

**Is Nova Scotia Eating Local?**

**And if not, where is our food coming from?**

***An Education Toolkit***

Prepared by Marla MacLeod and Jennifer Scott  
July 2010

# Table of Contents

Introduction .....	3
Warm Up Activity: Thermometer.....	4
The Food System in a Can.....	7
Supermarket Tour Assignment.....	10
Does Your Breakfast Need A Passport? .....	12
Backgrounder.....	17
Economic benefits.....	18
Social benefits and the food community .....	19
Transportation.....	21
Energy.....	22
Self-Reliance.....	23
Distance Traveled and Emissions of a Food Basket .....	26
Case Study: Local vs. Imported Vegetables and Fruit.....	27
Case study: Benefits of Beef Import Replacement .....	30
Case study: Sheep in Nova Scotia.....	30
Food Procurement .....	31
Conclusion and Recommendations .....	32
For Consumers .....	32
For Farmers.....	32
For Food and Farming Organizations.....	33
For the Private Sector .....	33
For Government and Institutions .....	34

## Introduction

Food miles. Local food. Sustainable food systems. Life cycle assessment. Full cost accounting. CO<sub>2</sub> emissions. Redundant trade. Import replacement. When did eating get so complicated?

This toolkit is designed to get people thinking and talking about food issues. It contains three activities to stimulate discussion, two maps – one of a local breakfast and the other of a more conventional, globe-trotting breakfast – to help participants visualize the distance their food is traveling, and a backgrounder about the Nova Scotia food system. The online version of this toolkit also contains a power point presentation that can be used when presenting to groups.

The contents of this toolkit are a collection of educational resources that were developed, adapted and used as part of the Food Miles Project of the Nova Scotia Federation of Agriculture and the Ecology Action Centre. The tools can be used in numerous combinations. You can use the formal power point presentation for large audiences. Or you can hold an informal, activity-based workshop that begins with the Thermometer game and follows by teaching a small group how to prepare a local meal. Or you can engage a group of youth in the Food System in a Can activity and then invite them to brainstorm ways to reduce their environmental impact. We encourage you to play with the activities and adapt them for your audience. And we strongly encourage including local food as part of your workshop. Nothing convinces people of the value of local agriculture better than a tasty snack!

## Warm Up Activity: Thermometer

This exercise was adapted from a series of activities developed for use in a workshop on food sovereignty - created by "Dig In!", a project of the Canadian Biotechnology Action Network with the National Farmers Union Youth and Check Your Head.

<http://www.cban.ca/digin>

**ACTIVITY DESCRIPTION:** Thermometer is a great activity to dive into food and farming issues. The activity encourages participants to share their opinions by standing along an imaginary “U”-shaped thermometer – at one end is “agree” and at the other end is “disagree”. The facilitator reads out a statement and participants place themselves along the thermometer relative to how much they agree or disagree with the statement. Participants will see a physical representation of opinions and will have great opportunities to discuss throughout the activity.

**AUDIENCE:** Anyone!

**NUMBER OF PARTICIPANTS:** 4-35 or more. You can split a large group of people into several thermometers if you have enough space and enough facilitators to have one facilitator for each thermometer.

**TIME NEEDED:** 15-20 minutes

**MATERIALS NEEDED:**

- List of the thermometer questions you have chosen, for the facilitator.

**ROOM SET-UP:**

- Room must be set up in a manner that allows participants move around and stand in a U-shaped line.
- All obstructions should be pushed to the sides of the room.
- You can set up the thermometer ahead of time by taping paper to the wall or floor to show the location of “Agree” and “Disagree” but this is not necessary.

**GOALS:**

- To generate a facilitated discussion on some thought-provoking questions that will help lead into the rest of the workshop.
- To engage all participants – even if participants do not speak, everyone participates by moving!
- For participants to share their opinions about specific issues.
- For facilitators to get to know the type of knowledge and opinions participants bring to the workshop.

**LEARNING OUTCOMES:**

- Exposure to different ideas, options and information.

- Gain some understanding of how personal opinions vary in the group and how seemingly simple issues in our food system may be quite complex.

## **ACTIVITY INSTRUCTIONS:**

### **1. Introduce activity: (2 min)**

- The thermometer exercise uses a spectrum in the shape of a horseshoe.
- On one end of the spectrum or horseshoe is “Agree”, and on the other end is “Disagree”.
- The thermometer is bent into the shape of a horseshoe on the floor with the facilitator at the open top of the “U”. The horseshoe shape allows everyone to see one another.
- The facilitator will read out one statement at a time and participants will place themselves in a spot along the spectrum that they feel represents their opinion and level of agreement or disagreement with the statement.
- The facilitator will also explain “The Power of Two-Feet” which means participants have the ability to move along the spectrum at any time if they feel their opinion is changing as other participants explain their opinions.

**Tip:** Using the practice thermometer statement is an easy way to explain the activity. If participants are still unsure, don’t worry – the practice run will help!

### **2. Practice a Thermometer Statement: (3 min)**

Example: “I love the rain” or “I love singing in the shower”

### **3. Play Thermometer! (16 min – 4 minutes per statement)**

Once participants place themselves on the thermometer, the facilitator asks participants to explain why they placed themselves there. Make sure you invite specific people to speak, especially if they have not yet spoken.

**Tip:** If everyone is crowded on one side of the thermometer you could ask if any participant wants to play “devil’s advocate” and represent an opinion they do not share. This might help with discussion.

### **Choose your Thermometer statements!**

**Tip:** We recommend a maximum 4 Thermometer Statements. You could choose some extra to keep in your back pocket in case participants have a different knowledge set than what you originally thought.

**Tip:** Pick statements that get to issues that are relevant for the group or that you want to focus on in the workshop. Pick statements that will connect with the experience of participants. For example, are they all farmers? Urban youth? Are they all from the same community?

**Sample Statements:**

- When I eat my food, I think of who produced it.
- Local food is too expensive
- If I could choose a career as a farmer, I would. (Or: I want my children to go into farming.)
- Eating local, sustainable food is easy to do.
- I want to know where my food comes from.
- The youth in our community are learning to grow their own food.
- It's important to have oranges year-round.
- I can see a role for (insert profession) in building food sovereignty.

# The Food System in a Can

Created by Charles Levkoe

**ACTIVITY DESCRIPTION:** With this activity, students are asked to consider the various inputs, energy, and processes that go into a typical food item that we consume, such as a can of tomatoes. Three different activity extensions are provided here to further the discussion

**AUDIENCE:** Youth and adults

**NUMBER OF PARTICIPANTS:** 10-35 or more. You can split a large group of people into two or more if you have enough space and enough facilitators to have one facilitator for each group.

**TIME NEEDED:** Approximately 20 minutes for the main activity. Extension 1 takes an additional 10- 20 minutes. Extensions 2 & 3 could be used as take-home assignments.

**MATERIALS NEEDED:** For the main activity, you will need the following:

- a can of tomatoes
- name tag size pieces of paper
- markers
- masking tape

**ROOM SET-UP:**

- Room must be set up in a manner that allows participants move around and stand in a line.
- All obstructions should be pushed to the sides of the room.

**SETTING THE STAGE-ACTIVITY BACKGROUNDER:**

Our food system has become increasingly globalized over the past few decades. A century ago most food was consumed in a relatively short distance from where it was produced, but our diets today consist of foods from all corners of the globe. The trend toward increasing distances between producers and consumers has caused many to question the environmental and social sustainability of our food choices.

Local farms are struggling to compete with larger, more industrialized farms in warmer climates. Products from California, for example, are dependent on publicly funded roads and transportation networks, and on vast subsidized irrigation networks that are not factored into the cost of food. This food is sent all over the continent, taking the place of local production, because the price of the food is not reflecting the ‘real costs’ associated with its production. The real costs of food production include environmental costs, such as the effects of climate change due to increased CO<sub>2</sub> emissions from increased food transportation, as well as social degradation due to the loss of farms and rural communities, to name a few. When all this is considered, many are asking whether it

might actually be more efficient to use a higher percentage of locally-produced food in Nova Scotia.

### The Food System and Energy Use

- A “food mile” is the distance a given food travels from farm to plate.
- Each ingredient in a typical North American meal travels an average of almost 4,000 km (see backgrounder), and when you consider the transportation of the entire system – from transport of inputs like feed and machinery to farms, from farms to processors, and on through wholesalers and then to stores – it is an astounding 8,240 km<sup>1</sup>.
- When calculating food miles and their associated greenhouse gas emissions, it is important to know not only the distance the food item travels, but also the means of transportation. As shown in the Table 1, transport by truck or ship is about ten times more energy efficient than air, and rail is about 10 times more efficient than truck or ship.

