

SALT SPRING ISLAND PRODUCE STUDY

**Conducted by
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for**

**The Islands Trust
in collaboration with
the Salt Spring Island Agricultural Alliance**

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Thank you to the farmers who responded to the telephone survey. The survey required a considerable time commitment on their part and the willingness to share their production records for the benefit of community research. They provided invaluable original data and without their participation this study would not have been possible. Thank you also to the gardeners who responded to a shorter but also important email survey. They provided preliminary data on the food production capacity of home gardens.

1. INTRODUCTION

This study presents information about the amount and types of commercial produce production on Salt Spring Island. It also provides information about the resources that are used to produce local food. And, finally, it provides preliminary information about assessing the amount of food production in home gardens.

The study is part of a larger community focus on food security and the multi-year effort that is underway to increase local food production. It is intended to provide information for public education and community action having to do with feeding ourselves. It is also intended to increase our understanding of the extent to which a shift to producing more of our food locally might impact efforts to reduce greenhouse emissions.

Salt Spring Island has some of the most comprehensive data about local food production in the region and perhaps beyond. We have information about livestock production and commercial produce production from two separate studies that were conducted in 2005. In January 2010 a study was completed that compared the amount of livestock production in 2008 with livestock data collected in 2004-05.

This report presents data about produce production levels in 2009 and compares the information with the comprehensive commercial produce production information from 2004.

As noted above this study also presents preliminary data for assessing the carbon footprint related to local food production and consumption. This is the first step in documenting Salt Spring farm inputs. It will help in making comparisons with the inputs used to produce the non-local food that makes up most of the food consumed in our community. The aim is to increase our knowledge about the effect that eating locally-grown food has on our carbon footprint as a community.

2. ABOUT THE STUDY

The study was sponsored by the Islands Trust in collaboration with the Salt Spring Island Agricultural Alliance. It was conducted between January and March 2010.

Objectives

- To gather information on the volume of produce grown and sold for human consumption by market garden farmers on Salt Spring Island, and to compare the results with 2004 information on commercial produce production.
- To document farming methods, including:
 - amount of land in produce production;
 - types and sources of inputs;
 - on-farm mechanization; and
 - sale destinations.
- To gather preliminary data that can be used to estimate the type and volume of food grown in home gardens on SSI.

Definition of Produce

For the purposes of this study, “produce” is defined as all vegetables, fruits, nuts, pulses and other edible crops sold for human food such as mushrooms, human food grains, culinary herbs and culinary flowers.

“Commercially-grown” produce is produce that was grown by market gardeners mainly for sale.

Study Methods

The study gathered original data from Salt Spring farmers about produce production in 2009. The information was collected using a survey that was conducted by telephone in February and March 2010. The survey covered a range of topics including the area and weight of each type of produce harvested, farming practices, resource inputs including fuel and soil supplements, and information on the point of sale.

The aim was to survey all of the commercial produce farmers on Salt Spring. Thirty-six farmers participated in the survey. It is estimated that they represent 85-90% of the total number of commercial produce farmers and 90% of commercial produce harvested on Salt Spring in 2009. Seven volunteers assisted with the surveys, contributing a total of approximately 35 hours of their time. All the volunteers are members of Island Natural Growers and/or the Salt Spring Island Farmers Institute.

Knowing that home food gardens can make a significant contribution to the production of local food, we decided to use this study to begin to build a database about home garden production. Because this was a first step and because of limited resources, the study did not attempt to identify and survey all people with home food gardens. Rather it emailed a brief survey to gardeners who belong to the Incredible Edibles, a sub-group of the Salt Spring Island Garden Club.

The aims were to find out what kind of information home gardeners have about their food production, to get a better understanding of the best way to frame the questions and, finally, to gather preliminary data about home garden production capacity. There are 50 people in the Incredible Edibles group; 28% (14) responded to the survey.

