Cabot recently dropped an image of the shape of Vermont from its packaging to comply with the Vermont Origin Rule, which requires that 75% of a Vermont product be sourced in the state.

A marketing survey of 263 Vermont farms (sample size = 800; response rate = 33%) conducted in 2010 found that 39% of farms had "no challenge" marketing their products. The next most commonly tagged challenges were "marketing: time and know how" and "cost of advertising." Interestingly, only 17 respondents identified educating the consumer as a challenge. Most of the respondents for this survey sold vegetables, maple products, berries, eggs, and meat (excluding poultry) at their own farm stands, farmers' markets, restaurants, co-ops, small retail stores, to wholesale distributors, and through CSAs. "Word of mouth" was viewed as the most useful strategy for reaching consumers, but respondents were also interested in

The Inn at Weathersfield

Six years ago, the chef at the <u>Inn at</u>

<u>Weathersfield</u> developed his own Farm
to Plate style of cuisine representing the
best in Vermont's farms. "Sourcing local
produce, honey, and cheeses was pretty
easy," Chef Jason Tostrup recalled, "but
achieving a meat program was the biggest
obstacle." The first farm partnership was
with <u>Black Watch Farms</u>, which raised



Pulling up to the Inn at Weathersfield.

Highland cattle just five minutes from the Inn. Both the farmer and business owner learned a lot from that first collaboration. "It took about a year before we got it right as far as bringing cattle to where they needed to be for consumption, getting the slaughtering and butchering right, determining how many animals were needed, and planning for the upcoming year," said Tostrup. "The fun part was learning how to use the whole animal – the challenging part was the financial end."

One of the most important aspects to the successful collaboration was strong communication between the two businesses. As the partners discovered, a commitment to a local purchasing program depends on a fundamental understanding about how each business works. "Unlike a traditional business model, this arrangement is more of an investment. I have to build it into the inventory structure, like with wine—a restaurant has a \$10-30,000 inventory that's planned in advance—and then those costs are converted into vendor payment and menu pricing structures. It's a unique business model, and while we aren't huge, we are able to sustain both businesses throughout the year."

The vision and investment paid off, and today the *Inn at Weathersfield* has expanded its commitment to include pork from nearby *Happy Hogs Farm* and veal from Lisa Kaimen's *Jersey Girls Dairy*. Tostrup calls it the "Three Farm Trilogy" and like a well-told tale, it engages and interests guests at the Inn. "It's fun to turn people onto the story and idea of relationship because it's not just about buying local, it's about telling the farmers' stories and helping their businesses. I like promoting the business side from the point of view of having an open and honest long-term relationship between chefs and farmers. Because we're working together on the financial side, the farmer is growing alongside our business."

Local Banquet, Edible Green Mountains), newspapers (Seven Days, and the Savorvore section in the Burlington Free Press), publishers (Chelsea Green Publishing), and TV stations (e.g., WCAX) highlight Vermont food system businesses, and provide food reviews and news.

Industry-Specific Marketing: Vermont has many food producer industry associations that vary quite a bit in their advocacy and marketing toolkits, from no online presence to major efforts to attract consumers to their products. Here are a few of them:

- **Dairy Products:** Vermont's largest agricultural sector, dairy, has an uneven marketing presence. On one hand, most fluid milk produced in Vermont leaves the state for processing and is branded with non-Vermont labels (e.g., Hood). Vermont's dairy industry, particularly fluid milk producers, have very little online or marketplace presence, relying principally on *Keep Local Farms*, a program that enables contributions to New England dairy farms at retail checkouts, Must Be The Milk, a program of Keep Local Farms, and Vermontdairv.com, a website administered by the VAAFM. On the other hand, many value-added dairy products have local, regional, national, and international recognition. For example, Ben & Jerry's has strong brand recognition, with scoop shops in many states and countries, a factory tour, free cone days, ice cream flavors named after celebrities (e.g., Stephen Colbert's Americane Dream, Phish Food), sponsorships, and donations. Or, for example, Vermont cheeses are viewed as world-class and have won international awards; the <u>Vermont Cheese Council</u> holds the Vermont Cheesemakers Festival every year to showcase local cheeses to Vermonters and tourists.
- Meat Products: As described in <u>Chapter 3. Section 3. Food Production: Livestock</u> and <u>Appendix E: Meeting the Demand</u>, there is significant and growing local and regional demand for Vermont produced, grass-fed, or organic meat. It is not clear—from publicly available information—what types of messaging, branding, and marketing outreach Vermont's livestock and poultry production and processing associations are doing to take advantage of this demand.
- Maple Products: Vermont dominates maple syrup production in the United States and Vermont maple products can be found at direct market outlets, co-ops, natural food stores, most grocery stores in Vermont, as well as online

- marketplaces. The <u>Vermont Maple Sugar Makers Association</u> holds the Maple Syrup Open House weekend every year to show Vermonters and tourists how maple syrup is made.
- Beer and Wine: The <u>Vermont Brewers Association</u> and the <u>Vermont Grape and Wine Council</u> both utilize tours, tastings, and passport programs to entice customers. The <u>Vermont Brewers Festival</u> has become an annual pilgrimage for thousands of people.

Market Outlets (not shown on Table 3.1.10): Vermont's co-ops and other similar stores (e.g., Healthy Living) promote (including through circulars) and sell local food. Many restaurants are members of the Vermont Fresh Network and emphasize their connections to Vermont food producers. The <u>New England Culinary Institute</u> emphasizes local food at its restaurants. Direct sales market outlets (e.g., farmers' markets, CSAs, farm stands) are, of course, the primary means for Vermonters to purchase local foods. Some grocery stores do have "Vermont" sections, but they do not advertise Vermont products in their circulars. The <u>Vermont Grocers' Association</u> (VGA) is an industry association for many retail establishments in Vermont. Since many of its members are in direct competition, the VGA does not assist with marketing but rather links members together through advocacy on public policy. The VGA also administers the Vermont Alliance of Independent Country Stores—an alliance of 49 country stores—and the <u>Vermont Specialty Food Association</u>—an association of 385 specialty food businesses making over 1,500 Vermont specialty food products—and assists both organizations with limited in-store marketing and trade show representation. It is unclear what "limited service" restaurants are doing to market local food.

Tourism Marketing: Vermonters and tourists have numerous opportunities to visit Vermont farms, museums, processing facilities (e.g., microbreweries) and agricultural education centers as part of a growing array of agriculture and culinary tourism options. Long-standing rural heritage and conservation education landmarks such as *Billings Farm and Museum* and *Shelburne Farms* offer glimpses of the state's agricultural past, with hands-on farm-based experiences. Multiple towns across the state host fairs and festivals celebrating Vermont's food system, such as the *St. Albans Maple Festival* or Brattleboro's *Strolling of the Heifers*. Some regional groups, such as the *Northeast Kinadom Travel and Tourism Association*, highlight local culinary experiences and farms



Billings Farm horse ride.

stays. An increasing number of farms are adding to their incomes by offering farm tours, farm stays, tourist events, and educational classes. The <u>Vermont Farms Association</u> connects tourists with working farms where visitors can have hands-on experiences (e.g., farm stays). <u>Vermont Farm Tours</u> is a private business that offers personal artisan cheese and vineyard tours.

