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Background

The Nova Scotia Federation of Agriculture and the Ecology Action Centre joined forces to answer two pressing questions:

- *How far is our food traveling to get from farms to food retail outlets?*
&
• *What percentage of our food is locally grown?*

With these two questions at the fore, combing through various statistics and reports; it was evident that enthusiasm for locally grown food proliferated into a movement no one had predicted. This information is in high demand: across the media spectrum, in classrooms, grocery stores and at kitchen tables. Now with the report complete the answers to those two questions have been determined in estimate.

Our food is traveling close to 8,000 km on average from farm to plate, including the delivery of inputs to the farm needed to grow the food. An extraordinary distance. But the 'distance' is more than just the number of kilometers between farmers and consumers. Chapters in this report deal with this complex issue in more detail.

While the estimates are more ball park figures and by default not exact as a result of evasive sources within the food chain locally, regionally and nationally, it can be said that some figures are "confident" estimates (ie lamb or tomatoes) however, the overall picture is vague. Case studies to frame and better pinpoint our self reliance and ability to feed ourselves focus on individual items.

We do have a pretty good idea that at most 13% of our food dollars spent in this province go back to Nova Scotia farms. Unfortunately, this percentage has dropped by 4% in the last 11 years. The good news is, at 13%, we could be eating a lot more locally-grown food than we are now – a potential boon for producers.

These estimates, if generated using the same methods, can be useful for comparisons with other provinces or states, and for tracking change over time. Now that we have a number, we can measure it every year, and set targets. Do Nova Scotians feel the benefits from farming are important enough to try to spend more on local food? Do we want to have 20% -- or even more -- of our food dollars spent on local food? There would likely be resistance to a 100% target, and that is not being advocated here. Read on for further discussion of targets, potential market opportunities, and connected benefits in the Self-Reliance chapter and the Case Study chapters.

Self-reliance is not about closing borders or shutting out all imports. Competition fosters innovation. It is about a region being largely able to provide for its own needs, and not immediately experiencing crisis if flows into the region are cut off for any reason. In a self-reliant region, flows of product, resources, people, and ideas are not only needed but welcomed. But our province should be able to meet many of its own needs, create its own identity, build on its strengths, and use all of its inherent and adopted resources in an optimal manner.

There are many reasons for food **imports**. Some areas of the world are better at producing some products than other areas. For instance, it would make no sense for Nova Scotia to try to produce pineapples. There is also the issue of price, which prompts food distributors and retail chains to source goods from wherever they can be obtained most cheaply and where farm labour is cheapest, even if there is a wide range of hidden costs associated with those imports and hidden benefits in local production that are not recognized or accounted for.

Efficiency is often cited as a key reason for increasingly high levels of food imports. Thus, it is conventionally considered more efficient to grow and process particular foods in large quantities where the factors of production are cheapest and then to transport them long distances, than to rely on smaller and more diverse production units domestically. In fact, a review of some Life Cycle Analysis studies showing the environmental and cost benefits of large scale agriculture and global sourcing of goods completely challenged our assumptions. We learn in the Energy chapter that large production units and shipping huge tanker-loads over the oceans was, in some cases, more energy-efficient per unit, and produced fewer greenhouse gas emissions than local agriculture for local consumption. But global sourcing of food may not measure up in terms of social and economic benefits for our farming communities and for our province. Check out the Economic Benefits and Social Benefits chapters for more detail.

Imports went too far. When cheap imports cause local farms to go out of business because they can't compete while adhering to higher labour and environmental standards, that is not optimizing anyone's benefits. Imports can be beneficial because they spur innovation and provide selection. But when they start putting our best farms out of business and cause our population to lose touch with our own agri culture, we need to take a really close look at externalities (costs that are generated by one party, but paid for by another) in order to make more benefit-optimizing decisions. See the Transportation chapter for more detail on how our tax dollars are helping to displace our farmers.

Do we want imported food to displace locally-produced food? Quite the opposite. Technology has changed. We can extend our growing season with non-heated greenhouses. Controlled atmosphere apple storage can keep fruit fresh all year. Hardy table grapes can store in cold rooms for months. We can grow delicious northern kiwis that don't need to be peeled. We are getting better at extending the grazing season for grass-fed livestock. We have livestock products all year (milk, eggs, meat, dairy products) and yet these things are imported. We can do a much better job of matching supply with demand.

Final Report Executive Summary

(Complete report will be made available at www.nsfa-fane.ca)

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 able to produce 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 report 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 to wholesalers and 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 main report and throughout the case studies in this executive summary.

Below we examine economic and social benefits of local agriculture. Chapters 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 chapter 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 (Roberts et al 2005:2).