**Table 1: Emissions by mode of Transportation<sup>2</sup>**

Mode	Kg CO <sub>2</sub> equivalent per tonne-kilometre shipped
Truck	0.204
Rail	0.017
Domestic-Air	2.071
Short Haul-Air	1.439
Long Haul-Air	0.665
Ship	0.222

- Transportation, however, is only one stage in the life-cycle of a particular food item. It is important to reduce our greenhouse gas emissions at all stages of the food system. Consider the energy used to make fertilizers and pesticides, run tractors, heat greenhouses, power refrigerators, and run processing plants.
- **Life Cycle Assessment (LCA)** is a method of calculating the environmental impacts of a product at each stage of production.
- There is still a lot of debate as to what exactly the most environmentally friendly food system would look like, but one important step you can take is to eat local food, in season, that was produced on farms that use fewer energy-intensive inputs.

### ACTIVITY INSTRUCTIONS:

This activity can be used in a group of youth or adults to begin a discussion around food systems. After the initial exercise, any number of extensions could be used depending on the focus of the group.

<sup>1</sup> Weber, C. L. and Matthews, H.S. (2008). Food-Miles and the Relative Climate Impacts of Food Choices in the United States. *Environmental Science & Technology*, 42(10).

<sup>2</sup> Source: World Resources Institute (2008). GHG Protocol tool for mobile combustion. Version 2.0. Retrieved August 21, 2009 from <http://www.ghgprotocol.org/calculation-tools/all-tools>.

1. Hold up a can of tomatoes and ask the group what types of jobs went into producing this can. Let everyone brainstorm as many jobs as they can think of. You may want to prompt the group if needed. Try to get a range of jobs from the farmer, to distributor, to factory workers, to sales and consumption. Make sure jobs are specific . . . e.g. seed planter, truck driver. As jobs are named, write them on a piece of paper and tape them to the individual.
2. Once everyone has a job taped to them, ask everyone to get in order – for example, the seed planter would go before the harvester.
3. Once the group is organized you can take this activity any way you want. See extensions.

### **Suggested Extensions**

#### **1. An Alternative Food System – Survivor Style**

Ask participants to think about how energy intensive this process is. Where is energy being used in this system? What are the environmental and social impacts at this stage? Also ask them how the \$1 you paid for this can of tomatoes gets divided - who gets the largest share of the profit and alternatively who does not. Then ask participants to think about how this massive system could be made smaller. What could be taken away? What are the advantages and disadvantages? End this activity by having the group brainstorm and talk about alternative food systems they know of.

#### **2. The Real Cost of a Tomato**

Explain that the cost of the can was \$1 and have students guess at what percentage of the dollar goes to each stage of the production. Have participants research some of the different jobs involved in the processing of tomatoes – the land owners, the workers, the factories, the shippers, the stores, the consumers. Have each participant or groups of participants present the stages. Encourage them to speak to real people involved in the process and include socio-political issues in the places the tomatoes are produced. You may also be able to bring in or go visit a local farmer or other local people to talk about the REAL cost of tomato production.

#### **3. Food Stories**

Ask participants to tell stories about tomatoes that they know – e.g. growing them with family, eating a special dish. Ask each participant to interview a grandparent or friend about their stories. They could do this in writing, artistically or record the stories on tape or video. Get them to share these stories with the group.

# Supermarket Tour Assignment

**ACTIVITY DESCRIPTION:** The Supermarket Tour assignment is designed to get participants actively reading labels and trying to figure out where their food is coming from through a series of questions.

**AUDIENCE:** Youth and adults

**NUMBER OF PARTICIPANTS:** Unlimited

**TIME NEEDED:** 1-3 hours. This was designed as a take-home assignment.

**MATERIALS NEEDED:**

- Worksheet below
- At least three grocery store items

**ACTIVITY INSTRUCTIONS:**

Have participants visit the grocery store or check their cupboards for three grocery store products about which they would like to know more. Complete the worksheet below. For question 1.6, students can use <http://www.google.com/maps> to determine road distances and <http://www.maritimechain.com/> to determine port distances. For ingredients from North America, assume that the product is traveling by road. For ingredients outside of North America, assume the product is traveling by sea.

**WORKSHEET:**

1. Complete the following survey for 3 supermarket products. Note: Not all the product information will be available on the label. You may have to check product websites or contact customer service for additional information.

	Product #1:	Product #2:	Product #3:
1. Briefly describe the types of information found on the label.			
2. Which company makes the product?			
3. Where is the manufacturer based?			
4. Where is the product made?			
5. Where are the ingredients from?			
6. How far has the main ingredient in this product traveled?			
7. What is the cost of the product?			
8. Is there any additional information that you would like to see on the label that is currently not present? If so, what?			

2. Do you feel that the price of the products above reflects the true cost of the products?

3. What steps can you take with regard to shopping choices to lessen your impact on the earth?

# Does Your Breakfast Need A Passport?

(Article and Maps)

*Originally published in Between the Issues, Winter 2008*

“None of the ingredients are from China!” assures the voice on the other end of the phone.

“That’s proprietary information.”

“Ninety percent of the ingredients are from Eastern Canada. The remaining 10% come from Asia, Europe and South America.”

These are just three of the numerous responses I’ve received to the question “Where is this product grown and processed?” I, along with a team of intrepid volunteers, have been attempting to find out the origins of the 66 food items that form the National Nutritious Food Basket (NNFB), a tool developed by Health Canada, used to study the cost of food. This list of food items represents a basic nutritious diet and reflects Canadians’ eating patterns.

Finding out the origin of food items is the first step in calculating food miles. Once the travel distance for a given food item is known, as well as the mode of transportation, we can calculate the greenhouse gas emissions associated with transport. By choosing foods that have been grown closer to home, we can help reduce transport emissions, as well as support local farmers, rural economies, and tasty food choices!

My quest for information started at the grocery store. I visited both of the major chains – The Atlantic Superstore (Loblaws) and Sobeys. What could I find out by reading labels and signs? As it turns out, not much.

**Produce:** Very few specifics. For most items only the country of origin is marked on the sign. Pre-packaged fruit and vegetables have the name of the wholesaler, where it was packaged, and a website and/or telephone number – but not necessarily the province or state in which it was grown.

**Meat:** There is little, if any, information on where the meat was from. We were told that the beef mainly comes from Alberta, with some from Quebec. (To get local beef, check out the Co-op stores.) Nova Scotian pork is available now, but the supply is dwindling quickly as farmers go out of business. The chicken is a product of Canada, with no further details given.

**Dairy:** Fluid milk is mostly from Nova Scotia. Some brands of butter, cheddar cheese, and mozzarella cheese are also clearly marked as Nova Scotian or Maritime products. When we called Kraft Canada to ask which province the milk in their cheese was from and where it was processed, Kraft said that the information was proprietary. They assured

us that if it says “Product of Canada” on the label, then it’s from Canada. If it’s from another country, it will be noted on the package. I went back to the grocery store to examine the packaging. There was no “Product of” information to be found. After several frustrating calls to Kraft about a variety of products, we have been unsuccessful in getting any information regarding product origin. Kraft gets the award for shifty labeling.

Packaged goods: This is where we had to become true food detectives. We called and/or emailed a long list of food processors. Some customer service representatives did research for us, calling us back the following day with locations for all of the ingredients used in their products. (Did you know that 80% of the world’s supply of citric acid comes from China? Who knew?) Others couldn’t tell us where the food was from, or could only assure us that it wasn’t from China. And, as in the case of Kraft above, we did encounter those who simply wouldn’t, for proprietary reasons, tell us the origins of our food. This I find deeply concerning. Why should the origins of our food be something that companies can keep secret?

Now let’s go from the grocery store to your kitchen. Picture an average breakfast: cornflakes with milk and a banana, toast with peanut butter, and a glass of orange juice. How far have each of these items traveled between the farm and your kitchen table?

Cornflakes: According to the folks at Kellogg’s, the corn is grown and processed in the United States and the cereal itself is made in London, Ontario. We will have to make some assumptions here. Most of the corn grown in the US is from the Midwestern United States. If we pick a point near the middle of the corn belt and calculate the distance to London, Ontario, we find that it’s about 900km. London to Halifax is another 1970 km.

Next the milk and the banana. The most common brands of milk in the grocery store are from Nova Scotia. So, the milk hasn’t traveled too far (maybe an average of 500 km from farm to processor to store). The Costa Rican banana (assuming a cruise on the ocean) traveled approximately 4400km.

On to the toast. As the vast majority of Canada’s wheat comes from the prairies, we’ll calculate the distance from the middle of Saskatchewan – approximately 4,500 km. We’ll assume that the bread is baked in Halifax.