3. FINDINGS ON COMMERCIAL PRODUCE PRODUCTION

Amount of Commercial Produce Production in 2009

The total amount of produce grown in 2009 by market garden farmers who participated in the survey was 145,430 kg. **Table 1** shows how much of this total weight is vegetables, fruit and other produce. Table 1 also shows that this produce was grown on just over 100 acres of farmland, for an estimated average of 1,430 kg of produce per acre. The total production comprises an average of 1,367 kg of vegetables per cultivated acre and 1,826 kg of fruit per cultivated acre.

Based on Statistics Canada data on fresh produce consumption in Canada, it is estimated that at this rate an acre of vegetable production on Salt Spring could feed about 10 people annually and an acre of fruit production could feed about 25 people.¹

Table 1 Amount of produce grown by Salt Spring commercial growers, in 2009

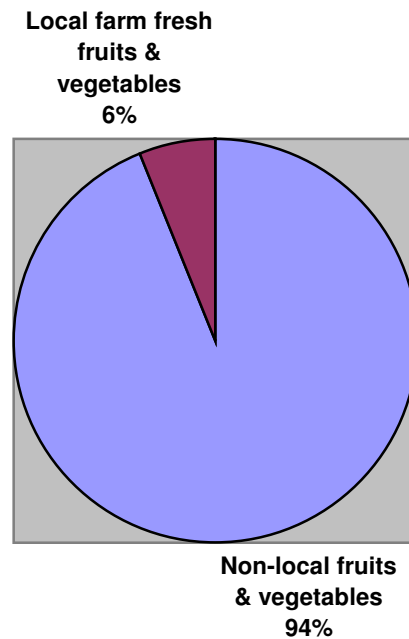
Category	Weight	Estimated size of area in production (acres)	Production ratio
Vegetables, mushrooms, culinary herbs, culinary flowers	75,433 kg (165,953 lbs)	55.2	1,367 kg/acre
Grains and nuts	2,608 kg (5737 lbs)	9.25	282 kg/acre
Fruit (tree and soft fruits)	67,391 kg (148,259 lbs)	36.9	1,826 kg/acre
TOTAL PRODUCE	145,431 kg (319,949 lbs)	101.35	1,435 kg/acre

¹ Statistics Canada reports that the amount of fresh vegetables available for consumption in Canada per year is approximately an average of 133 kg per person and the amount of fresh fruit is approximately 73 kg per person. (Statistics Canada: Food available by major food groups, 2008)

Statistics Canada data on the average annual consumption of fresh produce² by Canadians suggest that there was enough locally-grown commercial fresh produce on Salt Spring in 2009 to feed about 530³ residents for a year. On the vegetables alone there was enough to feed about 570 people.

As **Chart 1** shows, commercial produce production on Salt Spring accounts for a small proportion of the total amount of fresh produce that is eaten each year by the Salt Spring population⁴.

Chart 1 Proportion of local fresh produce compared with estimated total consumed, Salt Spring Island, 2009



Comparison of 2009 and 2004 Commercial Produce Production

One of the most significant results from the study is that commercial produce production has increased overall by an estimated 38% since 2004. As **Chart 2** shows, production is up for both vegetables and fruit.

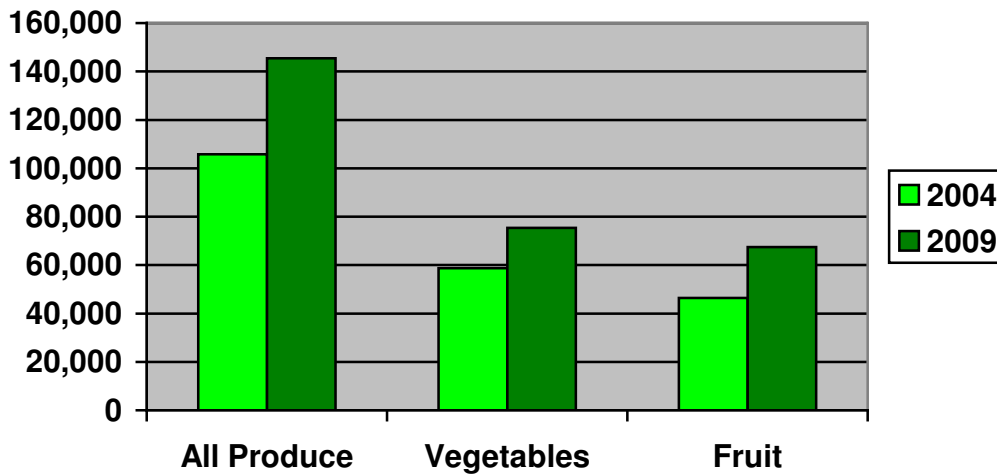
A more detailed comparison with 2004 data indicates that the increase in fruit production was somewhat higher than the increase in vegetable production: 45% for fruit compared with 28% for vegetables in 2009 over 2004. Most of the fruit increase can be attributed to grape production. There was also an increase in strawberry production, while the apple harvest stayed about the same.