In order to better coordinate and promote the growing interest in farm and food related tourism, the Vermont Agriculture and Culinary Tourism Council (VTACT) was formed in 2009 with representatives from farming, food, and tourism organizations. VTACT members worked together to create *Dig In Vermont* (DigInVT), a state of the art website for exploring and creating "trails" (e.g., Vermont Beer and Cheese Pairing Trail) that map end user experiences.



Government Agencies: VAAFM's Agricultural Development division, comprised of 10 staffers, oversees agency marketing efforts. The responsibilities are shared amongst the team, including a full-time Marketing and Promotions Administrator, whose role encompasses executive speech writing, media relations, website management, public information requests, internal communications, oversight of agency publications and events, and marketing efforts.

In the late 1990s and early 2000s, the Agency oversaw a robust marketing effort which was used to promote individual producer segments and increase overall awareness and demand for Vermont agricultural products. In recent years, the budget has been cut to \$40,000 and the agency has subsequently narrowed its marketing scope.

Today VAAFM primarily relies on the ability of staffers to leverage relationships and provide hands-on technical assistance to producers to grow consumer demand and open new markets. VAAFM also helps producers by administering grants.

The current budget is primarily used to print collateral, sponsor key events, and cover incidental expenses. VAAFM also use these funds to support DigInVT, the <u>Vermont Farm Show</u>. The <u>Big E</u>, Farm to School, the Workplace CSA program, trade shows, and related promotional activities.

The current marketing budget is supplemented by funding from some key third-party sources, particularly from the dairy industry. This enables VAAFM to support dairy-specific promotions within the state, including <u>VermontDairy.com</u> and Keep Local Farms.

As with food system consumer education and community outreach programs, **there** has been no systematic assessment of how Vermont's food system businesses and industry associations market their products, where they market their products, or the size of their marketing budgets. For example, it is unclear what many industry associations are doing to encourage Vermonters and regional customers to consume Vermont meat, fruits, vegetables, berries, grains, or honey. The increasing ubiquity of social media and mobile devices requires that food system businesses, industry associations, and other food system marketers get up to speed on these opportunities for building brand awareness, creating relationships, low cost advertising, and reputation management.

ANALYSIS

The McDonaldization of the global food system has created a series of enduring conflicts: on one hand, more foods, cuisines, and food delivery methods are conveniently—and cheaply—available than at any other time in human history. On the other, food-related health problems, food system corporate consolidation, and environmental degradation caused by the global food system have also increased. As the global food system developed, Vermont's formerly more self-sufficient food system lost production and processing capacity, and many of its citizens have lost basic food production and preparation skills. As a result, Vermont has a food production scalability challenge.

Consumer demand is, of course, a powerful trigger for boosting local food production. Despite massive marketing budgets for non-local foods, demand for local food in Vermont is nevertheless increasing. This section has outlined key variables for

Table 3.1.10: Vermont Food System Marketing Organizations and Programs

Organizations working to get consumers to buy/consume Vermont food products			
LOCAL FOOD DIRECTORIES (EXCEPT INDUSTRY ASSOCIATIONS)			
Vermont Agency of Agriculture www.vermontagriculture.com Statewide directory of growers, products, farmers' markets, and CSAs.	VT Department of Tourism & Marketing www.vermontvacation.com Geared toward tourists; includes maps of farmers' markets, farm tours, and farm trails.	Addison County Relocalization Network www.acornvt.org A directory and informational resource on Addison County farmers and producers.	Building a Local Economy http://balevt.org Locally Grown Guide for White River Valley; Local Fest community event.
Bennington Farm to Plate Council www.bf2p.org Local food directory.	Dig In Vermont www.diginvermont.com Aimed at Vermonters and tourists who want to engage and interact with Vermont agriculture (farmers markets, CSAs, bed & breakfasts, farm trails.	Intervale Center www.intervale.org Lists Intervale farms; workplace CSA.	Lamoille County Conservation District www.lcnrcd.com/lamoille-farm-a-forest Local food directory.
Local Resource Network http://localresourcenetwork.org Local food directory; community events.	Mad River Valley Localvore Project www.vermontlocalvore.org Mad River Valley Foodshed Map.	NOFA Vermont http://nofavt.org Statewide directory of organic producers, farm stands, and CSAs.	Vermont Growers Guide www.vermontgrowersguide.com Lists food producers and markets in Addison, Chittenden, Franklin, Grand Isle, Rutland, and Washington Counties.
St. Johnsbury Local Food Alliance http://stilocalfoodalliance.org Local food directory; community events.	Vermont Farmers Market Association http://vtfma.org Directory of farmers' markets.	Vermont Fresh Network www.vermontfresh.net Provides listings for members—food producers and restaurants.	Vermont Land Trust www.vlt.org Lists farm stands.
Rutland Area Farm and Food Link	Vital Communities - Valley Food and Farm	NATIONAL DIRECTORIES	
www.rutlandfarmandfood.org Locally Grown Guide; community events.	www.vitalcommunities.org/agriculture Valley Farm & Food Guide.	FarmPlate: <u>www.farmplate.com</u> Real Time Farms: <u>www.realtimefarms.com</u> Local Harvest: <u>www.localharvest.org</u>	(now Your Farmer, Know Your Food: www.usda.gov/maps/maps/kyfcompassmap.htm
ONLINE MARKETPLACES			
Farmers To You http://farmerstoyou.com Online marketplace that connects Vermont food producers with Boston area residents.	Food Works at Two Rivers Center http://foodworksvermont.org Online marketplace (Harvest to Market platform); community events.	Green Mountain Farm Direct http://greenmountainfarmdirect.org Regional food distributor that connects farmers to schools and institutions in northern Vermont; mobile farmers' market project.	St. Johnsbury Local Food Alliance http://stjlocalfoodalliance.org Online marketplace (Harvest to Market platform); community events.
Windham Farm and Food Network	Yourfarmstand	NATIONAL ONLINE MARKETPLACES	
<u>Windham-Farm-and-Food-Network</u> <u>Online marketplace</u> (Harvest to Market platform).	www.yourfarmstand.com Online marketplace for many towns in Vermont.	Local Dirt: <u>http://localdirt.com</u> Farmigo: <u>www.farmigo.com</u>	MyWebGrocer: http://mywebgrocer.com