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.

Table 1: Summary Table - Economic Benefits of Local Agriculture

Nova Scotia Agriculture	Economic Benefit
Direct annual farm spending	\$460 million in farm operating expenses (2008) ¹
Gross annual farm spending: direct, indirect, and induced effect of farm spending	\$1.16 billion (2004 estimate) ²
Total annual employment: direct, indirect, and induced employment from farming activity	10,281 full time equivalent jobs (2004 estimate) ³
Total annual contribution to GDP: direct, indirect, and induced GDP	\$400 million (2004 estimate) ⁴
Annual contributions to Federal and Provincial Tax revenues	\$154 million (2004 estimate) ⁵
Eating local beef 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
Eating local lamb instead of imported lamb	Increase annual farm cash receipts by at least \$8.7 million and increase employment in the sector to 213 jobs
If Vermont substituted local production for only ten percent of the food they import	\$376 million in new economic output, including \$69 million in personal earnings from 3,616 new jobs (2000 estimate) ⁶

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 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

¹ Statistics Canada, for the year 2008, adjusted to \$2007 dollars.

² Estimate in 2004 (\$2004 dollars), Roberts et al 2005.

³ Estimate in 2004, Roberts et al 2005.

⁴ Estimate in 2004 (\$2004 dollars), Roberts et al 2005.

⁵ Estimate in 2004 (\$2004 dollars), Roberts et al 2005.

⁶ Hoffer & Kahler 2000: <http://www.vtlivablewage.org/JOBGAP6a.pdf>

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 there 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

Benefits to rural communities	Employment
	Stability and durability
	Maintenance of rural infrastructure
Benefits for people and relationships	Farming culture
	Social capital
	Mutual reliance
	Trust
	Relationship-based economic activity (Farmers' Markets)
Province-wide benefits	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 CO₂ 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 presented in this chapter.

Table 3: Summary of Chapter on Transportation

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 ₂ -equivalent per Tonne-km)	Rail: 17 Ship (water): 222 Road: 204 Air: 1439
Cost of greenhouse gas emissions	\$45/tonne CO ₂ -equivalent
Freight transport damage to highways	<ul style="list-style-type: none"> • <i>almost all</i> the damage done to asphalt pavements is from <i>heavy trucks</i> • single-unit trucks and combination trucks, imposes the same amount of roadway damage as 9,600 cars
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 Rail: \$0.024 per tonne-km 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 help 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:

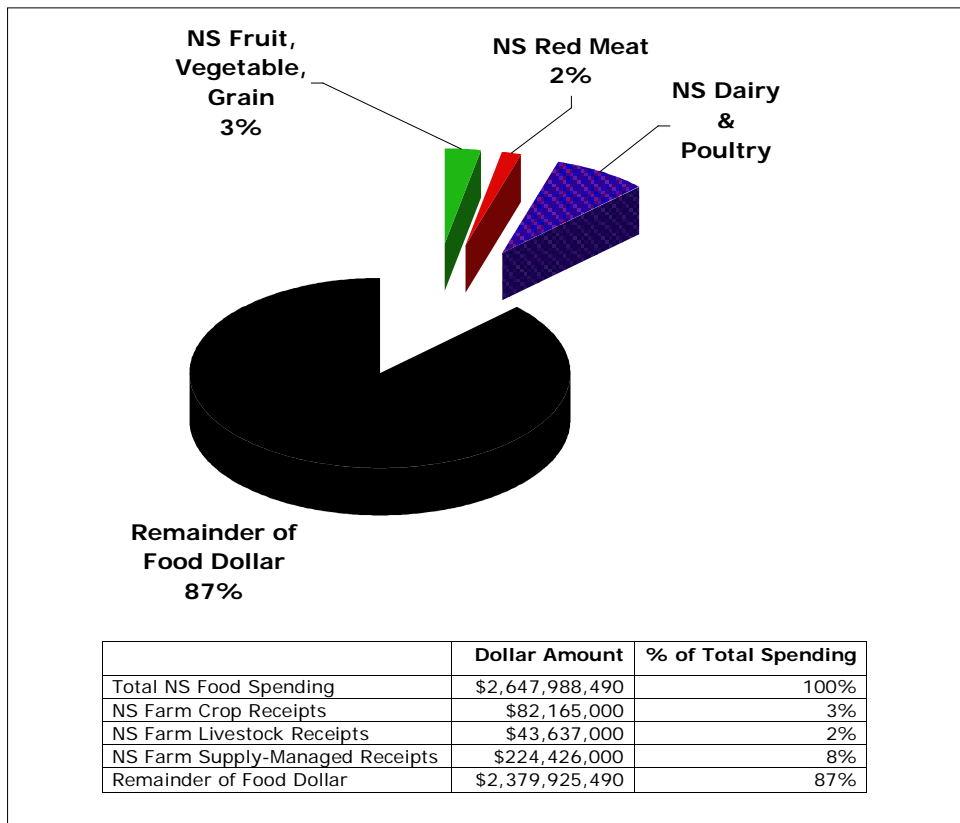
- Reduce the consumption of junk food with empty calories;
- Where possible, replace the use of synthetic fertilizer, particularly nitrogen fertilizer, with local sources of nitrogen such as cover crops and animal manures;
- Reduce dependence on refrigeration and freezing because they are very energy-intensive 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 life cycle analysis (LCA) study 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. The methodological problems with these studies are discussed in greater detail in the Energy chapter, 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 Farm Cash Receipts, Nova Scotia, 2008⁷