² 200 kg fresh vegetables and fruit per person per year. (Statistics Canada. Food available by major food groups, 2008)

³ Vineyard production was removed from the calculation for this purpose.

⁴ Population of Salt Spring Island is 9,780. Source: Islands Trust website

Chart 2 Comparison of harvested commercial produce in 2009 and 2004, Salt Spring Island



Consistent with the production data, 74% of the survey participants said they had increased production in the past five years; 46% indicated they intend to increase production again in 2010. The most common reasons given were increased demand and that there are more venues to sell their produce to and/or through.

Farming Practices

As shown in Table 1, the total number of acres in produce production in 2009 was just over 100 acres. This represents a 10% increase over the acreage in produce production in the 2004 survey.

While the area is small compared with the total amount of farmland on Salt Spring—only about 1% of farmland—the survey data indicate that the intensity of produce production has increased over 2004. That is, there was a 38% increase in production with a net increase of only 10% more land in production. In addition, the data indicate that some of the new acres brought into production are not yet at their full productivity. This is the case, for example, with some of the nut and grain production.

The survey found that the range of crops is still very broad as was the case in 2004, with most farms growing many different crops. Monoculture is the rare exception. Farmers reported a total of 47 different vegetables crops and 15 tree and soft fruit crops. Two of the newest crops being grown in volume are grains for human food and mushrooms. (Appendix 1 provides a complete list of crops harvested in 2009.)

The survey data show that the amount of land in commercial produce production is on average just under three acres per farm. **Table 2** shows that there is a strong commonality in the farming methods and they are generally consistent with small-scale, organic agriculture. For example, they tend to use a mix of field row and bed planting, and use of compost and mulches are common practice. Most of the farm work is done using hand labour; only a small number of the farms use machines and their use tends to be very limited.

Table 2 shows that 66% of the farmers saved at least some seed from their 2009 crops for their 2010 planting. The percent of seed saving varied from 5% to 75% and the average was about 30%. Garlic was the one crop that farmers tended to save close to 100% of their seed.

89% of the survey participants indicated that they use such practices as crop rotation, mulches, green manures and integrated pest management. 11% of the produce farmers surveyed said they are using some chemical inputs, usually for specific applications.

Table 2 The farming methods used on commercial produce farms in 2009, Salt Spring Island

Method	Percent of farms	Method	Percent of farms
Certified organic	31%	Use mostly hand labour	89%
Organic but not certified	57%	Use some or mostly machine labour	23%
Biodynamic	26%	Intercropping	54%
Veganic	11%	Permaculture	51%
Field row	66%	Composting	94%
Bed planting	66%	Animal manures	51%
Unheated greenhouse	60%	Seed saving	66%
Cold frame	46%	Chemical pesticides/herbicides	11%
Heated greenhouse	26%	Chemical fertilisers	9%

Resource Inputs

In addition to the questions that the survey asked about farming methods, it also asked specifically about resource inputs. The aim is to begin to establish a baseline of information about the carbon footprint associated with local food production.

Generally speaking, the survey findings show that most of the inputs are soil builders and amendments. Given that most of the farms are operating with hand labour and hand tools rather than machines, the direct use of fuels and other energy inputs is very limited.