Table 3.1.10: Vermont Food System Marketing Organizations and Programs

Organizations working to get consumers to buy/consume Vermont food prod	ucts
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INDUSTRY ASSOC	CIATIONS
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INDUSTRY ASSOCIATIONS			
Northern Grain Growers Association http://northerngraingrowers.org Lists grains growers and bakers in Vermont; marketing via newsletter and website.	Vermont Beef Producers Association www.vermontbeefproducers.org Lists beef producers in Vermont.	Vermont Beekeepers Association www.vermontbeekeepers.org Lists members; sells cookbooks, hats, and magnets; 2012 Eastern Apicultural Society conference in Vermont.	Vermont Brewers Association http://brewersvt.com Lists members; tour of breweries, brewpubs, and wineries; bumper stickers; passport program; Vermont Brewers Festival.
Vermont Cheese Council www.vtcheese.com Lists members; Vermont Cheese Trail; Vermont Cheesemakers Festival; newsletter; participation in international awards.	Green Mountain Dairy Farmers Cooperative Federation, Inc. No online presence.	Vermont Farm Bureau www.vtfb.org Does not list members; Vermont Fences magazine.	Vermont Feed Dealers and Manufacturers Association No online presence.
Vermont Grape and Wine Council www.vermontgrapeandwinecouncil.com Lists members; tour of wineries, cideries, and mead producers; newsletter; passport program; community events.	Vermont Grass Farmers Association www.uvm.edu/~pasture/?Page=vgfa.html Directory of Grass-Fed Products; newsletter; sells apparel; Vermont Grazing and Livestock Conference.	Vermont Holstein Association No online presence.	Vermont Maple Sugar Makers Association www.vermontmaple.org Lists members; Maple Open House Weekend; Maple Festival; promotional DVD.
Vermont Meat and Poultry Processors Association No online presence.	Vermont Poultry Association No online presence.	Vermont Sheep and Goat Association http://vtsheepandgoat.org Lists members; classified ads on website; newsletter ; sells apparel; Sheep and Wool Festival.	Vermont Specialty Foods Association <i>www.vermontspecialtyfoods.org</i> Directory of members; trade show attendance; oldest association of its kind in the country.
Vermont Tree Fruit Association www.vermontapples.org Lists orchards; Harvest Guide.	Vermont Turkey Growers Association No online presence.	Vermont Vegetable and Berry Growers Association www.uvm.edu/vtvegandberry/index.html Lists members.	All Other Associations www.vermontagriculture.com/about/agorgs.html
AG AND CULINARY TOURISM			
Billings Farm and Museum www.billingsfarm.org Working farm; museum and exhibits; school visits.	Dig in Vermont www.diginvermont.com Aimed at Vermonters and tourists who want to engage and interact with Vermont agriculture (farmers markets, CSAs, bed & breakfasts, farm trails.	Newport Fresh by Nature www.discovernewportvt.com/fresh Directory of farms, food producers, and restaurants in Newport.	Northeast Kingdom Travel and Tourism Association www.travelthekingdom.com Highlights culinary experiences, farm stays, and other food system experiences.
Shelburne Farm www.shelburnefarms.org Working farm; field trips; summer camps; educational materials; online marketplace.	VT Department of Tourism & Marketing www.vermontvacation.com Website includes maps of farmers' markets, farm tours, and farm trails, as well as vacation packages.	Vermont Farms! Association www.vtfarms.org Identifies farms that offer farm stays and group tours.	Vermont Farm Tours <i>www.vermontfarmtours.com</i> Offers artisan cheese and vineyard tours.
Agricultural events (e.g., fairs) www.vermontagriculture.com/buylocal/visit/fairs. html			

understanding and boosting consumer demand for local food products. Vermont has many organizations that provide some form of food system education, community outreach, and marketing of food products to local, regional, and, in some instances, national and international consumers. These organizations are encouraged to view local food purchases as a set of behaviors that move along an adoption curve and that vary by combinations of values, attitudes, beliefs, and lifestyles; socio-demographic factors; habits; personal, household, and organizational capabilities; and contextual factors. The rest of this section reviews outstanding questions and identifies strategies for advancing Goals 1, 2, 3, 10, and 15.

Research Strategies

Quantifying Local Food Purchases: VSJF worked with *University of Vermont* researchers to quantify local food purchases (see Table 3.1.7, page 29). Our initial effort surveyed market outlets and collected data from official sources, but our figure is certainly an underestimate. A number of outstanding questions need to be addressed to improve our understanding of local food purchases as a percentage of all purchases:

- How do we reconcile different definitions of "local"? For example, should our calculation only include Vermont? Should New England or the Northeast be included? Or could a "native" understanding (e.g., where the delivery trucks go) also count?
- How do we avoid double counting? The team needs to establish a working relationship with distributors to avoid double counting figures from distributors and buyers (e.g., schools, hospitals).
- How do we understand where the dollars go? For example, how do we quantify percentage breakdowns (i.e., how much do farmers receive? How much do distributors receive?) by market outlets?
- What percentage of Vermont-grown ingredients make a product local? How should we account for processed foods that may have ingredients from many locations? What criteria guide this decision? Should <u>Green Mountain Coffee</u> <u>Roasters</u> and <u>Kina Arthur Flour</u> be considered local food?

- In food processing, sourcing of products can change depending on the time of the year. How should we address this?
- How do we collect local food sales information from grocery stores?
- ← How do we develop an efficient system for annual collection from all sources?

Understanding Consumer Demand:

The Farm to School study cited previously provided valuable insights on the fruit and vegetable adoption curve of children. *NOFA Vermont's* institutional demand study revealed that over \$11.2 million in institutional purchases could be redirected toward local fruits, vegetables, and eggs. Overall, however, since evaluations of food system education, community outreach, and marketing programs and organizations are not easily available, it is unclear how interventions are conceptualized (e.g., what combinations of variables are

What would I say to someone who doesn't buy local foods? Well, I'd say: 'Come take a look at this stuff I picked this morning – I don't use any hormones or harsh chemicals, it's been grown by me, the price is right up there and it's about the same price as those supermarkets. Try this free sample – you're going to love it.'

Bennington focus group participant

considered?), how success is measured (e.g., what works?), how learning and progress are sustained over time, and so on. **Food system education, community outreach, and marketing organizations should identify the attributes that regularly influence the purchasing and eating habits of Vermonters and codify their understanding in an easily accessible location** (e.g., the forthcoming Vermont Food System Atlas).

Understanding How Vermont's Food System is Marketed: Additionally, a systematic assessment of how Vermont's food system businesses and industry associations market their products, where they market their products, and the size of their marketing budgets will improve our understanding of what works, what needs improvement, and so on.

── Natural Resource, Physical Infrastructure, and Technology Strategies

Expanding Hands-On Learning Experiences: Many options for hands-on food system learning experiences for all age groups are available in Vermont, including Farm to School programs, community gardens, and gleaning programs. The *Vermont Community Garden Network* is currently conducting a <u>needs assessment</u> to understand the kinds of assistance garden projects may require.