Two peanut butter manufacturers (Skippy & Barbours) were able to tell me where the peanuts were from: Alabama and Texas for the former and Georgia and Virginia for the latter. Calculating the distance from Alabama, it’s about 3200 km to Halifax.

And finally organic juice. Old South and Minute Maid get their oranges from Brazil, Florida and Costa Rica. The former is processed in Ontario and New Brunswick, while the latter in numerous North American locations. The distance from Brazil to Halifax by ship is approximately 6300 km.

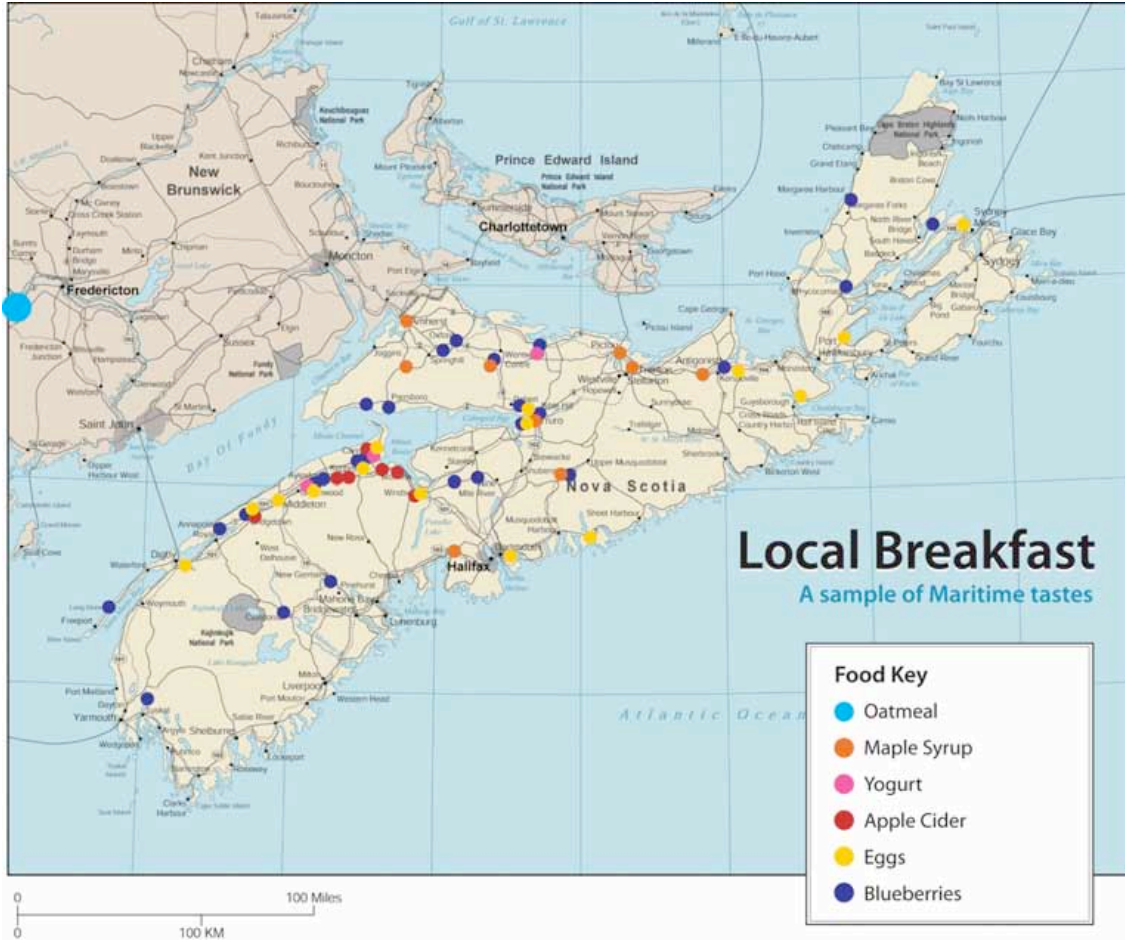
Grand total for breakfast: 21,770 km. Average distance traveled per item: 3628 km.