Soil builders and amendments

- Most of the farms indicated that they use organic soil builders such as compost, compost teas, cover crops and/or mulches (94% of farms) and manures (52% of farms), and most of these are generated right on the farm. Those that aren't produced immediately on the farm, are in all cases sources directly from another location on Salt Spring Island.
- The third most common amendment is lime which is used on 46% of the farms.
- Other amendments used by a small number of farms—less than 20%—are bone meal, blood meal, sea soil, seaweed, rock phosphate, kelp, oyster shells, glacial rock, wood ash, diatomaceous earth, sulfur, greensand and sawdust. Almost all of these products come from off-island, directly or indirectly.
- 11% of the farms said they use chemical fertilizers, all of which come from off-island.

Fuels

Table 3 lists the most commonly used fuels. For the most part, the quantities reported in the survey are estimates only. Most of these fuels are used to operate tractors at specific times of the year and for the trucks that pick up farm supplies throughout the year.

Most of the survey participants said they use so little hydro electricity as to be negligible. The most common use of electricity is to operate pumps associated with watering. None of the farmers reported using solar electricity.

Table 3 Estimated fuel use in the production of 145,430 kg of produce⁵ in 2009, Salt Spring Island

Type of Fuel	Estimate amount
Gasoline	12,750 litres
Diesel	2,700 litres
Biodiesel	2,120 litres
Propane	1,880 litres
Wood	4 cords
Geothermal	N/a

Water

The survey asked participants about the source of water used for commercial produce crops. The most common source is on-farm ponds (43%), followed by on-farm wells (37%)

Other less commonly used sources are a lake, municipal water system, a creek, a catchment system and a reservoir. One farm indicated using gray water.

Point of Sale

The survey asked the farmers about where they are marketing their produce. **Table 4** shows the most common venues that they are using. It shows that the vast majority (80%) are selling only on Salt Spring using a variety of venues. Three-quarters of the farmers said they are selling directly to one or more grocers on the island and almost as many are also selling at farm gate and farm stands.

Table 4 Point of sale used by commercial produce farmers, Salt Spring, 2009

Farm gate & farm stand	Direct to one or more grocers	Direct to one or more restaurants	Growing Up Organic	Tuesday market	Saturday market	Off-island
72%	75%	55%	42%	39%	36%	19%

Farm Work

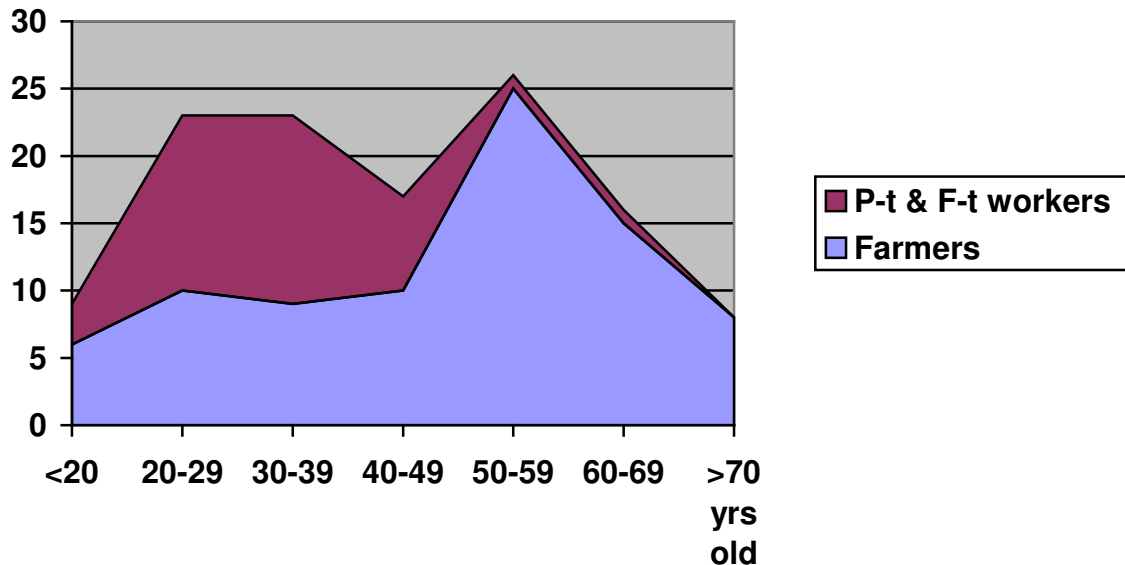
The survey asked participants how many family members are working on the farm and how many farm workers they hire to help with the work. It also asked whether the hired workers are living on the farm.