Labeling and Tracking Local Products: Co-ops and other natural food stores typically designate local food products with easy to see labels, and many grocery stores now have Vermont sections. *City Market* in Burlington has gone a step further and developed SKUs (i.e., stock-keeping units, a unique identifier for each product and service that can be purchased) for local foods (see graphic). The new Made in Vermont brand should make identification of Vermont products easier in local stores and throughout the region. The Deloitte *Green Shopper* study indicated that traditional grocery stores have been slow to embrace local food opportunities. The Made in Vermont team should work with local grocery stores and their corporate headquarters to highlight this opportunity to track local purchases.

Embracing Social Media: Major international food system businesses are embracing social media channels to build brand awareness, create relationships, advertise cheaply, and manage their reputations. Many private advertising firms and students (e.g., at *Champlain College*) in Vermont are skilled developers of social media campaigns; Vermont food system businesses and industry associations that currently have weak marketing presences should be encouraged to work with these organizations (e.g., *Champlain College* interns). For example, a "Social Hack," held at *Champlain College* in February 2012, invited 72 students, graphic artists, programmers, and other creative types to consider how to advance the goals of the F2P Strategic Plan. Readers can learn about the day by clicking *here*, *here*, and *here*.

── Marketing and Public Outreach Strategies

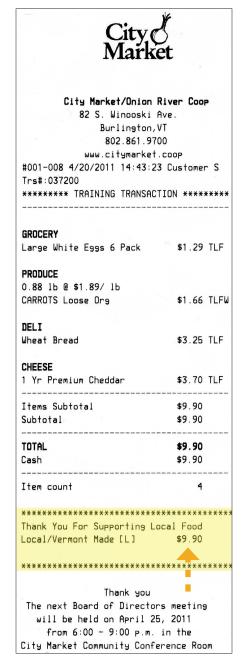
Advancing Marketing Partnerships: The DigInVT website and new Made in Vermont brand reflect strategic partnerships among farmers, trade associations, state agencies, private businesses, and nonprofit organizations. These types of strategic partnerships should be expanded to include Vermont's graphic design and advertising community. For

example, students at the Emergent Media Center at Champlain College and other schools could work with farmers and other producers to develop marketing materials, including social media strategies, branding, signage, and website overhauls. Additionally, less visible food system businesses and industry associations could be prioritized for joint marketing initiatives, matchmaking events, ad sponsorships, and other networking opportunities.

■ Technical Assistance and Business Planning Strategies

Expanding Matchmaking Events:

As described in Appendix C: Connecting the Dots, increasing Vermont food producers' access to all types of local and regional grocery stores, restaurants, and institutions is a necessary precursor to significantly expanding the consumption of locally-grown products. The VAAFM, Made in Vermont team, and other food system marketers should conduct local and statewide matchmaking events for producers and buyers, followed up with resources for buyers (i.e., training for produce managers and proprietors of general stores, including field trips to local farms and production facilities).



— ■ Education Strategies

Expanding the Farm to School Network: A 2006 evaluation of *Vermont FEED* identified five challenging issues for Farm to School programs that are still pertinent today: 1) building the knowledge base of the school food administrators and school principals; 2) integrating the cafeteria into the school curriculum; 3) identifying and connecting interested farms to local schools; 4) providing an achievable "first step" range of programs; and 5) deepening and sustaining the commitment to these partnerships with so many competing priorities for time and resources.¹⁰¹ The VAAFM recently received a four-year CDC grant to augment its state funding to address some of these issues. New funding will allow VAAFM to expand their grant program to include funding to regional Farm to School programs (e.g., Green Mountain Farmto-School) as well as direct funding to schools; address school district-wide wellness policies; expand networking opportunities (e.g., smaller meetings and more meetings - in home potluck discussions within the region).

Promoting Inclusiveness: All food system education and community outreach programs should work to dissolve the stigma that low income shoppers are not welcome at places that sell local food (e.g., farmers' markets and co-ops). Some of this shift is already happening: an evaluation of the Farm to Family coupon program found that low income consumers shopped at farmers' markets to "support local farmers."

Telling the Vermont Food System

Story: Many focus group participants and F2P Network members are interested in creating a story for public education purposes that addresses the effect of Vermont's food system on the local economy, Vermont's environment, its communities, and quality of life. Many of these kinds of stories are already being told in Vermont's local food media, but focus group participants and F2P network members would like to see these stories applied in marketing materials as well.

I think in terms of education and awareness there is a bit of a 'sowhat' element. Consumers need to understand that there is a food system, why that matters, and how what they do effects the food system. This happens through stories and anecdotes to realize everyone has a choice – and that choice does make a difference.

–Central Vermont focus group participant

GETTING TO 2020

What we eat, where our food comes from, and how our food is grown, raised, and/or processed have defined major eras in human history. The current global food system is riddled with contradictions: abundance and scarcity, diversity and predictability, cheap food and costly environmental degradation, convenient food and loss of food literacy and basic skills, more food and less control, and so on. The proposition advanced in the F2P Strategic Plan is that an increasingly strong local food system can create a healthier, more resilient foundation for linked-or nested-regional, national, and global food systems than the current industrial food system provides. At a minimum, a strong local food system can be an insurance policy against external social, economic, and ecological fluctuations. Vermont has a food production scalability problem, but increased consumer demand for and access to local food sends a powerful signal to food producers: grow more healthy food! Growing interest in food preparation skills (e.g., from gardening to home brewing) sends a powerful message to food system consumer education and community outreach providers: we're ready to learn! And improved marketing of Vermont's food system and its many products projects a powerful message to the world: we've got it going on!

This section outlined key variables for understanding and boosting consumer demand: attitudinal factors (e.g., values, attitudes, and beliefs); socio-demographic factors; habits; personal, household, and organizational capabilities; and contextual factors. Vermont's food system education, community outreach, and marketing programs and organizations are encouraged to consider these variables as they activate the following objectives and strategies (Table 3.1.11).