Yikes! That's a lot of traveling before 9 am. Now consider the alternative: Maritime grown and processed oatmeal, bread made from a local heritage wheat, locally produced milk, yogurt, eggs, apple cider, maple syrup, honey, blueberries, bacon on the weekend... and the list goes on. Most of these products are available within 200 km of your doorstep. (The oatmeal and the heritage wheat travel a little bit further – they are ground in Speerville, NB. They travel approximately 550 to 800 km before reaching your kitchen.) Visit your local farmers' market. Ask for local at the grocery store. Your belly and our environment will be much happier. Our food miles quest doesn't end here. Next step: determining the modes of transportation and then the greenhouse gas emissions. Stay tuned...

~~~~~

The following two pages depict two different breakfasts: a conventional breakfast and an all-local breakfast. The first breakfast consists of cornflakes, milk and a banana, toast with peanut butter and a glass of orange juice. In this breakfast, the only local ingredient is milk. The second breakfast consists of oatmeal with blueberries and maple syrup, yogurt, eggs and apple cider. All ingredients in this breakfast are produced within the Maritimes.





## Backgrounder

In Nova Scotia, our diet is primarily made up of foods imported from outside this province. There is nothing inherently wrong with importing food. But there are costs associated with importing most of our food. In particular, importing foods that we are good at producing here, like apples or beef, reduces opportunities for our producers. We don't know exactly what portion of our diet is imported. But we do know that at most 13% of the food dollars we spend are going back to Nova Scotia farmers. Our analysis shows that we could be producing and consuming significantly more Nova Scotia-grown food than we are now.

This backgrounder examines many of the costs and benefits of our present food system, and estimates the effects of increased spending on local food. We found that some of the most compelling reasons for supporting local growers are social and economic.

The average distance food travels to get to our store shelves has risen significantly in recent years as our grocery stores source more products from an increasingly global food system. One study showed that the average number of kilometers embodied in the food we eat – which includes transport of inputs like feed and machinery to farms, from farms to processors, and on through wholesalers, through to stores – is an astounding 8,240 km (Weber & Matthews 2008). This does not include the extra kilometers food travels when we make shopping trips to those grocery stores.

The National Nutritious Food Basket is a list of foods that reflects the eating habits of Canadians, and meets their nutritional needs according to the Canada Food Guide. The average distance traveled by an item in the food basket from its origin to Halifax, NS is 3,976 km. This distance does not include farm inputs or additional kilometres for warehousing or shopping trips.

Despite the fact that our food travels great distances, on average, the transport is sometimes a minor portion of the cost and environmental impact of that food. When food is produced and processed in very large quantities, the transport impact, per unit of product, can be low. No universal statement can be made about food items and the impact of their food miles. Each item has to be assessed on its own. We have provided examples in the report.

Below we examine economic and social benefits of local agriculture. Sections on transportation and energy follow. A detailed look at our degree of self-reliance shows how much we produce relative to consumption. This is followed by the weighted average distances traveled by foods in the National Nutritious Food Basket. A section on local food procurement outlines options for increasing the demand for locally-produced food through government purchasing. Finally, there are case studies that get into more detail about specific products we grow here such as beef or tomatoes. At the end are conclusions and recommendations.

## ***Economic benefits***

One of the key reasons for choosing to buy locally-produced food rather than imported food, is to foster economically viable farming businesses and farming communities in Nova Scotia. The replacement of locally produced food by imports from outside a region transfers the financial benefits of that production activity to the region providing the imported product<sup>3</sup>.

Nova Scotia is presently losing farms, along with the interwoven businesses that supply their inputs or process and distribute their products. Farm communities are unraveling. To keep the farms we have, encourage new farmers, and prevent the bleeding out of businesses that make up a local food system, a move to support local farms via our food dollar couldn't come fast enough.

We examine the economic benefits to Nova Scotia that flow from local agriculture (Table 1). Then we ask if buying locally-produced food actually helps farmers. A healthy food system would have benefits flowing in both directions. Even though Nova Scotia farmers are producing more product each year, their average total net income is going down, as is their share of the food dollar. These trends clearly show that to have farms in this province, food needs to be purchased in a way that ensures farmers can recoup their costs of production. If our farms disappear, we won't have the option to buy local food, which leads to higher prices for imported food, as well as a loss of food sovereignty.

One of the reasons imported food is considered to be attractive, is because it is assumed to be cheaper than locally-produced food. This is not universally true. First of all, there are costs that are not reflected in the price of imported foods. Also, having a local food system gives customers the option to buy directly from producers at a reduced price, and gives producers the option to reclaim some of the margins normally charged by retailers and wholesalers. This arrangement can be beneficial for both customer and producer. The type of food, degree of processing, convenience, and vendor usually has more effect on price than whether it is local or not. Another thing to consider is whether the price of food, whether imported or local, is too low. Farmers are often not covering the production costs for the food they produce, and the proportion of our income spent on food is going down. Most of us could stand to pay a little more for food items so that farmers can make a living. Consider the *average proportion of household expenditures spent on food*. In 1969, Canadians spent an average of 19% of household expenditures on food, and now we spend an average of 10%. We spend a lower proportion of total household expenditure on food than people in many other countries, including the USA and Australia.

---

<sup>3</sup> Roberts, B., McGuire, T., and MacLellan, C. (2005). *Industry Transition Options to Maintain a Competitive Nova Scotia Agriculture Sector—Phase I: Options Report*. Prepared for the Nova Scotia Federation of Agriculture. Kelco Consulting Ltd.

**Table 1: Summary Table - Economic Benefits of Local Agriculture**

| <b>Nova Scotia Agriculture</b>                                                                 | <b>Economic Benefit</b>                                                                                                            |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>Direct annual farm spending</b>                                                             | \$460 million in farm operating expenses (2008) <sup>4</sup>                                                                       |
| <b>Gross annual farm spending:</b> direct, indirect, and induced effect of farm spending       | \$1.16 billion (2004 estimate) <sup>5</sup>                                                                                        |
| <b>Total annual employment:</b> direct, indirect, and induced employment from farming activity | 10,281 full time equivalent jobs (2004 estimate) <sup>6</sup>                                                                      |
| <b>Total annual contribution to GDP:</b> direct, indirect, and induced GDP                     | \$400 million (2004 estimate) <sup>7</sup>                                                                                         |
| <b>Annual contributions to Federal and Provincial Tax revenues</b>                             | \$154 million (2004 estimate) <sup>8</sup>                                                                                         |
| <b>Eating local beef</b> instead of imported beef                                              | Increase annual farm cash receipts by at least \$67.5 million and increase employment in the sector to 1,900 jobs                  |
| <b>Eating local lamb</b> instead of imported lamb                                              | Increase annual farm cash receipts by at least \$8.7 million and increase employment in the sector to 213 jobs                     |
| <b>If Vermont substituted local production for only ten percent of the food they import</b>    | \$376 million in new economic output, including \$69 million in personal earnings from 3,616 new jobs (2000 estimate) <sup>9</sup> |

### ***Social benefits and the food community***

Buying locally-produced food, especially in a way that provides a fair price to producers, generates social benefits in this province. These social benefits include nutritious food, entrepreneurial energy, work ethic, mentorship, mutual reliance, relationship-based economic activity, and maintenance of farming communities. Buying imported food generates none of these benefits.

One could argue that imported food provides a greater variety of products for less money

<sup>4</sup> Statistics Canada, for the year 2008, adjusted to \$2007 dollars.

<sup>5</sup> Estimate in 2004 (\$2004 dollars), Roberts, B., McGuire, T., and MacLellan, C. (2005). *Industry Transition Options to Maintain a Competitive Nova Scotia Agriculture Sector—Phase I: Options Report*. Prepared for the Nova Scotia Federation of Agriculture. Kelco Consulting Ltd.

<sup>6</sup> Estimate in 2004, Ibid

<sup>7</sup> Estimate in 2004 (\$2004 dollars), Ibid

<sup>8</sup> Estimate in 2004 (\$2004 dollars), Ibid

<sup>9</sup> Hoffer, D. & Kahler, E. 2000. *The Vermont Job Gap Study Phase 6 The Leaky Bucket: An Analysis of Vermont's Dependence on Imports*. Retrieved January 2010 from:

<http://www.vtlivablewage.org/JOBGAP6a.pdf>

than it would cost to grow or raise them here. The economies of scale from large agri-business in the global food system bring us unlimited supply supposedly at the cheapest price possible. But we need to distinguish between ‘price’ and ‘value’. Does importing most of our food bring us better food value than what our own farms can provide? Does the price we pay for imported food somehow compensate us for all the social costs associated with displacing our family farms? Is the money we spend giving us vital and nutritious food, or is it going into advertising, corporate profits, transport, packaging, and preservatives? In a scenario where most of our food is produced in this region, we could still import some of our food. But we would discover the variety of foods we can grow here while at the same time supporting our farmers. The social benefits of a local food system could be the most important reason for buying locally-produced food.

Social benefits and costs are the most difficult to measure and put a value on. That is why they remain hidden. We don’t notice social losses until they are gone and it is too late. We are often not aware of all the ways our spending habits affect people and community life. In cases when we *are* aware, we make much better, but seemingly ‘irrational’ decisions. We buy apples from the guy we know is the main organizer of the community fair because of his involvement *and* because they are great apples. It doesn’t matter that his 10 lb bags cost a little more. We go to the farmers’ market instead of the grocery store because we like the vendors and get gardening advice from them. Some people go to a particular u-pick because their parents and grandparents took them there as children. In cases where is a positive connection, price becomes less of an issue.