- 100% of the farms are operated by at least one member of the family. 95% live on the farm they are operating.
- 49% of the survey participants indicated that they hired a total of 39 workers to help with the farm labour in 2009. Most of these (77%) were part-time jobs. In addition, 2 respondents said they hired a total of 75 casual workers to assist in harvesting.
- 53% of the farmers said their paid farm workers did not live on the farm.

⁵ Includes some of the fuel used to take produce to market.

- The median age of the farm owners is between 50 to 54 years old. As **Chart 3** shows, the hired workers tend to be younger than the owners. Their median age is 30-34 years old.
- Some of the farms also reporting having volunteers from Worldwide Workers' Opportunities on Organic Farms (Wwoofers) working with them for varying lengths of time through 2009. The total number of Wwoofers is estimated to be 64. Part of the arrangement is that the farmers provide accommodation for the volunteers.

Chart 3 Ages of Salt Spring commercial produce farmers and paid farm labour, 2009



4. FINDINGS ON HOME FOOD GARDEN PRODUCTION

Home garden production can be an important part of the local food supply. One of the aims of this study was to begin to gather data that can be used to assess the capacity of home garden food production on Salt Spring.

As noted previously, it was not possible to survey everyone on Salt Spring who has a home food garden or even to identify where all the food gardens are. Instead, the Incredible Edibles group within the Salt Spring Garden Club generously agreed to distribute a survey to their members. The survey asked a few basic questions that were designed to give us a sense of:

- the variation in the size of their home food gardens;
- the variation in the types of vegetables and fruit that they are growing; and
- the kind of records they keep about the quantity of food they are growing.

In short, the aim was not to collect information that could be generalized to all home food gardens on Salt Spring. Doing that is a much larger task. Before embarking with our more modest approach, we inquired round and about to see if anyone else in the region has collected generalized information about home food gardens, with a view to applying what they have learned here. It appears, however, that no one has yet taken on that larger task. So, we have started the research here on Salt Spring and may expand the home food garden data collection in the future.

Twenty-eight percent (14) of the Incredible Edible group responded to the short survey that we emailed to them. Keeping in mind that the data they provided cannot be assumed to be representative of all home food gardens, the responses are nonetheless interesting and of good quality. They begin to paint a picture that provides a guide for learning more about home food garden production.

Table 5 describes the key characteristics of their food gardens. It shows, for example, that this group grows 50 different kinds of fruit and vegetable crops and that there is wide variation in the size of the gardens. The weight of some of the food that was harvested was reported in pounds while some was reported in the number of servings and an average serving weight was imputed.

Table 5 Summary of data about the home food gardens, Salt Spring Island, 2009⁶

Number of different vegetable and fruit crops	Range in the size of the gardens	Median size of the food gardens in the group	Total rough estimated weight of the crops harvested from 11 of the gardens	Average rough estimated weight of food per person eating from the gardens
50	40 sq. ft or less up to more than 1/3 of an acre	1,075 sq. ft.	2,164 kg (4,761 lbs) of vegetables & fruit	80 kg