⁷ 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.

Finally, we calculated production divided by consumption for vegetables, fruit and meat in Nova Scotia. The results can be found in Tables 4, 5, and 6.

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 from Maritimes
Carrots	652%	476%	8 months of year all are from Maritimes Close to 100% from July to April
Cauliflower	35% ⁸	32% ⁸	
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) 90-100% August to April from Maritimes
Parsnips	14% ⁹	-	
Peas	22%	3%	
Peppers	1% ¹⁰	-	
Potatoes	97%	42%	
Radishes	0%	-	
Rutabagas & Turnips	127%	-	All turnips from Maritimes 90-100% From July to April from Maritimes
Spinach	8% ¹⁰	5% ¹⁰	
Tomatoes (field only)	2%	-	
Total Tomato (incl Greenhouse)	24% ¹⁰	6% ¹⁰	

⁸ 2003 data, as this is the most recent data available

⁹ 2004 data, as this is the most recent data available

¹⁰ 2007 data, as this is the most recent data available

Table 5: Nova Scotia Fruit Self-Reliance 2008

Crop	Production divided by fresh consumption	Production divided by fresh and processed consumption	Percentage of NS consumption that is locally produced (estimate)
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

Livestock	Production divided by Consumption (based on Stats Canada slaughter numbers)	Production divided by Consumption (based on slaughter numbers from other sources)	Percentage of NS consumption that is locally produced (estimate)
Pork	56%	52% ¹¹	
Chicken	117%	--	
Beef	27%	12% ¹²	1-5%
Sheep & Lamb	25%	17% ¹³	

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 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.

¹¹ Production data (slaughter numbers) from Pork NS

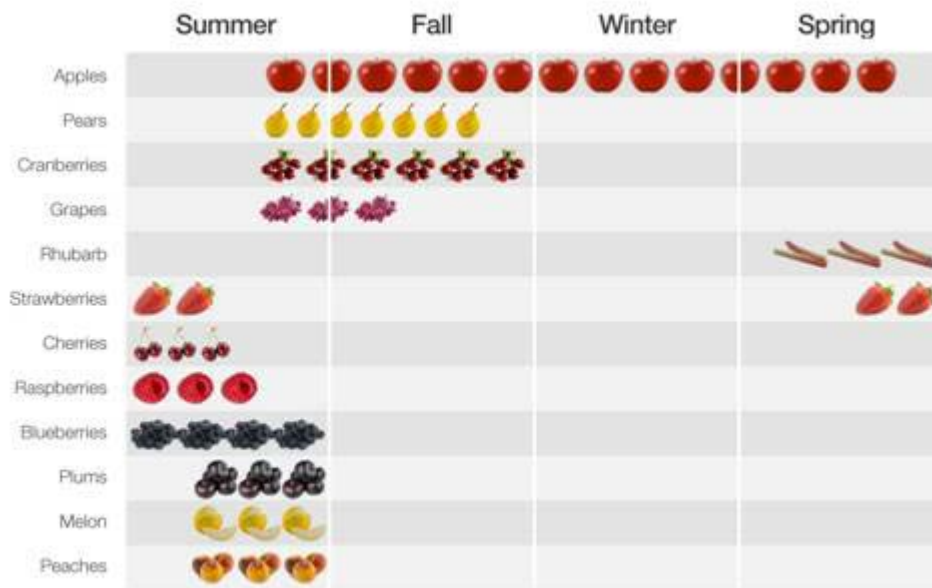
¹² This an Atlantic figure, based on beef production in all four Atlantic provinces, divided by slaughter number from all provincially inspected plants and an estimate of slaughter at the federally inspected plant in PEI. Provincial data from Agriculture and Agri-Food Canada, Provincial Slaughter - Annual Report (A009E). Federal data based on estimate from cattle farmer.