Knowing the social circumstances surrounding a product can affect our food-buying decisions, which in turn affect the social circumstances. But in many cases we don’t know those circumstances. In fact, for the global food system to work effectively, it is important that we know as little as possible. It is difficult enough to go into a grocery store and figure out where products are from, let alone who is producing them and how. As the gap between consumers and producers widens, and our ignorance of food production grows, we will make poorer decisions with our food dollars, causing our communities to suffer. Table 2 outlines the social benefits of a more locally-based food system.

**Table 2: Summary Table -- Social Benefits of Nova Scotia Agriculture**

|                                              |                                                         |
|----------------------------------------------|---------------------------------------------------------|
| <b>Benefits to rural communities</b>         | Employment                                              |
|                                              | Stability and durability                                |
|                                              | Maintenance of rural infrastructure                     |
| <b>Benefits for people and relationships</b> | Farming culture                                         |
|                                              | Social capital                                          |
|                                              | Mutual reliance                                         |
|                                              | Trust                                                   |
|                                              | Relationship-based economic activity (Farmers’ Markets) |
| <b>Province-wide benefits</b>                | Food sovereignty                                        |
|                                              | Integrity                                               |
|                                              | Variety and choice                                      |

|  |                                                                              |
|--|------------------------------------------------------------------------------|
|  | Eating locally-produced food makes at-home eating worth the time and effort. |
|  | Nutritional quality and vitality of food                                     |
|  | Stewardship                                                                  |

## ***Transportation***

Transportation is only one stage in the life-cycle of a particular food item. It is important to reduce CO<sub>2</sub> emissions in the food supply chain as a whole, and not to reduce emissions in one area at the expense of another. As the food system becomes increasingly industrialized, and food is processed and transported in ever-larger bulk quantities, transportation becomes a smaller portion of the total energy used to get a product to the consumer. However, the transport stage is growing relative to other life-cycle stages.

Among the problems with a food system becoming more industrialized and globalized, six are identified in this report. The first is that when food is imported, the economic and social benefits of growing that food locally are foregone. Second, food, and the inputs for growing that food, are being transported ever greater distances as more global sourcing occurs. More than 8,000 km is now estimated to be the average distance. Third, redundant or unnecessary trade is so common. There are reasons for importing and exporting the same items, like apples, or beef, but we should examine those reasons more carefully if we want to conserve resources and support our farmers. Fourth, food freight is shifting to less sustainable modes. More food, for instance, is being shipped by transport truck instead of train. Fifth, road transport is publicly subsidized because highways are built and maintained with taxpayers' money. We are inadvertently putting more trucks on the road and taking more farmers off the land because we are not charging the full cost of using that infrastructure. Finally, there is an increasing environmental and monetary cost of transport as climate systems are stressed from greenhouse gas emissions and our bodies are stressed from transport pollution. Table 3 summarizes the findings related to transportation.

**Table 3: Transportation Summary**

|                                                                                                   |                                                         |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Average distance food travels, including farm inputs                                              | More than 8,000 km plus 35% for food shopping           |
| Differences in emissions between modes of travel (grams CO <sub>2</sub> -equivalent per Tonne-km) | Rail: 17<br>Ship (water): 222<br>Road: 204<br>Air: 1439 |
| Cost of greenhouse gas emissions                                                                  | \$45/tonne CO <sub>2</sub> -equivalent                  |

|                                                                                                |                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Freight transport damage to highways                                                           | <ul style="list-style-type: none"> <li>• <i>almost all</i> the damage done to asphalt pavements is from <i>heavy trucks</i></li> <li>• single-unit trucks and combination trucks, imposes the same amount of roadway damage as 9,600 cars</li> </ul> |
| Actual net public cost of freight transport by highway, NS                                     | \$4.06 per tonne-km in 1999                                                                                                                                                                                                                          |
| Estimate of total public cost of food freight transport by highway, NS                         | \$551 million in 1999                                                                                                                                                                                                                                |
| Estimated pollution cost of freight transport by highway, NS                                   | \$3.16 per tonne-km in 1999                                                                                                                                                                                                                          |
| Estimate of total public cost of pollution from food freight transport by highway, NS          | \$429 million in 1999                                                                                                                                                                                                                                |
| Estimate of full costs, including financial and social costs for freight in Canada, 2008       | Truck: \$0.22 per tonne-km<br>Rail: \$0.024 per tonne-km<br>Air: \$0.623 per tonne-km                                                                                                                                                                |
| Estimated energy cost of vehicle manufacture                                                   | The energy consumed during vehicle manufacture can amount to a quarter of the energy consumed in the life of the vehicle                                                                                                                             |
| Cost of a weekly basket of food for one person, UK                                             | \$37.57 Canadian                                                                                                                                                                                                                                     |
| Full cost of a weekly basket of food for one person, UK, including externalities and subsidies | \$41.94 Canadian - 12% more                                                                                                                                                                                                                          |

## **Energy**

Determining energy use or GHG (and other) emissions in the food system helps us understand where we most effectively can reduce our consumption of finite resources (such as oil or coal) and reduce our polluting emissions. Studies of energy use in the US food system show that the major energy-using phases of the system are processing and packaging (more than 20% of total energy use) or the household storage and preparation phase at 25% or 31%, depending on the source.

To effectively reduce our consumption of non-renewable fuels, and emissions of greenhouse gasses and other pollutants, the studies reviewed strongly suggest the following:

- Reduce the consumption of junk food with empty calories;
- Where possible, replace the use of synthetic fertilizer, particularly nitrogen fertilizer, with local sources of nitrogen such as cover crops and animal manures;
- Reduce dependence on refrigeration and freezing because they are very energy-intensive in the food system. These are particularly important for long-distance

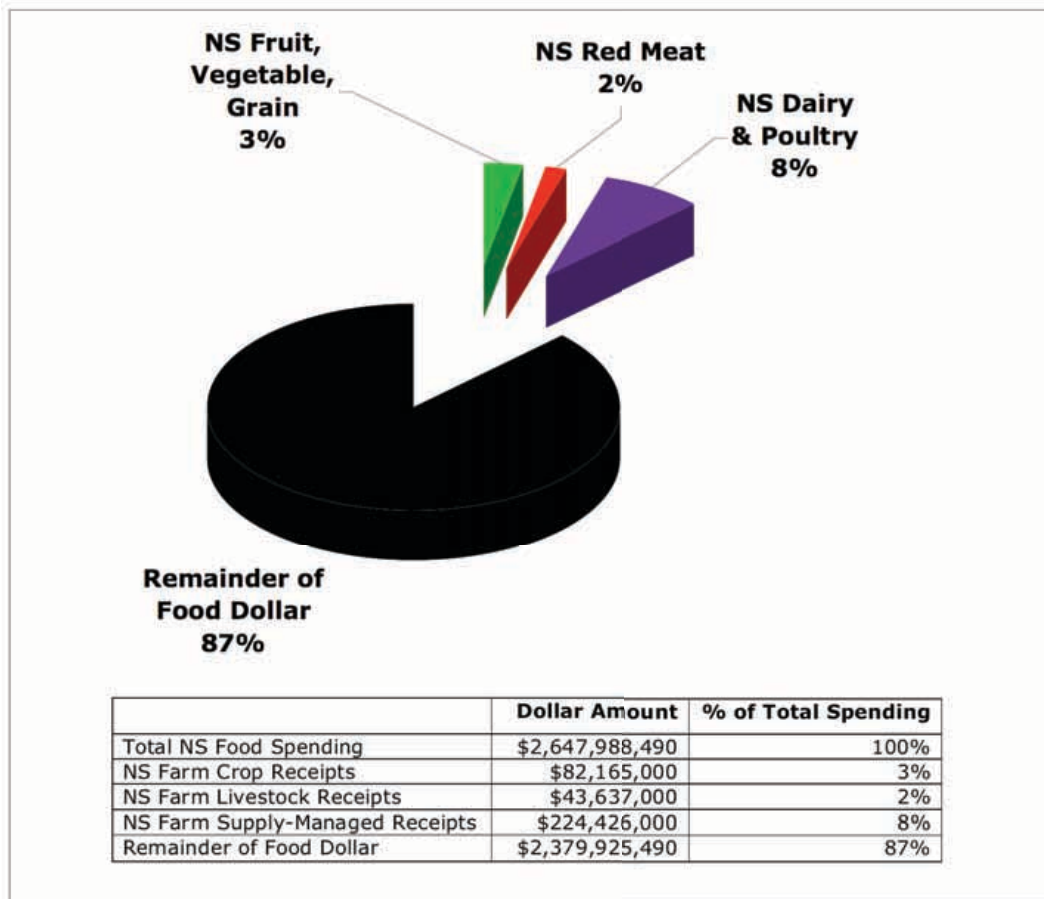
- food transport. Low-energy alternative food storage and preservation methods can be used in a local food system;
- Reduce food waste because it accounts for one quarter of all food sold; and
  - Shift diets to correspond to food available locally in season.

A conclusion from the LCA studies shows that in some cases, large-scale global food companies shipping products around the world can do so more efficiently (in terms of energy per unit product) than the local food system. There are methodological problems with these studies, but it should be recognized that economies of scale do provide some opportunities for energy efficiency.

### ***Self-Reliance***

At the national level, Statistics Canada data show that over the last four decades, food imports are rising relative to net supply. At the regional level, grocery store data show that most of the food in stores is imported from outside Atlantic Canada. At the provincial level, we know that in 2008 *at most*, 13% of the food dollar is being earned by Nova Scotia farmers (Figure 1). Over the last 11 years, this proportion has gone down. In 1997 it was 17%.

**Figure 1: Food Spending Relative to Farm Cash Receipts, Nova Scotia, 2008<sup>10</sup>**



Finally, we calculated production divided by consumption for vegetables, fruit and meat in Nova Scotia. The results can be found in Tables 7, 8 and 9.

**Table 4: Nova Scotia Vegetable Self-Reliance 2008**

| Crop      | Production divided by Fresh Consumption | Production divided by Fresh & Processed Consumption | Percentage of NS consumption that is locally produced (estimate) |
|-----------|-----------------------------------------|-----------------------------------------------------|------------------------------------------------------------------|
| Asparagus | 1%                                      | 1%                                                  |                                                                  |
| Beans     | 22%                                     | 10%                                                 |                                                                  |
| Beets     | 45%                                     | 51%                                                 |                                                                  |
| Cabbage   | 184%                                    | -                                                   | 90-100% of supply from July to April                             |