- Just as there was a wide range in the size of the gardens, there was a similar range in the number of crops that each gardener grew in 2009. The overall average was 16 different crops per garden, but the range was from 37 different crops in a couple of the gardens through to 2 or 3 different vegetables grown in pots in other gardens.
- The amount of produce harvested from each garden varied a lot. There was not a lot of commonality in the relationship between the amount of food harvested and the size of the garden. The harvest from about 50% of the gardens, however, was about one pound of food from every one to three square feet. Among the many variables that would contribute to the differences are the characteristics of the different crops.
- Taking into account the total rough estimated weight of almost 2,200 kilograms that the gardeners reported, it is interesting to note that this is equivalent to the amount of fresh vegetables and fruit eaten by 10 people in Canada each year.⁷
- The survey asked the growers how many people regularly ate from the garden. Their responses provide another way of thinking about the amount they grew: taking the total number of people they reported, we can estimate that on average they grew about 80 kg per person. Based on Statistics Canada data, this quantity represents about 40% of vegetables and fruit typically consumed per person each year.
- 50% of the gardeners indicated that they harvest from their gardens year-round; 25% said they are harvesting 10 months of year.
- 100% of the gardeners reported that they will be increasing their production in 2010.

⁶ The gardeners were given a choice of measurements and all used feet and pounds rather than metres and kilograms.

⁷ Statistics Canada. Food Available, by major food groups, 2008.

5. SUMMARY OF KEY FINDINGS

- The study found that 145,430 kg of produce were commercially grown on 101 acres of farmland on Salt Spring Island in 2009.
- The average intensity of production in 2009 is estimated at 1,367 kg of vegetables per cultivated acre and 1,826 kg of fruit per cultivated acre.
- The average vegetable production in 2009 was enough food to feed about 10 people per acre.
- The commercial produce included 47 different types of vegetables, 15 different tree and soft fruits, plus a variety of human food grains, culinary herbs and nuts.
- The average amount of land in produce production per farm is just under 3 acres.
- The findings indicate that production levels are sufficient to feed between 530 and 570 people annually, or the equivalent of almost 6% of the Salt Spring population through the course of a year.
- Commercial produce production in 2009 was 38% higher than in 2004. This includes a 28% increase in vegetables and a 45% increase in fruit.
- 46% of farmers indicated they intend to increase produce production in 2010 over 2009 levels.
- Farming methods are largely consistent with small-scale organic agriculture. Common features reported:
 - 31% of farms are certified organic.
 - 57% are organic but not certified.
 - 89% use mostly hand labour, including small and large hand tools; regular machine use is uncommon.
 - 94% of farms are composting and/ or using green manures and mulches.
 - 66% of the farmers said they saved at least some amount of their seed from 2009 for planting in 2010.
 - 100% of the farms are operated by at least one member of the family and 95% of the farmers are living directly on the land they are farming.
 - The median age of the farmers is 50-54 years old.
 - The median age of hired workers is 30-34 years old.
 - Most hired workers do not live on the farm they are working on.
- Farmers reported using 5 different types of fuel in their farm operations. The estimated quantities were about 13,000 litres of gasoline, 2700 litres of diesel and 2100 litres of biodiesel.
- Farmers reported that the most commonly used soil amendments are compost (94% of farms) and manures (52% of farms). 100% of these were sourced directly on Salt Spring, with most coming from on the farm itself. The third most common amendment is lime (46% of farms) which comes from off-island.
- The two most common sources of water for watering crops are ponds (43% of farms) and wells (37% of farms). Some farms use more than one source for their water.

- 80% of the farmers said they are selling their produce only on Salt Spring Island. The most common points of sale are direct to local grocers, farm gate and/or farm stand.
- Information provided by members of the Salt Spring Garden Club about their home food gardens provides rough estimates about the size of their gardens and the amount of food they harvested.
 - Their gardens varied widely in size from several pots on a deck to one-third of an acre. The median size is just under 1,100 square feet (102.2 square metres or .026 of an acre)
 - In total, they reported growing 50 different types of vegetables and fruit.
 - A rough estimate of the amount of produce they grew puts the total amount harvested by 11 of the gardeners at 2,164 kg. On average this is about 80 kg for each of the people eating regularly from the gardens.
 - 50% of the gardeners said that they harvest year-round from their gardens and 25% said they harvest 10 months of the year.
 - 100% of these home gardeners said they will be increasing production in 2010 over 2009.