¹³ Production data from Agriculture and Agri-Food Canada. 2007. Atlantic Provinces Weekly Livestock Market Report, for the week ended Dec 29, 2007.

When a weekly diet is considered, the weekly basket of goods travels a total distance of 30,666 km and emits 5.911 kg CO₂e. 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 CO₂e.

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.



Seasonal food chart for NS Agriculture -- Source NS

Case Studies

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 logic to producing these crops here because cropping shuts down for several months every year and 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 7).

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 Scotian¹⁴

	Import Fresh	Import Canned	Home Freezing	Home Canning
Greenhouse gas emissions (kg CO₂-e /person/year)	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)
Full cost per person	\$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 million¹⁵ in potential income to local farmers if Nova Scotians switch to better-tasting locally-grown tomatoes. 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-km¹⁶ to estimate the real cost of importing apples we can produce ourselves: \$8 million per

¹⁴ See text for explanation of calculations

¹⁵ At a low price of \$1/lb or \$2.20/kg. Most tomatoes are sold for more, which would generate additional income for farmers.

¹⁶ 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

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 CO₂-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.

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 CO₂-equivalent emissions per kg of beef imported, *just for the transportation*. The full cost estimate of this unnecessary transportation is \$30 million per year.

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).

- 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 CO₂e 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.

Case Study: Marketing Lamb

In 2003, Mike Isenor was interviewed for a GPI Atlantic report on Farm Viability. The following profile was included in Scott et al (2003). It is reproduced below in its entirety, with permission, to provide the reader with a sense of the history of the co-op, and also an excellent example of how producers got together, saw an opportunity, got critical support in key places, tested the market, and held on to it with determination and a commitment to quality standards.

Northumberlamb Co-op

Mike Isenor describes the birth and day to day operation of Northumberlamb. In the late 70s there was a fairly active community of sheep producers. They came from all over the province to attend the sheep fair (a breeding stock sale). Of course, after a lot of people got into sheep, suddenly the price dropped and it was difficult to get a consistently good price for lambs at the auctions. Some weeks the price could be good, and the next week it could be devastating. Producers got together to organize something where they could control their own market and prices. One of the main driving forces behind it was Brewster Kneen. He was a great organizer and could get people enthusiastic about doing things that they thought they couldn't do. It was about 1980 when we initiated the Farmers' Market Project to see if there was a market for lamb meat in Halifax. We would get 30-35 lambs butchered and cut up and take them into the farmers' market on Saturday at 5 am. There were line-ups of people in the morning waiting to buy our lamb and we were always sold out. On the basis of that experiment, it was established that there was a demand for lamb and we should be able to organize a market for it.

Around the same time, Frank Sobey and the whole Sobey's family were great lovers of lamb. Frank had just hired a new supervisor for all his meats departments from England, Ron Young. Frank took Ron in his big car and drove him around the farms in Pictou County. He used to say to Ron "why don't we have any fresh NS lamb in our stores? I want those lambs in my stores." The timing was superb. Ron was very supportive of us. He wanted us to succeed.

In the beginning the problem was having a year's supply.

Traditionally people had their lambs in the late spring, and would go to market in late fall. No lambs were available from December until July. We had to work with the sheep producers to get a consistent year-round supply. This was the biggest challenge. As soon as we got started Ron Young gave us four of their biggest stores in Halifax. In the following weeks we'd get a few more lambs and we'd add a store until we were doing pretty well all their stores in the Halifax Metro area then Truro and New Glasgow. As soon as we had lambs available Ron would tell us where to send them.

In 1982 we officially incorporated as a co-op, so we had our 20th anniversary last fall. All the farmers own the co-op. I'm the manager, but there's no owner. Members have equal say as to how the co-op is run. Directors are selected from the membership at our annual meetings, and they make the decisions with the manager. The idea, right from the beginning was to return as much money as possible to the farmers. Our objective was to maintain a steady price that producers could count on; that they could work toward. They knew what they were going to get paid if they had lambs ready in May, for example. That only worked when you took the profit motive away. It was also a big advantage that Sobey's was so supportive in the beginning because they wanted it to work too. There wasn't a hassle with them about prices.

In the beginning when we had too many lambs in the fall, Sobey's advertised them in their flyers, and they sold them for the price basically that we charged them. They were very supportive, and that got us on our feet. Once it was seen that we could actually supply the lambs and co-ordinate and deliver, we were up and running. Within a year or so we were delivering to all the Sobey's stores in Nova Scotia. Then we started to add other stores like Dominion and IGA, and independent stores and restaurants. For a long time, though, Sobey's was the major customer.