<sup>10</sup> Derived by removing all non-food items such as furs, flowers, and Christmas trees from the table of Nova Scotia total farm cash receipts in Statistics Canada's Farm Cash Receipts – Agriculture Economic Statistics series. Cat. No. 21-011-X. Latest Update: May 2010.

|                                |                   |                   |                                                                                   |
|--------------------------------|-------------------|-------------------|-----------------------------------------------------------------------------------|
|                                |                   |                   | from Maritimes                                                                    |
| Carrots                        | 652%              | 476%              | 8 months of year all are from Maritimes<br><br>Close to 100% from July to April   |
| Cauliflower                    | 35% <sup>11</sup> | 32% <sup>24</sup> |                                                                                   |
| Celery                         | 0%                | -                 | No commercially produced celery in NS                                             |
| Corn (sweet)                   | 35%               | 13%               |                                                                                   |
| Cucumbers (field only)         | 4%                | -                 |                                                                                   |
| Lettuce                        | 1%                | -                 |                                                                                   |
| Onion (Dry)                    | 95%               | -                 | 85% from August to June (Maritimes)<br><br>90-100% August to April from Maritimes |
| Parsnips                       | 14% <sup>12</sup> | -                 |                                                                                   |
| Peas                           | 22%               | 3%                |                                                                                   |
| Peppers                        | 1% <sup>4</sup>   | -                 |                                                                                   |
| Potatoes                       | 97%               | 42%               |                                                                                   |
| Radishes                       | 0%                | -                 |                                                                                   |
| Rutabagas & Turnips            | 127%              | -                 | All turnips from Maritimes<br><br>90-100% From July to April from Maritimes       |
| Spinach                        | 8% <sup>13</sup>  | 5% <sup>26</sup>  |                                                                                   |
| Tomatoes (field only)          | 2%                | -                 |                                                                                   |
| Total Tomato (incl Greenhouse) | 24% <sup>26</sup> | 6% <sup>26</sup>  |                                                                                   |

<sup>11</sup> 2003 data, as this is the most recent data available

<sup>12</sup> 2004 data, as this is the most recent data available

<sup>13</sup> 2007 data, as this is the most recent data available

**Table 5: Nova Scotia Fruit Self-Reliance 2008**

| <b>Crop</b>    | <b>Production divided by fresh consumption</b> | <b>Production divided by fresh and processed consumption</b> | <b>Percentage of NS consumption that is locally produced (estimate)</b> |
|----------------|------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------|
| Apples         | 390%                                           | 182%                                                         | 40 - 60%                                                                |
| Blueberries    | 1832%                                          | 1104%                                                        |                                                                         |
| Peaches        | 7%                                             | 4%                                                           |                                                                         |
| Pears          | 23%                                            | 20%                                                          |                                                                         |
| Plums & Prunes | 14%                                            | -                                                            |                                                                         |
| Strawberries   | 38%                                            | 32%                                                          |                                                                         |

**Table 6: Nova Scotia Livestock Self-Reliance 2007**

| <b>Livestock</b> | <b>Production divided by Consumption (based on Stats Canada slaughter numbers)</b> | <b>Production divided by Consumption (based on slaughter numbers from other sources)</b> | <b>Percentage of NS consumption that is locally produced (estimate)</b> |
|------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Pork             | 56%                                                                                | 52% <sup>14</sup>                                                                        |                                                                         |
| Chicken          | 117%                                                                               | --                                                                                       |                                                                         |
| Beef             | 27%                                                                                | 12% <sup>15</sup>                                                                        | 1-5%                                                                    |
| Sheep & Lamb     | 25%                                                                                | 17% <sup>16</sup>                                                                        |                                                                         |

Given the various calculations of self-reliance for Nova Scotia, there is a general downward trend in self-reliance (outside of supply managed commodities). However, the numbers also indicate great potential for producing more of our food – if it was economically viable to do so.

### ***Distance Traveled and Emissions of a Food Basket***

In order to calculate the distance food is traveling, we chose to use the National Nutritious Food Basket (NNFB) tool. The NNFB contains 66 food items, from 11 different food groupings which reflect the eating habits of Canadians, as well, these

<sup>14</sup> Production data (slaughter numbers) from Pork NS

<sup>15</sup> This an Atlantic figure, based on beef production in all four Atlantic provinces, divided by slaughter number from all provincially inspected plants and an estimate of slaughter at the federally inspected plant in PEI. Provincial data from Agriculture and Agri-Food Canada, Provincial Slaughter - Annual Report (A009E). Federal data based on estimate from cattle farmer.

<sup>16</sup> Production data from Agriculture and Agri-Food Canada. 2007. Atlantic Provinces Weekly Livestock Market Report, for the week ended Dec 29, 2007.

foods, in appropriate combinations and amounts, were designed to meet the nutritional needs of Canadians according to the 1992 Canada Food Guide.

The average distance traveled by NNFB food items is 3,976 km.

When a weekly diet is considered, the weekly basket of goods travels a total distance of 30,666 km and emits 5.911 kg CO<sub>2</sub>e. The distances and GHG emissions for a theoretical “all-local NNFB basket” were also calculated. To maintain continuity, we estimated 350 km for travel within the province for all local foods. The theoretical, all-local basket is approximately a sixth of the distance and emissions: 4988 km and 1.017 kg CO<sub>2</sub>e.

There is potential for reducing transport greenhouse gas emissions by switching to more local fruits and vegetables, provided that the fruit and vegetable crops are produced by methods that are of similar or increased energy efficiency compared with imports. Though not included in the NNFB, we produce large quantities of blueberries, as well as variety of tree fruits and berries. We also produce a wide variety of horticultural crops. With low-energy season extension techniques, cold storage, processing and preserving – at both the industrial level and the household level – there is a lot of potential to increase local fruit and vegetable consumption throughout the year.

For foods that we cannot easily produce here, we should promote more energy-efficient modes of transportation, i.e. rail, or consider local alternatives, if they exist, e.g. honey and maple syrup in place of sugar.

### ***Case Study: Local vs. Imported Vegetables and Fruit***

With the industrialization and globalization of our food system, our food habits have changed. We are now eating more processed, convenience, and junk food – loaded with sugar and preservatives. We are eating fewer vegetables and fruit than we used to, and *need* to for optimum health. According to recent Statistics Canada figures, “less than one-third (29%) of Nova Scotians over age 12 eat the recommended 5-10 servings of fruit and vegetables every day. This compares to 35% nationally” (Healthy Eating Action Group 2005: 21).

In order to relocalize our food system, our diets will need to shift. We’ll need to relearn how to enjoy our own farm products, how to structure our meals according to seasonal availability, and how to store and preserve our own bounty. This shift will produce health benefits as we reduce the amount of money we spend on junk food and increase the proportion we spend on real food from our farms.

#### **Vegetables**

A surprisingly small proportion of the vegetables we eat in Nova Scotia are actually grown here. We produce roughly enough (or more) cabbage, carrots, onions, potatoes, and turnips to supply our own needs. There is a logic to producing these crops here, where cropping shuts down for several months every year, because they can be stored for

winter use. We could, however, be producing – and eating - a higher proportion of the other vegetables we produce here. Also, with season-extending unheated greenhouses, we could be producing more of the tender crops we eat so much of, like tomatoes, spinach, or lettuce.

Consider tomatoes. Fresh production, with the help of season-extension, could run from July through November (5 months), so we'd need to use processed tomatoes for 7 months (or buy greenhouse tomatoes). Estimated average annual consumption of fresh and processed tomatoes in 2007 in NS is 29.18 kg/person. If tomato consumption is roughly equivalent in each month of the year, we need to process 17.02 kg of tomatoes per person for the cold months. Home freezing and canning were compared with purchasing imported tomatoes (Table 13).

Often people think that buying locally produced food is more expensive than imported food. Here is an example that clearly shows how the local option is less expensive personally and socially. When we include the real costs in a comparison of tomato buying options for the 7 months they are not available in Nova Scotia, the least expensive and most benefit-generating option is to buy local tomatoes in bulk at the peak of the season and preserve them for home use (\$32.92 per person). This option also produces the fewest GHG emissions. The most expensive option is to buy imported fresh tomatoes (\$95.04 per person).

**Table 7: Summary Comparison of Imports with Two Ways to Preserve 7 Months of Tomatoes (17.02 kg) for each Nova Scotian<sup>17</sup>**

|                                                                     | <b>Import Fresh</b>                             | <b>Import Canned</b>                                                                                 | <b>Home Freezing</b>                                                           | <b>Home Canning</b>                                           |