6. CONCLUDING SUMMARY

It is encouraging to find that commercial produce production has increased overall by 38% on Salt Spring farms since 2004. It is also encouraging to affirm that farmers are continuing to maintain a broad range of crops, and that some of the increase can be attributed to new crops such as mushrooms, human food grains and pulses.

It is especially noteworthy that as the amount of local food that is grown on Salt Spring increases, the farming practices are well-suited to controlling and limiting the carbon footprint associated with production. For example, this study found that significant inputs which are used to build and maintain soil health and productivity come directly from the farms themselves. In addition, the variety of produce that is grown using good organic practices and the high per acre output are important factors when considering more food production in the context of long-term sustainability.

Based on the trend indicated in this study, double-digit replacement of trucked-in food is still several years away. That's partly because the starting point is so low. To reach 10% of all the produce that's eaten in a year we will need to double the 2004 production. That means another 45% increase over 2009 levels. Importantly, this assumes that the size of the Salt Spring population stays the same. As this study shows, agriculture has been stepping up to the challenge of producing more local food through the past five years, and 46% of farmers in this study indicate that they will be increasing production again in the upcoming year. The capacity of agriculture and food production to keep up with population growth and development on the island, however, is another matter.

Thinking from a sustainability point of view about replacing trucked-in food, this study indicates that the current level of commercial vegetable production is capable of feeding about 10 people per acre. At this rate of production, if the long-term goal were to produce the equivalent of one-half the fresh vegetables eaten by Salt Spring residents in a year, farmers would need to have about 500 acres in vegetable production each year. The study found that there were about 55 acres in vegetable production in 2009 so we'd be looking at an additional 445 acres. The Salt Spring Area Farm Plan indicates that there is sufficient farmland to do this. The Area Farm Plan also speaks to the infrastructure issues that affect bringing more farmland into production such as land tenure, farm labour, farm housing, water management and so on.

Another aspect of increasing local food production and decreasing carbon footprint is to encourage home food gardening. The results of the survey of a small number of home food gardeners showed

there is large variability in the size of gardens, the variety of vegetables and fruit grown and the intensity of production. One of the most interesting pieces of data provided by those surveyed is that 75% of them said they are harvesting at least 10 months of the year with one-half of them harvesting all year round. This is a remarkable harvesting time span that offers significant possibilities when considering home food production capacity.

More information needs to be documented and analysed on the amount of fuel inputs that are being used in produce production on Salt Spring. It appears from this study, however, that fuel inputs at the present time are relatively low. How much this is likely to change with larger increases in commercial production is a question for future research.

APPENDIX 1

Types of produce grown by Salt Spring Island farmers, 2009

Vegetables	Vegetables	Culinary Herbs	Fruit
Artichokes	Leeks	Basil	Apples
Arugula	Lettuce	Cilantro	Blackberries
Asparagus	Onions	Dill	Blueberries
Beans	Nettles	Lemon balm	Cascade berries
Beans-dried varieties	Parsnips	Mint	Cherries
Beets	Peas	Oregano	Figs
Braising greens	Peppers	Parsley	Gooseberries
Broccoli	Potatoes	Rosemary	Grapes
Brussel sprouts	Pulses	Sage	Melons (various)
Cabbage	Pumpkins	Tarragon	Peaches
Carrots	Radishes	Thyme	Pears
Cauliflower	Rutabaga		Plums
Celery	Salad mix	Other	Raspberries
Celery root	Shallots	Hazelnuts	Rhubarb
Collards	Spinach	Walnuts	Strawberries
Corn	Sprouts		
Cucumbers	Squash - summer	Mushrooms	
Eggplant	Squash - winter	Grains	
Fava beans	Sunchokes	Edible Flowers	
Fennel	Swiss Chard		
Garlic	Tomatoes		
Kale	Zucchini		
Kohlrabi			