Northumberland

- Attempt by co-op to generate better prices for producers
- Farmer's market is an incubator for new business, and test market
- Example of retailer support needed to get an initiative off the ground; retailer *wanted* the initiative to work (in the beginning)
- Purpose: to get as much money as possible and a steady, predictable price to the farmers for their lambs, not the lowest price to farmers
- Retailers later cut out direct sales to individual stores, preferring deliveries to a warehouse that supplies the region. This is problematic for meat coming from provincially inspected abattoirs which can only supply meat to stores within the province (regulations).
- Importance of having abattoir – bought it and formed another co-op.
- Customer loyalty – they wanted fresh lamb, locally produced.
- Diversity of markets and control over marketing is important.
- Have to increase the market just to remain the same size.
- Farms: small income; or do a combination of different things.
- Working together through Northumberland brings market stability.
- Co-op: a profit allocation goes back to farmers.

After Ron Young left the scene, Sobey's became a large corporation, and the idea of supporting Northumberland lamb was lost. David Sobey basically stuck to us, even when some of the big supervisors were thinking of doing some things differently that were counter to our best interest. But eventually they wanted everything to come through their warehouses in Debert instead of direct sales to individual stores. And they wanted more processing – pre-cut lamb instead of whole carcasses, which we did, and then they wanted it put on trays for individual portions and delivered through the warehouse. Delivering directly to the warehouse is problematic for us because stores from all over the region would pull stock out of the warehouse, and because we are provincially inspected, we are only permitted to sell within the province.

After operating for about 4 years, Northumberland purchased the abattoir that we were getting our lambs killed in. So we formed a new co-op. The same members formed the Brookside Abattoir Co-op. At that time we felt we had really good quality, and reputation. When Sobey's started to go to other suppliers of lamb, customers left Sobey's for the lamb and went over to the stores that were still buying directly from us. We still sold the same number of lambs. But Sobey's share of our business was down to about 25% and Superstore was up to about 50 or 60% and the independents were somewhere in between. But now Superstore is demanding central warehousing, so we are in the same challenge.

A customer goes to a grocery store and looks at the lamb from New Zealand or Ontario and its cut up and sealed in a tube package, it doesn't look appealing. They want fresh lamb from Nova Scotia that's been delivered the day before. The local lamb is far superior to imported lamb. In other parts of the world, New Zealand lamb is thought to be the best lamb, but not here. It's the flavour and the tenderness and the freshness.

Restaurants and a couple of little independent stores make up about 40% of our sales at this time. Sobey's would make up about 35% right now, and Superstore makes up 25%. Over the last few years we've been building on restaurants. We had to be in charge of marketing our own lambs, because if you leave it to someone else they're not looking after your interest. They could switch to another supplier at any time. If that happens we're back to where we started and the sheep industry wouldn't stand a chance in the province. It wouldn't exist. By being our own marketers, and by diversifying, we become more insulated from a store deciding that they're not going to buy from us. We've been vulnerable to that and we're lucky that we have not been wiped out. If they change supervisors and then say 'let's try this' then -- bingo -- we could be wiped out. If you're selling 90% of your product to one place and all of a sudden you're cut off and you're supply is ready to go, what are you going to do? You're always having to try to increase the market in order to stay the same, it shifts around so much.

Growers

We have about 100 shippers (producers of lamb) on our list, people that have sold to us in the last few years. We're usually able to accommodate most people who have lambs, or raise the kind of lambs we're looking for. As a co-op, market standards are set based on what we need. We try to let our producers know what our customers are asking for. We pay according to production that most closely fits the majority of our market demand. We try to hit the premium price for the lambs in highest demand, or lambs with the best return.

Some of our biggest producers would have 4 or 5 hundred ewes, producing 6 to 7 hundred lambs a year, down to people with 10-15 sheep selling you 20 lambs a year. The average would be people selling you about 60 – 70 lambs a year. These would be people where sheep farming is not their main income. Sheep farming is not something you'll get rich at. I don't really believe that the way things are now that you can be viable strictly on sheep farming. Even with 500 ewes. There are paper scenarios that show it can be done, and theoretically it can. But everything has to go right. I see it more as something people can do to enable them to stay where they are, and make a living along with something else. It has to be something they really like to do. There are a few people with large numbers doing it. But it's pretty darn hard, and you'd have to live on a pretty small income I would think.