Table 3.1.11: Objectives and Strategies for Boosting Consumer Demand for Local Food

	8	
OBJECTIVE	STRATEGY	
Research Strategies		
To identify the benefits of local food production, processing, and consumption in order to understand consumer choices and build consumer awareness.	Identify the attributes most regularly influencing the purchasing and eating habits of Vermonters in order to inform "local foods," "buy local," or related message development and consumer education campaigns. Develop promotional materials to address barriers and build consumer awareness in order to influence consumer choices.	
To continue to refine the understanding and quantification of local food consumption in Vermont.	VSJF and UVM researchers have made a first attempt at quantifying local food purchases in Vermont, but need to work with data providers to make the process more efficient for annual collection.	
Natural Resource, Physical Infrastructure, o	and Technology Strategies	
To provide hands-on food system learning experiences for all age groups.	Develop more community, school, institutional, and home gardens to provide opportunities for consumers to become producers and increase exposure to raw products and product variation.	
	Provide community kitchens and resources for programs such as Around the Table and the Learning Kitchen to increase culinary skills such as cooking, baking, canning, and preserving.	
To embrace and utilize new marketing technologies to expand consumer demand.	Foster partnerships between food system businesses, industry associations, colleges (e.g., <i>Champlain College</i>), and private businesses that are developing innovative applications of technology (e.g., social media mobile platforms) for marketing food products.	
	Investigate opportunities for developing and/or sharing SKUs for local products that can be purchased at co-ops, country stores, and independent grocery stores.	
Marketing and Public Outreach Strategies		
To increase the visibility and marketing of local foods through statewide media and promotion campaigns based on consumer analysis and local food system awareness.	Advance strategic partnerships among farmers, public agencies, private businesses, and nonprofit organizations through joint marketing initiatives, ad sponsorships, matchmaking events, and market-building and networking opportunities.	
	Provide technical assistance and training to farmers regarding developing promotional materials and marketing their products through diverse media, including social media, labels, signage, websites, listservs, CSA flyers, and newspaper articles.	
	Increase the promotion of culinary and agritourism events to local and regional consumers through <u>Dig In Vermont</u> , <u>Vermont Farm Tours</u> , community farm and food events, ski resort promotions, health and wellness fairs, celebrity and Junior Iron Chef cook-offs, food of the month clubs, local foods at rest areas, etc.	

OBJECTIVE	STRATEGY	
Technical Assistance Strategies	JIKAILOI	
recimear/issistance strategies		
To increase the availability of local foods in markets typically carrying conventional foods, improve displays, and improve the ability for local producers to access chain stores, country stores, conveniece stores, etc.	Conduct local and statewide matchmaking events and follow up with resources for producers (e.g., group insurance, distribution hubs) and buyers (e.g., training for produce managers and proprietors of general stores).	
	Provide media campaign signage to and conduct technical assistance trainings for grocery store managers. Improve the signage and product placement of local foods to increase visibility, accessibility, and integration with food displays.	
	Increase exposure to local foods at grocery stores through product demos, sampling, and tastings, while providing recipes and preparation information.	
	Investigate 'low hanging fruit' opportunities at independent grocery stores: survey consumers, grocery buyers, and business owners to understand how local food can be made increasingly available at smaller independent grocery stores.	
Education and Outreach Strategies		
To quantify the economic, environmental, social, and health impacts of local food systems.	Create a "story" for public education purposes that addresses the effect of Vermont's food system on the local economy, including community investment, job creation and retention, the multiplier effect of dollars kept in state, and entrepreneurial opportunities.	
	Create a "story" for public education purposes that addresses the environmental benefits of Vermont's food system, including the preservation of working landscapes, the reduction of carbon footprints, and water and soil quality.	
	Create a "story" for public education purposes that addresses the quality, nutritional impact, and long-term health effects of fresh, nutrient dense, raw, or lightly processed local foods.	
	Create a "story" for public education purposes that addresses the quality of life, relationship-building, and community development benefits of Vermont's food system.	
To provide clear definitions for key food system terms or concepts in order to create a common language, reduce confusion, and provide a lexicon for building food system awareness through consumer education campaigns.	Use the Vermont Food System Atlas to address, for example, the differences between local and industrial food systems and conventional and organic production methods, fair trade, etc.	
Regulation and Public Policy Strategies		
To strengthen local decision-making and advocacy efforts around food literacy and community food security.	Follow up consumer education campaigns with policy changes (e.g., Healthy Weight Initiative) to reinforce a cultural shift toward more local food procurement and healthy eating.	

End Notes

- 1 Anatomically modern humans (*Homo sapiens*) have been around for at least 200,000 years: http://humanorigins.si.edu/evidence/human-evolution-timeline-interactive.
- 2 Jared Diamond, *Guns, Germs, and Steel: The Fates of Human Societies*. New York: W.W. Norton & Company, 1997.
- 3 Charles C. Mann, *1493: Uncovering the New World Columbus Created*, New York: Knopf, 2011.
- 4 Jan Albers, *Hands on the Land: A History of the Vermont Landscape*, Cambridge, MA: The MIT Press, 2000, pages 57 60.
- 5 Governor's Commission on Food, *Proposals for Vermont's Agriculture and Food Future*, http://vermont-archives.org/research/spotlight/pdf/Food-Final-Rpt.pdf, 1976, page 17.
- 6 Mark Kurlansky, *The Food of a Younger Land*, New York: Riverhead Books, 2009, p. 27.
- 7 Albers, page 266.
- 8 Paul Roberts, *The End of Food*, New York: Houghton Mifflin Company, 2008, p. xv.
- 9 Ibid., pp. 62, 74.
- 10 George Ritzer, *The McDonaldization of Society*, Thousand Oaks, CA: Pine Forge Press, 2000.
- 11 McDonald's 2010 Annual Report, <u>www.aboutmcdonalds.com/content/dam/</u>
 <u>AboutMcDonalds/Investors/C-%5Cfakepath%5Cinvestors-2010-annual-report.pdf.</u>
- 12 K.A. Grimm et al., "State-Specific Trends in Fruit and Vegetable Consumption Among Adults—United States, 2000-2009," *Morbidity and Mortality Weekly Report*, 2010, 59 (35): 1125-1130.
- 13 Centers for Disease Control and Prevention, <u>www.cdc.gov/obesity/data/trends.</u> <u>html#State</u>. Vermont ranks 46th in the nation for adult obesity (i.e., sixth best including the District of Columbia).
- 14 Patty Cantrell, David Conner, George Erickcek, and Michael Hamm, <u>Fat Fresh and Grow Jobs. Michigan</u>, C.S. Mott Group for Sustainable Food Systems, Michigan State University, 2006. See also Dave Swenson, <u>Selected Measures of the Economic Values of Increased Eruit and Vegetable Production and Consumption in the Upper Midwest</u>, Leopold Center for Sustainable Agriculture, 2010.
- 15 David Timmons, Qingbing Wang, and Dan Lass, "Local Foods: Estimating Capacity," *Journal of Extension*, 2008, 46 (5), www.joe.org/joe/2008october/a7.php.