|---------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------|
| <b>Greenhouse gas emissions (kg CO<sub>2</sub>-e /person/ year)</b> | 16 kg (for transport)                           | 16 kg (for transport)                                                                                | 35 kg (for electricity to freeze)                                              | 5 kg (for electricity to preserve the tomatoes in glass jars) |
| <b>Full cost per person</b>                                         | \$95.04 plus the cost of grocery shopping trips | \$48.14 plus the cost of grocery shopping trips and the costs of manufacturing and disposing of tins | \$36.57 plus the cost of a freezer and the cost of a trip to get bulk tomatoes | \$32.92 plus the cost of a trip to get bulk tomatoes          |

Currently we eat 27.3 million kg of tomatoes, but we only produce 1.7 million kg. Therefore we import 25.6 million kg. This works out to about \$56.3 million<sup>18</sup> in potential income to local farmers if Nova Scotians switch to better-tasting locally-grown tomatoes.

<sup>17</sup> See full report for explanation of calculations

<sup>18</sup> At a low price of \$1/lb or \$2.20/kg. Most tomatoes are sold for more, which would generate additional income for farmers.

Since the employment benefits per \$1,000 of agricultural output is 0.0213 (Roberts et al 2005), eating 100% local tomatoes would create an estimated 1,200 jobs. In addition to the economic benefits of buying locally-produced tomatoes, there are a number of social benefits. These include connection and support to the farming community, better quality tomatoes, and possibly an injection of useful skills and social interaction if people got together in the fall to purchase and preserve tomatoes. Good-tasting local tomatoes could encourage people to eat more than they do now, which is a good thing because currently Nova Scotians are not eating enough vegetables (Healthy Eating Action Group 2005).

## **Fruit**

Nova Scotia farmers produce a wide variety of fruit. We are historically best known for apples, and we still export apples out of province. We produce nearly twice our consumption of fresh and processed apples. Yet, we import about 50% of the apples we eat. The weighted average distance traveled by apples imported from out of province is 7,443 km. This is a prime example of redundant trade. We are importing apples, as we are simultaneously exporting them.

To estimate the cost of just *transporting* apples to Nova Scotia, the estimated total consumption of apples is multiplied by 50% (the approximate percentage of imports) to get the approximate weight of apples imported: 4,966 tonnes. This is multiplied by the average weighted distance apples are shipped (7,443 km) to get 37 million tonne-km. This is multiplied by \$0.22 per tonne-km<sup>19</sup> to estimate the real cost of importing apples we can produce ourselves: \$8 million per year. To gain a full picture of the cost of redundant apple trade, the cost of shipping our apples *out* of province would have to be included. The total annual GHG emissions for importing apples is 7,961 tonnes CO<sub>2</sub>-equivalent.

In addition to redundant trade in apples, we eat a lot of fruit that isn't grown here. Besides apples, the top fruits eaten are bananas, melons, and oranges. Although we produce some melons in Nova Scotia, we don't produce any bananas or oranges. We are well known for producing blueberries, but we also produce raspberries, strawberries, plums, pears, and peaches. There seems to be a tradition of picking and preserving strawberries when they are in season (by freezing or making jam). It is a social event. This tradition could be reclaimed for our other northern fruits. Buying directly at U-picks can provide a day out on the farm, reasonably priced fruit, and a freezer full of local fruit for smoothies all year. With such an array of locally-produced fruit available, especially in the summer and fall, it is a shame to pass it up for imported fruits all the time.

---

<sup>19</sup> Transport Canada's total cost estimate of road freight (Transport Canada 2008). Not all apples are imported by road freight, but this is a start for estimating the real cost for transporting apples to Nova Scotia. The total cost estimate includes infrastructure capital costs, infrastructure operating costs, carrier/vehicle costs, congestion delay costs, accident costs, and environmental costs (these include GHG, noise, and air pollution).

## **Case study: Benefits of Beef Import Replacement**

Presently we import most of the beef we eat in Nova Scotia from distant sources. It is finished in feedlots with grain and other by-products. It would not make sense for us to grain-finish beef here and compete with the feedlot system established in grain-growing regions like the Prairie Provinces. We simply don't have the excess grain needed. However we are missing a great opportunity to replace those imports with locally-grown beef fed on grass and clover – something we are great at growing in Nova Scotia.

The production and consumption of beef has a bad reputation for creating environmental and health problems. Unfortunately, this poor reputation connected with feedlot beef has overshadowed the potential for raising and consuming beef in a way that contributes to agricultural sustainability and good health. People tend to associate the ill effects from industrial beef production with all beef. Actually, community-based, primarily grass-fed beef systems generate many benefits for rural Nova Scotia and for consumers, including affordable beef products.

Some of the key findings about beef in Nova Scotia are as follows:

- Nova Scotians are eating roughly 90-99% imported beef from feedlots.
- Local beef production has great potential for improving soil quality and revitalizing rural communities.
- We have underutilized land and capacity that could be used for beef production.
- If we produced all the beef we eat in this province, farm cash receipts could increase from \$22.5 million to *at least* \$90 million/year and full-year equivalent employment would increase from 448 jobs to about 1,774 jobs.
- On average, beef imported to Nova Scotia creates 1.14 kg of CO<sub>2</sub>-equivalent emissions per kg of beef imported, *just for the transportation*. The full cost estimate of this unnecessary transportation is \$30 million per year.
- Grass-fed beef meat is a healthy food: Beef cattle are fed primarily grasses and clover, which makes the meat low in saturated fat, yet high in omega-3 fatty acids, beta carotene/vitamin A, vitamin E, folic acid and antioxidants.
- Animal stress is lower where livestock are grazing compared with feedlot conditions. Ruminants – cud-chewing animals such as cattle, dairy cows, goats, bison, and sheep – are designed to eat fibrous grasses, plants, and shrubs—not starchy, low-fiber grain.

## **Case study: Sheep in Nova Scotia**

Lamb (or sheep) production in Nova Scotia is an ecological way to produce two main products: meat, and wool. The third, hidden, product they produce, is excellent soil quality. Below are some of the benefits of replacing imported lamb with locally-grown lamb.

- We produce 15 - 18% of the lamb we consume in Nova Scotia, and import the rest
- Sheep production has great potential for improving soil quality

- If we produced all the lamb we eat in this province, farm cash receipts are estimated to increase from \$2 million to \$10.7 million/year and employment would increase from 40 full year equivalent jobs to 213 full year equivalent jobs.
- On average, lamb imported to Nova Scotia creates 4.08 kg of CO<sub>2</sub>e emissions per kg of lamb imported.
- Lamb meat is a healthy food: lamb is fed primarily from grasses and clover, which makes the meat low in saturated fat, yet high in omega-3 fatty acids, beta carotene, vitamin E, folic acid and antioxidants.

## ***Food Procurement***

Government departments and institutions procure a wide range of goods and services in the course of their operations. Because of their size and relative stability, institutional procurement policies can help support the local agriculture system by providing a market for producers.

Below is a summary of existing local, sustainable procurement policies within government and institutions.

- **Federal Prisons:** No local or sustainable food policy. A policy to buy from prison farms does exist; however, Nova Scotia does not have any prison farms and existing prison farms are being closed across Canada.
- **Federal Government Departments:** Meeting guidelines for both Environment Canada and the Atlantic Branch of Health Canada suggest using local food where possible
- **Provincial Policies:** The sustainable procurement policy for the province of Nova Scotia was adopted in August 2009.
- **Health care facilities:** There are no official policies regarding the purchase of local food. Many health care facilities purchase food via contracts negotiated by NS Health Care Purchasing Limited. Capital District Health is in the process of revising their food and beverage policy and has recently established a farmers' market.
- **Schools:** The School Food and Nutrition Policy recommends buying local products when possible. The Strive for Five program promotes consumption of local fruits and vegetables through institutionally-scaled recipes and training for kitchen staff.
- **Universities:** Dalhousie University has plans to develop a sustainable food plan. Acadia University is currently conducting a sustainability assessment, which includes food purchased by the university. They currently purchase produce from the Acadia Farm, an on-campus community garden.
- **Municipalities:** Halifax Regional Municipality considers a range of sustainability criteria in its catering service qualification list. The Town of Bridgewater is including food in the town's Integrated Community Sustainability Plan.

## **Conclusion and Recommendations**

The main theme that emerges from this report is about making prices more ‘real’. The real cost of producing food should include fair wages for farmers and their workers as well as the ability to steward the land. It should include the real price of transportation, particularly road transportation. It should not include uneven subsidies, regulations and standards, be it subsidized water in California or less stringent pesticide regulations in other countries. And we should recognize the health benefits of eating wholesome food.

When a good diet creates a positive outcome that is a positive externality. In a place with public health care, like Canada, this kind of positive externality benefits everyone. When trucking causes increased maintenance costs on highways, and trucks aren’t charged for it, that is a negative externality. Pollution, greenhouse gases, and ill-health from a bad diet are all examples of negative externalities. There is little incentive to be efficient, or eat well, if we don’t have to pay for the damage, health care, or climate chaos resulting from our actions. If, somehow, we can internalize the externalities, both positive and negative, we will make much better decisions, and everyone will benefit more. When Swiss trucks are charged according to use and vehicle efficiency, that is internalizing a negative externality. When Madison CSA customers are given a rebate for eating fresh vegetables and fruits, that is internalizing a positive externality. These are the kinds of incentives that will maximize benefits for everyone. Below you will find a list of additional recommendations.

### **For Consumers**

- Vote with your dollar. Support farmers’ markets, farm markets, community supported agriculture (CSA) operations, buying clubs, and retailers and restaurants who support local farmers.
- Ask questions at the grocery store, restaurants, and institutions. Find out where they purchase their food and ask them to improve their labeling.
- Join or donate to one of the many organizations working on food issues in Nova Scotia and get active! For a listing of organizations, visit <http://www.nsfoodsecurity.org/>.