Centralization and amalgamation vs. a distinct product

Most of the farming here is in competition with world prices. If you can't produce enough to put tractor-trailer loads of this product in the warehouses to distribute to all the stores, you can't sell any. Unless you go to a farmers' market or an independent store. The only way to be viable in the food industry is to be centralized with a huge market and all the raw materials at the most economical advantage. You have to have the cheapest inputs. Our inputs aren't the cheapest (in Nova Scotia). We don't have enough market. There's not enough demand for the products to ever get big enough. Northumberland survives because NS lamb is perceived as a distinct product by our customers. You can't replace it with Ontario lamb or NZ lamb. New Zealand prices are very low. If we were trying to sell at those prices, then all the farmers would quit raising lambs. For instance New Zealand legs of lamb often sell for \$2.99/lb and ours sell for \$4.99/lb in the stores.

Since Northumberland has operated, people have received on average, a way better price than they would have without Northumberland. For a number of sheep producers operating independently, it's really tricky to balance your supply with the demand. Working together through Northumberland brings stability. At this point, there are the same number, or perhaps fewer farms raising sheep, but in the past lambs were raised up as feeders and shipped out of the province to be finished in other places, like Ontario. Now a lot more of the lambs are finished in the province.

People who buy lamb are willing to pay more money for their meat because it's something they like. Probably the majority of lamb is bought by people from other areas of the world who ate lamb prior to coming to Canada. People who are used to eating lamb can't get used to eating watery chicken.

In 2002, 5,000 lambs went through Northumberland. Although the price varies a bit, if we get \$3.65/lb from the store, the farmer gets about \$2.95. We need 65 to 70 cents a pound to operate Northumberland. One of the reasons why lamb has not really competed very well with other meats is that it's not very economical to process because of the small size. It's a lot more expensive to process one lamb than it is to process a cow, per pound.

The current challenge is, in the last few months, reduced sales compared to last year. Superstore decided to switch to lamb pre-cut, store it in a warehouse, and bring it in from a federal plant. They were 50-60% of our market before doing that, and now they're down to about 30%. We still sell to some of the stores because they put up a fuss that they needed our lamb for certain customers. The other supplier is out there to make a profit; their reason for being is not for the welfare of the sheep farmer, and the price to the sheep farmer will fall. That's the difference. If Northumberland makes a profit it's returned to the farmers. If we do make extra money we have a profit allocation that is paid back to all the farmers in accordance with how many lambs they produce. So there's no incentive for Northumberland to make a profit for themselves, and that's what makes us unique.


If, in the future, all meat has to be federally inspected we'd be in big trouble because there is only one federal plant in the Maritimes that will kill lambs. To be a federal plant you have to be a pretty big size, a lot bigger than we are. You have to have a lot more than lamb, and generally a Federal plant finds they are not doing enough lamb to justify the cost of keeping a line open for it so, they don't want to bother with lamb.


Look

Ask

Buy

Local Makes \$ense

 Nova Scotia Federation of Agriculture
www.nsfa-fane.ca

 Nova Scotia Federation of Agriculture

eat seasonal

LOCAL MAKES \$ENSE

eat local

www.nsfa-fane.ca

Conclusions & 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 Community Shared Agriculture 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.
- 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 good 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 changing¹⁷.
- 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

¹⁷ 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.

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 are 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 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.**
<http://www.gov.ns.ca/agri/prm/programs/afidf.shtml> 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** : A provincial government initiative with the goal of Select NS is to increase awareness and the consumption of Nova Scotia produced and processed agri-food products by Nova Scotians and visitors

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)