- 16 Beth McKellips, "Laying the Groundwork: A Snapshot of a Regional Food System in Chittenden and Surrounding Counties," August 2009, http://intervale.org/programs/agricultural_development/documents/McKellips_ResearchStudy_1.8.10.pdf. Note that consumption data used in this study are based on a survey that is 16 years old.
- 17 Christian J. Peter, Jennifer L. Wilkins, and Gary W. Fick, "Testing a Complete-Diet Model for Estimating the Land Resource Requirements of Food Consumption and Agricultural Carrying Capacity: The New York State Example," *Renewable Agriculture and Food Systems*, 2007, 22 (2): 145-153.
- 18 David Conner, W. Knudson, M. Hamm, and C. Peterson, "The Food System as an Economic Driver: Strategies and Applications for Michigan," *Journal of Hunger and Environmental Nutrition*, 2008, 3 (4) 371-383.
- 19 Brian K. Kit, Margaret D. Carroll, and Cynthia L. Ogden, <u>"Low-Fat Milk Consumption Among Children and Adolescents in the United States. 2007-2008."</u> NCHS Data Brief, U.S. Centers for Disease Control and Prevention, September 2011.
- 20 Judy Putnam and Jane Allshouse, "Trends in U.S. Per Capita Consumption of Dairy Products. 1909 to 2011." Amber Waves, June 2003.
- 21 Christopher G. Davis et al., *Long-Term Growth in U.S. Cheese Consumption May Slow*, USDA Economic Research Service, August 2010.
- 22 National Public Radio, "Yoaurt Dominated Palates in the Aughts." January 2010.
- 23 David Jones and Brad Dorfman, <u>"Danone: US Yogurt Consumption to Double."</u> Reuters, March 16, 2010.
- 24 Carrie R. Daniel, Amanda J. Cross, Corinna Koebnick, and Rashmi Sinha, "Trends in Meat Consumption in the United States," Public Health Nutrition, www.ncbi.nlm.nih.gov/pmc/articles/PMC3045642/pdf/nihms-253312.pdf, 2011, 14 (4): 575-583.
- 25 Sam Comstock, *Vermont Meat Production: 2007 and Beyond*, University of Vermont Extension, 2007 (document no longer available on the UVM website). Note: Comstock's methodology was modified as follows: 2009 per capita availability numbers were used; 2009 Vermont population estimates were used; and the consumer weights of beef, lamb, pork, and chicken were modified to reflect losses from carcass weight to retail weight identified by the ERS (e.g., beef = 33.1% loss; lamb = 34.2% loss; pork = 27.1% loss; chicken = 39.8%). Comstock's analysis used loss estimates of 35% for beef; 40% for lamb; 30% for pork: and 20% for chicken.

Beef: 625,741 (VT population) x 59.4 (beef per capita availability) / 434.85 (weight) = 85,505

Chicken: 625,741 x 57.5 / 3.01 = 11,951,255

Pork: 625,741 x 45.2 / 109.35 = 258,404

Lamb: 625,741 x .7 / 46.06 = 9,987

- 26 United States Department of Agriculture, 2007 Census of Agriculture, Table 27, www.agcensus.usda.gov/Publications/2007/Full Report/Volume 1. Chapter 1 State Level/Vermont/st50 1 027 028.pdf.
- 27 Elizabeth Ferry, "Older Dairy Cows Could Become Steady Source of Local Beef," *Local Banquet*, <u>www.localbanquet.com/issues/years/2010/winter10/cullcows_w10.html</u>, Winter 2010.
- 28 United States Department of Agriculture, 2007 Census of Agriculture, Tables 33, 35, and 36, www.agcensus.usda.gov/Publications/2007/Full Report/Volume 1. Chapter 1 State Level/Vermont/st50 1 033 033.pdf, www.agcensus.usda.gov/Publications/2007/Full Report/Volume 1. Chapter 1 State Level/Vermont/st50 1 035 036.pdf.
- 29 United States Department of Agriculture, 2007 Census of Agriculture, Tables 33 and 34, www.agcensus.usda.gov/Publications/2007/Full Report/Volume 1. Chapter 1 State Level/ Vermont/st50 1 033 033.pdf, www.agcensus.usda.gov/Publications/2007/Full Report/ Volume 1. Chapter 1 State Level/Vermont/st50 1 034 034.pdf.
- 30 California Department of Food and Agriculture, *Agricultural Statistical Review*, https://motherjones.com/files/2agovstat10 web-1.pdf, 2009.
- 31 Food & Water Watch, *A Decade of Dangerous Food Imports from China*, <u>www.</u> <u>foodandwaterwatch.org/reports/a-decade-of-dangerous-food-imports-from-china/</u>, June 2011.
- 32 Vern Grubinger, *Vegetable and Berry Crop Yield Estimates for New England*, University of Vermont Extension, <u>www.uvm.edu/vtvegandberry/factsheets/vegetableberryyields.pdf</u>.
- 33 Op cit., KA Grimm, et al.
- 34 United States Department of Agriculture, 2007 Census of Agriculture, Table 33, www.agcensus.usda.gov/Publications/2007/Full Report/Volume 1. Chapter 1 State Level/Vermont/st50 1 033 033.pdf.
- 35 Op cit., Mann.
- 36 David Mercer, "As High Fructose Corn Syrup Use Declines, Sugar Refining Increases," Associated Press, https://www.huffingtonpost.com/2010/06/02/corn-syrup-sales-sour-as-n-597257.html, June 2, 2010.
- 37 USDA National Agricultural Statistics Service, *Honey*, http://usda01.library.cornell.edu/usda/nass/Hone//2000s/2007/Hone-02-28-2007.pdf 2007.
- 38 Jeffrey K. O'Hara, *Market Forces: Creating Jobs Through Public Investment in Local and Regional Food Systems*, Union of Concerned Scientists, <u>www.ucsusa.org/assets/documents/food and agriculture/market-forces-report.pdf</u>, August 2011.
- 39 USDA Economic Research Service, "State Export Data," <u>www.ers.usda.gov/Data/</u> StateExports/.