- Reduce the consumption of junk food and other foods of low nutritional value;
- Use low-energy alternative food storage and preservation methods, such as canning, dehydrating, lactofermentation, and root cellars;
- Reduce your food waste. Approximately one quarter of all food sold is wasted;
- Shift diets to correspond to food available locally in season.

### **For Farmers**

- Farmers need to work together more, figure out what they want from government and ask for it;
- Forge new, unconventional, and powerful alliances. There are linkages forming between health, environmental, social justice, and anti-poverty organizations. There are allies in arts and culture organizations, schools, restaurants, gardening groups, faith groups, immigrant organizations and more.

## For Food and Farming Organizations

- Keep momentum of present enthusiasm:
  - Forge new, unconventional, and powerful alliances;
  - Teach people how to cook, preserve, store, eat seasonally;
  - Emphasize fun, social aspect of local food. Keep it positive!
  - Set very public targets with allies. Make a plan. Include incentives. Measure progress!
  - Challenge grocery stores to compete regarding the percentage of local food offered
- Organize customer groups to buy directly from farmers. For example, direct beef orders through workplaces. Combine cooking and preserve-making classes with visits to farms to buy produce.
- Follow the examples set by organizations like the Madison Area Community Supported Agriculture Coalition (MACSAC) and organize events to promote CSAs, lobby for rebates from the Department of Health for CSA subscription rebates, and encourage those who can to donate funds to help lower income families get CSA subscriptions.
- Use existing programs to further a healthy local food system and increase sphere of influence. Open farm days, 4-H, Harvest Festivals and picnics, exhibitions, and community college programs all offer possibilities for connection.

## For the Private Sector

- Be transparent in the labeling of food products. It is often very difficult to figure out where food items are coming from in a retail setting. Signage is often ambiguous or non-existent. Staff are not always well-informed as to the origins of particular food items.
- Conduct an audit of the food you currently purchase. Create a local, sustainable food procurement policy, with minimum targets that increase over time.
- Seek to replace imported food items that are easily grown in NS with products from our own farms.
- Greater transparency with regard to what is being sold in the grocery stores is needed. The Canadian Council of Grocery Distributors should compile and publish what percentage of food is grown or produced in Atlantic Canada. These results should be available by food group (e.g. fruit, vegetables, dairy, meat). It is also important that the report display goods produced in Atlantic Canada separately from goods processed in Atlantic Canada to display an accurate assessment of the food system.
- Reintroduce options for producers to sell directly to grocery stores. The centralized distribution systems that have developed over the last few years have made it increasingly difficult for smaller producers to supply the larger supermarkets. There is some indication that this is changing<sup>20</sup>.

---

<sup>20</sup> Beating the odds - Local producer suppliers being welcomed back (2009, June 3)  
*CBC commentary, Donald Daigle, a vegetable producer in Acadieville, New Brunswick and chair of the Canadian Farm Business Management Council.*

- Reduce food waste. Approximately one quarter of all food is wasted.
- Use low-energy alternative food storage and preservation methods.
- Invest in the local food movement, for example, through Slow Money.

## For Government and Institutions

### *Procurement*

- Develop and adopt local, sustainable procurement policies. Policies should include targets, with plans to increase the targets over time. Additionally, policy makers should carefully consider their definition of local, sustainable food, and extend the definition beyond basic geography to include sustainable production methods, social justice, and corporate responsibility.
- Implementation of local, sustainable procurement policies also has its challenges. Consider the following recommendations to overcome common barriers:
  - **Money.** Incentives to buy local food need to be created and money for food needs to be seen as an investment in Nova Scotia agriculture. Schools and hospitals have very limited food budgets. Schools, hospitals and other institutions have or will lose a revenue stream due to the loss of pouring contracts from soft drink companies as unhealthy foods are replaced. Additionally, some schools have experienced a decrease in sales due to a lack of uptake on healthier foods.
  - **Staffing.** Funding for additional staff and staff training is needed. This is tied to the issue above. More staff are needed to prepare food items from scratch than were needed to reheat and serve pre-prepared meals.
  - **Facilities.** Ensure institutions have proper kitchen facilities and equipment. For example, many schools were not built with kitchens, thus meal preparation options are very limited.
  - **Invest in a matchmaker position.** The current food service model is heavily reliant on a small number of large suppliers. It takes additional time and resources to for food service managers and farmers/small local suppliers to find one another. Additionally, some principals are now finding themselves in the position of running school cafeterias (as food service companies pull out). This becomes one more item added to their job description and principals may or may not have experience in running a cafeteria. A matchmaker would assist in connecting producers and food service managers.
  - **Amend prohibitive policies.** According to Health Canada and the Food Safety Division of the Provincial Department of Agriculture, there is no legislation preventing institutions from buying provincially inspected meat products. Yet, it seems that some food service companies are required to use federally inspected products. This appears to be an internal policy. The policy of using only federally inspected meat limits the market for provincially inspected meat to restaurants and direct markets. (The grocery stores cannot buy provincially inspected meat either, as their distribution channels require food products to cross provincial boundaries.)

- **Foster an environment that supports a change in eating habits.**  
Elementary students have adapted more quickly to the healthy foods in their schools. The high school students are less receptive. Capital Health has expressed concern that people won't buy the healthier food options. Once the elementary students who are used to healthy food reach high school, it is more likely they will be more receptive to new, healthy cafeteria offerings.
- **Reduce waste.** Food waste represents approximately a quarter of all food sold. By reducing food waste, institutions can save money – money that could be used to pay farmers a fairer price.
- **Promote friendly competition!** Some Nova Scotia universities are tracking their local purchasing. If other universities, health care facilities and schools got on board, there could be a buy local competition.

### *Invest in Innovative Ideas*

Money spent on local agricultural programs needs to be seen as an investment in our economy, our social fabric, our health, and our environment. In our research, we have come across innovative programs in other regions that could be implemented here, if there was financial support to do so. Here are some examples:

- **Watershed Agricultural Council** —This organization in New York State directs funds that would have been used to build water treatment facilities into supporting small farms and woodlot businesses. Their research shows that small farms and woodlots, if given funds to protect streams and wetlands, will protect the watershed more effectively than other land uses. The Council promotes the consumption of locally-produced food and wood products, and helps consumers connect the quality of their water with their support of watershed land stewards' businesses.
- **Matchmakers** – Individuals who link farmers with institutions, such as schools or universities. We met one such matchmaker in Massachusetts, Kelly Erwin, who describes herself as a 'dating service' for farmers and food service managers. She understands the needs and challenges faced by each party. She has a directory of farmers, knows what each grows and in approximately what quantity, and helps them find schools and universities on their existing delivery routes. She develops resources for food service managers, such as local food cookbooks and seasonal availability charts. Five years into this initiative, she hopes that this job will become a permanent part of the Department of Agriculture.
- **Support for CSAs** – A Community Supported Agriculture (CSA) system is one in which a farm sells "shares" at the beginning of the season. Their customers receive a weekly basket of fresh farm products. In Nova Scotia we have about a dozen CSAs – Maine has over 100! In fact, the Maine Organic Farmers and Gardeners Association (MOFGA) has a staff person devoted to CSAs, providing resources and support for farmers interested in this marketing approach. Similarly MACSAC in Wisconsin has successfully made CSAs part of the mainstream. Their ideas about subsidizing CSA shares are worth adopting here.

- **Support for new farmers** – Who is going to grow all the food we are now so interested in eating? An apprentice/journeyman program for new farmers put on by MOFGA is attracting interest and teaching valuable skills to up and coming farmers. Also, the Intervale in Vermont allows new farmers to gain experience and use common land and equipment without a huge investment. Once they've proven their ideas work, they move on to create their own farms.

And there are some home-grown programs that should be continued

- **Direct Marketing Community Development Trust Fund.** This is a Nova Scotia fund administered by the Department of Agriculture. It is definitely needed, but currently over-subscribed. The monies for the fund should be increased.
- **Select Nova Scotia.**
- Infrastructure and support for new farmers' markets. Establish economic development programs for farmers' markets through market managers, promotional materials and producer co-ops.

#### *Remove Policy Barriers*

- Break down barriers related to provincial and federal meat inspection. Develop regulations and policies that promote, rather than discourage, the sale of provincially-inspected meat. Provincially inspected meat cannot cross provincial borders. This excludes provincially inspected meat from being sold in the grocery stores, as the distribution networks are set up on a Maritime basis. Certain institutions have policies that only allow them to purchase federally-inspected meat.
- Match food safety regulations to the scale of operations. Current regulations are prohibitive to smaller processors. We need diverse and decentralized food processing operations

#### *Land Use*

- Give priority to sustainable land use over non-sustainable land use when making development decisions
- Develop Working Land Conservation easements to protect farmland
- Ensure that activities in rural areas protect watersheds
- Preventative value of farm and farmland investments now

#### *Municipal Governments*

Traditionally municipal governments have not been involved in food systems, but there is growing interest and potential for municipalities to promote sustainable food systems

- Support farmers' markets.
- Support farmland conservation with municipal zoning
- Include food sovereignty in municipal plans, such as Integrated Community Sustainability Plans (ICSP)

#### *National Food Policy*

Across the country, citizens in each province are facing similar challenges in creating more sustainable, locally-based food systems. There is currently no national food policy, though both the NDP and Liberal parties have conducted consultations and the Liberals have developed one.

- We recommend that the government develop a federal food policy that is based on the principles of food sovereignty.