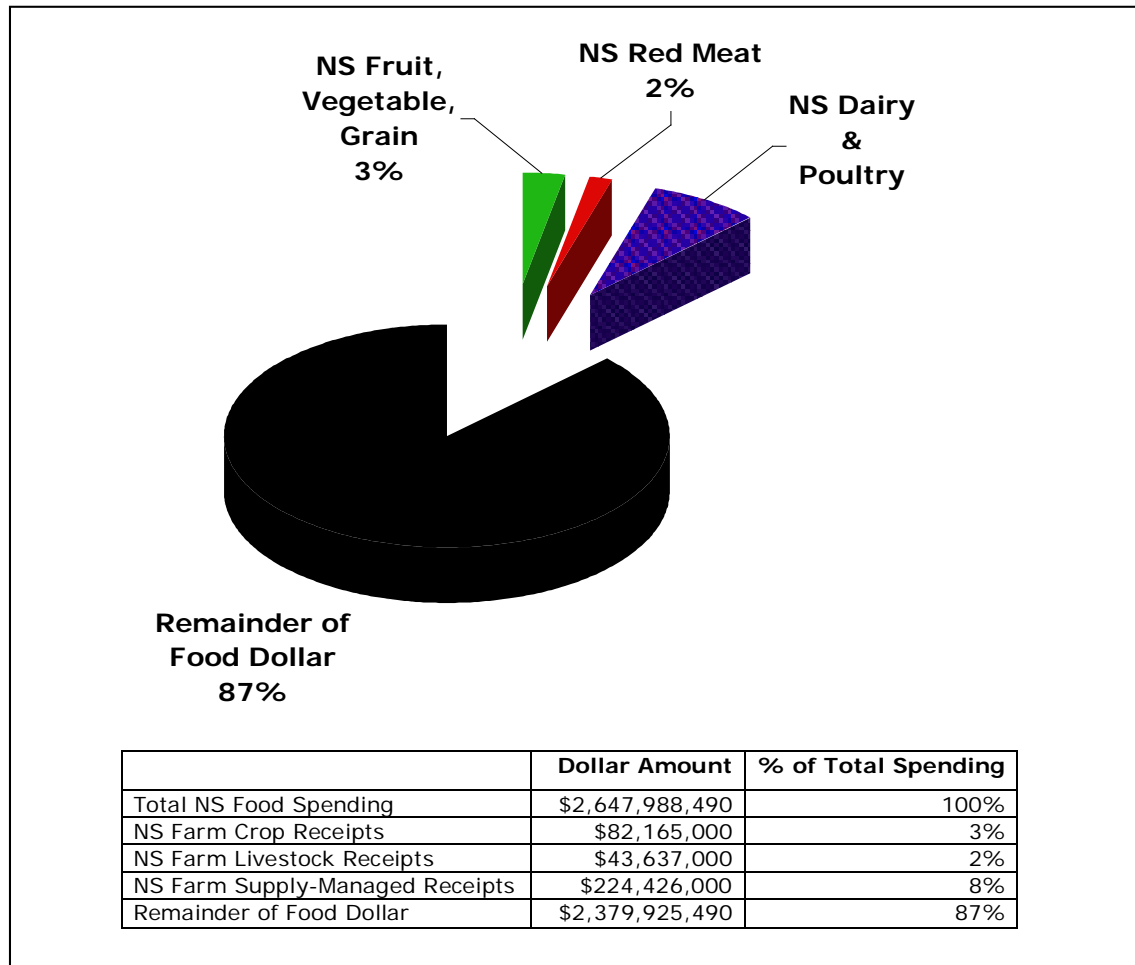
National Food Policy

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.

How Much Local Food Do Nova Scotians Consume?

Figure 2: Food Spending Relative to Farm Cash Receipts, Nova Scotia, 2008¹⁸



What does this estimate tell us?

Based on a survey of household spending conducted by Statistics Canada, about one million Nova Scotians spent about \$2.6 billion on food in 2008. If we take the estimated amount of farm cash receipts for food, at most 13% of the Nova Scotia food dollar was received by NS farms. Eleven years earlier, farm cash receipts were 17% of the food dollar spent. To have a healthy and robust food system in this province, it would be better to have at least 50% of the provincial food dollars spent find their way back to farms. This would mean that farm income from domestic food sales would be \$1.3 billion instead of the estimated \$350 million. If we multiply that by the employment multiplier from Roberts et al (2005), that would generate 16,285 full time equivalent jobs.

Once spending on food flows to farms, most of it flows back out again to pay for production expenses. Between 1971 and 2008, total farm cash receipts have gone up 11% in Nova Scotia, but the graph in Figure 11 shows that over the same time, net farm income has gone down 80%.

¹⁸ See notes for Table 10 for details of the sources and calculations used.

Even though total production has increased, farmers retain much less of that income. In 2008 farmers in Nova Scotia had *no* net income.¹⁹

How do we create a more locally-based food system?

The concept of a 'food mile' has captured the attention of the general public and the media, raising the profile of local agricultural issues. Our ultimate goal is to have tasty, nutritious food to eat, reasonable prices for both consumers and producers, wealth generation in rural Nova Scotia, minimal environmental impact, good relationships, and self-reliance.

The purpose of this report is to inform ourselves about the costs and benefits of our food system, and estimate changes that would happen if we increased the portion of local food in our diet. Once we are more informed, how do we act on this information? Assuming that we understand the benefits of a more local food system, recommendations for achieving it are discussed below.

The main theme that emerges from this report is about making prices more 'real'. For instance, the price of food should reflect the real cost of producing it. The supply managed dairy and poultry sectors, although not perfect, have helped to put dairy and poultry products on store shelves at a price that reflects the cost of production. They have also managed, to a certain extent, to match supply with demand. That should at least be a *goal* with the other agricultural sectors. In the case of products that can be grown here, assess supply, assess demand, and see what can be done to match the two.

The real cost of producing food should include fair wages for farmers and their workers as well as the ability to steward the land. People and the land should not be 'used up' in the process of growing food. The Local Fair Trade Initiative²⁰ in Wolfville touches on this desire to be fair and non-exploitive. This could be a start to a much more comprehensive move to fair prices for local farmers. If we can do it with Fair Trade coffee and chocolate, we can do it with food produced here too.