- 40 Nora Brooks, Anita Regmi, and Alberto Jerardo, *U.S. Food Import Patterns: 1998-2007*, USDA Economic Research Service, <u>www.ers.usda.gov/Publications/FAU/2009/08Aug/FAU125/FAU125.pdf</u>, 2009.
- 41 United States Department of Agriculture, 2007 Census of Agriculture, Table 2, https://www.agcensus.usda.gov/Publications/2007/Full Report/Volume 1. Chapter 1 US/st99 1 002 002.pdf.
- 42 Food & Water Watch, *The Poisoned Fruit of American Trade Policy*, http://documents.foodandwaterwatch.org/doc/Poisonedfruit.pdf, 2008.
- 43 Op cit., Brooks et al.
- 44 Supermarket News, http://supermarketnews.com/top-75-retailers-wholesalers-2011.
- 45 USDA Economic Research Service, www.ers.usda.gov/Briefing/GlobalFoodMarkets.
- 46 Food Marketing Institute, www.fmi.org/facts_figs/keyfacts/?fuseaction=storesize.
- 47 Supermarket News, http://supermarketnews.com/top-75-retailers-wholesalers-2011.
- 48 Melanie Warner, "Wal-Mart Eyes Organic Foods," *The New York Times*, <u>www.nytimes</u>. <u>com/2006/05/12/business/12organic.html?pagewanted=all</u>, May 12, 2006.
- 49 Shannon Jimenez, *U.S. Fresh Food Revolution: Increased Competition for Grocers*, Nielsenwire, http://blog.nielsen.com/nielsenwire/consumer/u-s-fresh-food-revolution-increased-competition-for-grocers/, September 19, 2011.
- 50 Vermont Grocers Association, unpublished data.
- 51 Hayden Stewart, Noel Blisard, Sanjib Bhuyan, and Rodolfo M. Nayga, Jr., *The Demand for Food Away From Home: Full Service or Fast Food?*, USDA ERS Research Brief, www.ers.usda.gov/publications/aer829/aer829.pdf, January 2004.
- 52 Eric Schlosser, *Fast Food Nation: The Dark Side of the All-American Meal*, Boston: Houghton Mifflin Harcourt, 2002.
- 53 Op cit., Ritzer.
- 54 Op cit., Stewart et al., page 1.
- 55 National Restaurant Association, *What's Hot in 2010?*, <u>www.restaurant.org/pdfs/research/whats hot 2010.pdf</u>.
- 56 Unpublished data from Doug Hoffer, "The Economic and Fiscal Impacts of Food Cooperatives in Northwestern New England," for *Connecticut Valley Neighboring Co-ops*, 2008.
- 57 Steve Martinez et al., Local Food Systems: Concepts, Impacts, and Issues, USDA Economic Research Service Report Number 97, www.ers.usda.gov/Publications/ERR97/ERR97.pdf, May 2010. Robert P. King et al., Comparing the Structure, Size, and Performance

- of Local and Mainstream Food Supply Chains, Economic Research Service Report Number 99, www.ers.usda.gov/publications/err99/, June 2010.
- 58 United States Department of Agriculture, 2007 Census of Agriculture, Table 2, <u>www.agcensus.usda.gov/Publications/2007/Full Report/Volume 1. Chapter 1 US/st99 1 002 002.pdf</u> and 1997 Census of Agriculture, Table 2, <u>www.agcensus.usda.gov/Publications/1997/Vol 1 Chapter 1 U. S. National Level Data/us-51/us1 02.pdf</u>.
- 59 Northeast Organic Farming Association of Vermont, *Farmers' Market Data and Research*, http://nofavt.org/market-organic-food/farmers-markets/124.
- 60 United States Department of Agriculture, 2007 Census of Agriculture, Table 44, https://www.agcensus.usda.gov/Publications/2007/Full Report/Volume 1. Chapter 2 US State Level/st99 2 044 044.pdf.
- 61 Northeast Organic Farming Association of Vermont, *List of CSAs*, http://nofavt.org/find-organic-food/csa-listing.
- 62 Intervale Center, Expanding Local Food Production, Storage and Marketing Capacity in Vermont: Results from the 2007 Farm Producer Survey, www.intervale.org/wp-content/uploads/IC-2009-Expanding-Local-Food-Production.pdf, 2009.
- 63 USDA Economic Research Service, Table 1, <u>www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/Expenditures tables/table1.htm</u>.
- 64 USDA Economic Research Service, Table 5, <u>www.ers.usda.gov/Briefing/</u> CPIFoodAndExpenditures/Data/Expenditures tables/table5.htm.
- 65 Patrick Canning, A Revised and Expanded Food Dollar Series: A Better Understanding of Our Food Costs, ERR-114, USDA ERS, <u>www.ers.usda.gov/media/131100/err114.pdf</u>, February 2011.
- 66 United States Census Bureau, 2007 Economic Census, www.census.gov/econ/census07/.
- 67 United States Department of Labor, Consumer Expenditure Survey, www.bls.gov/cex/.
- 68 United State Department of Agriculture, 2007 Census of Agriculture, Table 2, www.agcensus.usda.gov/Publications/2007/Full Report/Volume 1. Chapter 1 State Level/Vermont/st50 1 002 002.pdf.
- 69 United States Census Bureau, 2009 Nonemployer Statistics, <u>www.census.gov/econ/nonemployer/</u>.
- 70 The following discussion draws from:
- Paul C. Stern, "Toward a Coherent Theory of Environmentally Significant Behavior," *Journal of Social Issues*, 2000, 56 (3): 407-424.
- Karen Glanz et al., "Healthy Nutrition Environments: Concepts and Measures," *American Journal of Health Promotion*, 2005, 19 (5): 330-333.

Tim Jackson, Motivating Sustainable Consumption: A Review of Evidence on Consumer Behavior and Behavioral Change, Sustainable Development Research Network, 2005.

Stefano Boccaletti, "Environmentally Responsible Food Choice," *Household Behavior and the Environment: Reviewing the Evidence*, Organization for Economic Cooperation and Development, 2008.

Scott Bearse et al., Finding the Green in Today's Shoppers: Sustainability Trends and New Shopper Insights, Deloitte, <u>www.deloitte.com/assets/Dcom-Shared%20Assets/Documents/US_CP_GMADeloitteGreenShopperStudy_2009.pdf</u>, 2009.

June Cotte, *Socially Conscious Consumerism: A Systematic Review of the Evidence*, Network for Business Sustainability Knowledge Project Series, 2009.

David Court et al., "The Consumer Decision Journey," McKinsey Quarterly, 2009 Number 3.

Steve Martinez et al., *Local Food Systems: Concepts, Impacts, and Issues*, USDA Economic Research Service Report Number 97, *www.ers.usda.gov/Publications/ERR97/ERR97.pdf*, May 2010.

Robert P. King et al., *Comparing the Structure, Size, and Performance of Local and Mainstream Food Supply Chains*, Economic Research Service Report Number 99, <u>www.ers.usda.gov/publications/err99/</u>, June 2010.

Bridget Kelly, Victoria M. Flood, and Heather Yeatman, "Measuring Local Food Environments: An Overview of Available Methods and Measures," *Health and Place*, 2011, 17: 1284-1293.

71 Erin Croom, "Vermonters' Perceptions Regarding Barriers to Children Consuming More Nutritious Meals at School and At-Home and the Importance of 'Food, Farms and Nutrition' in Vermont K-12 Education," Center for Rural Studies, www.uvm.edu/crs/reports/2004/GFGM04.pdf, 2004.

Emilian Geczi, Amy S. Hoskins, and Jane M. Kolodinsky, "Vermonters and Labeling of Genetically Engineered Food," Center for Rural Studies, <u>www.uvm.edu/crs/reports/2004/label04.pdf</u>, 2004.

Michele C. Schmidt, "Vermonter Poll 2007: Food and Food Preparation," Center for Rural Studies, <u>www.uvm.edu/crs/reports/2007/VTR07 food.pdf</u>, April 2007.

-----, "Vermonters Choose Healthy Eating Habits: Children and Time Impact Eating Choices Most," Center for Rural Studies, <u>www.uvm.edu/crs/reports/2008/Healthy_Foods08.pdf</u>, March 2008.

72 Andrea Carlson and Elizabeth Frazão, *Are Healthy Foods Really More Expensive? It Depends on How You Measure the Price*, EIB-96, U.S. Department of Agriculture, Economic Research Service, *www.ers.usda.gov/Publications/EIB96/EIB96.pdf*. May 2012.

73 Rich Pirog and Nick McCann, *Is Local Food More Expensive? A Consumer Price Perspective on Local and Non-Local Foods Purchasing in Iowa*, Leopold Center, <u>www.leopold.iastate.edu/pubs-and-papers/2009-12-local-food-more-expensive</u>, December 2009.

- 74 Jake Claro, *Vermont Farmers' Markets and Grocery Stores: A Price Comparison*, NOFA Vermont, http://nofavt.org/pricestudy, January 2011.
- 75 Michele C. Schmidt, "Vermonter Poll 2007: Hunger and Food Security in Vermont," Center for Rural Studies, www.uvm.edu/crs/reports/2007/VTR07 hunger.pdf, November 2007.
- 76 Daniel Kahneman, "Maps of Bounded Rationality: Psychology for Behavioral Economics," *The American Economic Review*, 2003, 93 (5): 1449-1475.
- 77 Cynthia L. Ogden et al., *Prevalence of Obesity in the United States, 2009-2010*, National Center for Health Statistics Data Brief, No. 82, January 2012, <u>www.cdc.gov/nchs/data/databriefs/db82.pdf</u>.
- 78 Kenneth E. Thorpe, Curtis S. Florence, David H. Howard, and Peter Joski, "The Impact of Obesity on Rising Medical Spending," *Health Affairs*, 2004, W4: 480-486.
- 79 John Cawley and Chad Meyerhoefer, "The Medical Care Costs of Obesity: An Instrumental Variables Approach," *The National Bureau of Economic Research*. <u>www.nber.org/papers/w16467</u>, 2010.
- 80 Centers for Disease Control and Prevention, *National Diabetes Fact Sheet, 2011,* <u>www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf</u>.
- 81 Centers for Disease Control and Prevention, *County Level Estimates of Diagnosed Diabetes*, http://apps.nccd.cdc.gov/DDT_STRS2/CountyPrevalenceData.aspx?stateld=50&Mode=DBT.
- 82 Centers for Disease Control and Prevention, "Vital Signs: Incidence and Trends of Infection with Pathogens Transmitted Commonly Through Food—Foodborne Diseases Active Surveillance Network, 10 U.S. Sites, 1996-2010," *Mortality and Morbidity Weekly Report*, June 10, 2011, 60 (22): 749-755, www.cdc.gov/mmwr/preview/mmwrhtml/mm6022a5.htm?scid=mm6022a5 w.
- 83 Andrew Powers, Linda Berlin, Jane Kolodinsky, Erin Buckwalter, and Erin Roche, Connecting Classrooms, Cafeterias & Communities: Promising Practices of Farm to School Education. Summary of Evaluation Findings 2011, 2011.
- 84 USDA, Food Desert Locator, <u>www.ers.usda.gov/data-products/food-desert-locator/go-to-the-locator.aspx</u>.
- 85 Centers for Disease Control and Prevention, *Census Tract State Level Maps of the Modified Retail Food Environment Index (mRFEI)*, ftp://ftp.cdc.gov/pub/Publications/dnpao/census-tract-level-state-maps-mrfei TAG508.pdf.
- 86 Op cit., Andrew Powers et al.
- 87 John Bellamy Foster, *Marx's Ecology: Materialism and Nature*, New York: Monthly Review Press, 2000. Interestingly, the Vermont Agency of Agriculture, Food and Market's 2000 strategic plan reports that, at the conclusion of the French and Indian War in 1763, Vermont

- was open to farmers looking to expand beyond the already depleted soils of New England. Much of Vermont's forest cover was consequently harvested and burned to make potash, a fertilizer, to be sold to the Northeast region.
- 88 Upton Sinclair, *The Jungle*, New York: Bantam Books, 1981 (1906).
- 89 Aldo Leopold, *A Sand County Almanac: And Sketches Here and There*, New York: Oxford University Press, 1989 (1949).
- 90 Rachel Carson, Silent Spring, New York: Houghton Mifflin Company, 2002 (1962).
- 91 Wendell Berry, *The Unsettling of America: Culture & Agriculture*, San Francisco: Sierra Club Books, 1996 (1977).
- 92 Andrew Powers, Linda Berlin, Jane Kolodinsky, Erin Buckwalter, and Erin Roche, Connecting Classroom, Cafeterias & Communities: Promising Practices of Farm to School Education, Summary of Evaluation Findings 2011, www.tfeed.org/sites/default/files/staff-files/site-downloads/Farm%20to%20School%20evaluation%202011.pdf.
- 93 Personal communication with Rachel Schattman, University of Vermont Center for Sustainable Agriculture.
- 94 Keith O'Brien, "How McDonald's Came Back Bigger Than Ever," The New York Times, May 4, 2012, <u>www.nytimes.com/2012/05/06/magazine/how-mcdonalds-came-back-bigger-than-ever.html?pagewanted=all</u>.
- 95 Agriview, "Vermont Seal of Quality—and the Need for New Approaches to Consumer Assurance," <u>www.vermontagriculture.com/Agriview/2010/3-16-2010/Agriview.pdf</u>, March 12, 2010.
- 96 Resource Systems Group, Inc., *Leveraging the Vermont Brand*, <u>www.vermontpartners.</u> <u>org/pdf/VT%20Brand%20Research_FINAL.pdf</u>, 2010.
- 97 Vermont Department of Tourism and Marketing, *The Vermont Travel & Tourism Industry* 2009, <u>www.vermontpartners.com/pdf/Toursim%20Industry%20Fact%20Sheet 2009.pdf</u>, 2009.
- 98 Research conducted by UVM senior seminar in business administration; results posted at: www.uvm.edu/tourismresearch/publications/Cabot_VDTM.pdf.
- 99 Tracey McCowen, "Marketing Survey for Vermont Farms," Prepared for the Vermont Agency of Agriculture, Food and Markets, June 2010.
- 100 Stephanie Clifford, "Social Media are Giving a Voice to Taste Buds," *The New York Times, www.nytimes.com/2012/07/31/technology/facebook-twitter-and-foursquare-as-corporate-focus-groups.html? r=1&hp*, July 30, 2012.
- 101 John Ryan, *Impact Assessment of Vermont Farm2School Program*, <u>www.vtfeed.org/</u> <u>sites/default/files/staff-files/site-downloads/F2S_Report_ExSum.pdf</u>, April 2006.



Credits

3.1 Understanding Consumer Demand was prepared by Scott Sawyer, with Doug Hoffer, Helen Labun Jordan, and Kit Perkins.

Special thanks to Heather Pipino for writing vignettes.

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