Another price that is not real is the price of transportation, particularly road transportation. Freight transport, through taxes and fees, pays only a small portion of the real cost of building and maintaining the highway network in Nova Scotia (and across North America). If freight companies were required to pay the full cost of wear and tear on roads, the greenhouse gases, pollution, accidents, and congestion, food imported by truck would likely go up in price. If we add the full cost of the fuel they use, the full cost of imported food would go up even more. Locally-produced food would be much more attractive and necessary. Switzerland has a system of charging freight trucks according to their emissions and road use. Because we are not charging these real transportation costs, our system is skewed to support products from anywhere in the world that can produce food for less. Producing food for less can sometimes be a function of efficiencies of scale, but it can also mean reducing costs at the expense of people and the environment.

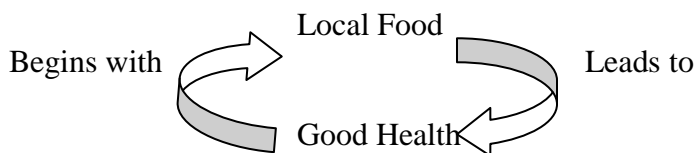
¹⁹ Total Farm Cash Receipts and Total Net Income data are derived from Statistics Canada's *Agriculture Economic Statistics* 21-603

²⁰ The Fair Trade Initiative is a global movement to distinguish communities as leaders in their commitment to supporting the principles of Fair Trade, including a fair price, respect for labour standards, environmental sustainability, and more direct and equitable trade and to improve the livelihoods of the millions of farmers and workers in the developing world who benefit from the Fair Trade Certification system.

Subsidies also skew prices so they are not real. Nova Scotia does not subsidize our farmers as much as, for example, Quebec subsidizes their farmers. As a result our farmers cannot compete with the prices Quebec farmers can charge. Similarly, US farmers are subsidized more than Canadian farmers are. Also, there are different regulations and standards throughout the world. In some places, stronger pesticides can be used, and lower wages are paid. Or in California, water for farming is subsidized. As long as we have these uneven subsidies and standards, along with transportation that is too cheap relative to its cost, our farmers will more often than not lose out. We either have to 'even the playing field' or we need to charge a lot more for transportation.

Another subsidy that many consumers are not aware of is an internal farm subsidy. Farmers often take jobs off the farm in order to pay for the farming operation. Or they are not paying themselves or their offspring for their labour. Good farming should be rewarded in the marketplace in the same way as good carpentry or good teaching.

Another price that is not real is the price for unhealthy processed food. This is beginning to be recognized as schools remove unhealthy foods from vending machines and cafeterias. The hospitals are starting to do the same. Health care providers understand that an unhealthy population is very expensive to care for, and now are starting to 'invest' in healthy food. This is a very positive trend. European countries such as Denmark are mandating that all government-funded institutions such as day cares, schools etc have organic food, mostly local. The two reasons for this are that it is good for rural economies, and it helps the population stay healthier, which saves them money. Unhealthy processed food causes increased health care costs down the road, and it is the most expensive food in terms of net energy intensity. Therefore, it should be much more expensive. There is a parallel with smoking. Addiction to sugar can be tackled the same way addiction to nicotine was addressed. By adding taxes, isolating smokers, and educating youth, fewer people smoke today. It is not as socially acceptable as it used to be.



Recognition of the health benefits of regular CSA deliveries of vegetables and fruits has come in the form of health insurance companies paying rebates for subscriptions in Madison, Wisconsin. Those who benefit from good diet are helping to pay for it.

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, the health care, or the climate chaos. 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.

Final Reflections

There has been an incredible shift in awareness of the importance of local food over the past three years. This shift has taken place not only in Nova Scotia, but across Canada and the United States. When we visited New England in early 2008, many of the people we spoke with commented on the large scale shift in awareness that was taking place. It seemed that a tipping point had been reached.

When we began the Food Miles Project in 2007, our initial outreach ideas focused on how to raise awareness about the importance of local food. And while that is still important, we rapidly realized that many people were already supportive of local food systems and wanted to take action.

Meanwhile, it has become increasingly clear that the food system in Nova Scotia is in crisis. Amid the heart-breaking stories and the depressing graphs, there is a fierce passion for local food. And in the midst of crisis, there are those who see opportunity. In the last three years, we have met so many incredible, inspirational, innovative, dedicated, hard-working people. It is our hope that the groundswell of support for local agriculture will result in concrete solutions for our food system before it is too late.

Jen Scott and Marla MacLeod