

## Chapter 5 Agriculture and the Niagara Economy

### 5.1 Introduction

The Regional Municipality of Niagara represents a substantial component of both the provincial and national economies of which it is a part. Indeed, the area defined by Niagara and the Census Metropolitan Areas (CMAs) of Toronto and Hamilton, is home to a significant proportion of Canada's industrial capacity, population, and wealth.

Like other regional economies in Canada and abroad, the growth and diversification of the Niagara economy has put pressure on the agricultural land base for conversion to residential, industrial, commercial and infrastructure uses.

The loss of farmland is, to some extent, a consequence of economic growth, especially when (as in Canada) much of the prime agricultural land is located proximally to large urban centres. To make truly informed (i.e., "rational") choices about protecting the resource while accommodating competing uses, the contribution of these lands to the regional economy must be understood and measured. While the economic impact is only one of a number of factors to be considered in managing growth, it is an important one. Once the economic contribution is understood, the costs of losing the land (e.g., the added cost of imported fruits and vegetables, the dislocation of farmers and farming families, the loss of socioeconomic spin-offs associated with agriculture etc.) can be compared with the benefits of conversion (e.g., property tax revenues, jobs, and spin-offs associated with that activity which replaces agriculture etc.).<sup>1</sup>

The purpose of this chapter is to provide Niagara with an estimate of the economic benefits that flow from the region's agricultural sector, and in so doing, to contribute to a better understanding of the absolute and relative importance of agriculture in Niagara. Additionally, in an effort to provide decision makers with information that can be used to prioritize the various components of agriculture in the region, the analysis presented below will estimate economic benefits on a commodity-specific basis (i.e., for the various sub-sectors of agriculture). This detail has been achieved via a significant primary data gathering exercise where owners/operators of agricultural operations in the various sub-sectors were surveyed as to their input purchases and sales. The result is an agricultural economic impact statement that differentiates the top ten agricultural commodity groups (in terms of gross farm receipts in 2001) in Niagara in terms of their ability to stimulate output and wage payments throughout the region. On this basis, the various commodity groups that comprise Niagara's agricultural sector can be compared in terms of their overall propulsiveness vis-à-vis the broader regional economy, and more informed decisions regarding the management of agricultural land can be made. This will become one tool to use in assessing the future of the agriculture industry and how to manage growth.

In using this analysis, it is important to remember that it is based on a particular moment in time. The commodities that are the leaders today may not be the leaders tomorrow. Indeed with the constantly changing and evolving nature of the agricultural industry we may not even be aware of a commodity that will prove to be a leader tomorrow. It is important to be informed and have the information necessary to make choices, it is also important to maintain the flexibility so as the market changes, we have the agricultural land base to respond to change.

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<sup>1</sup> In the context of a full cost-benefit analysis of converting agricultural land to other uses, the list of cost items would be extensive and composed of a variety of tangible and intangible factors. The cost elements mentioned here are by no means exhaustive.

## 5.2 Defining Agriculture in the Regional Municipality of Niagara

Before the economic impact of agricultural production in Niagara can be assessed, the sector must be clearly defined in terms of the activities that comprise it. The economic linkages between each activity and the broader regional economy must be delineated.

**Figure 5.1** shows that in 2001, agricultural activities in Niagara generated just over \$500 million in gross sales, and that the top 10 agricultural commodity groups accounted for more than 90 percent of this output. Specifically **Figure 5.1** shows that agriculture in Niagara is diverse with greenhouse operations accounting for the largest share of total farm receipts (43%), followed by poultry (18%), grape farming (10%), tender fruit (9%) etc.

**Figure 5.1:** Commodity Breakdown of Niagara Agricultural Sector, 2001

<i>Sub-Sector</i>	<i>Gross Farm Receipts 2001 (Millions)</i>	<i>Percentage of Total RMN Gross Farm Receipts, 2001</i>
Miscellaneous Agriculture	\$34.8	6.8%
Green House	\$217.6	42.6%
Hog	\$8.1	1.6%
Cash Crop	\$2.01	0.4%
Nursery	\$27.7	5.4%
Poultry	\$90.8	17.8%
Grape	\$50.0	9.8%
Tender Fruit	\$48.0	9.4%
Beef	\$4.4	0.9%
Horse and Pony	\$4.2	0.8%
Dairy	\$23.3	4.6%
Total	\$511.1	100%

To delineate the linkages between the various agricultural sub-sectors and the broader Niagara economy, a questionnaire was administered to a sample of respondents in each commodity group. The questionnaire asked respondents to allocate their total input purchases and commodity sales, in percentage terms, across a listing of commodities. The list of commodities used in the questionnaire was based on the Small-Level NAICS<sup>2</sup> commodities tracked in the 1998 Provincial Input-Output Accounts (see **Appendix 4-A** for the survey-based input/output profiles).<sup>3</sup>

Initially, a sampling methodology was developed in an attempt to ensure the representativeness of the results for each commodity group. However, low response rates dictated that a secondary administration of the questionnaire to a group of representatives from each commodity group was necessary. As a result, the number of responses in each commodity group is quite low, and this means that the results presented in **Appendix 4-A** should not be interpreted as estimates of overarching “population” input/output profiles. That said, those representatives that participated were asked to respond in a manner that would be typical of an operation within their particular commodity group. So, while the results cannot be considered to be generalizable in a statistical sense, they do represent the best available “snap-shot” of the inner-workings of each of the commodity groups listed in **Figure 5.1**.

<sup>2</sup> NAICS - North American Industry Classification System

<sup>3</sup> The Small-Level Provincial Input-Output Accounts are produced by Statistics Canada's Input-Output Division. These tables, in 1998 and in subsequent years, track the production and use of 48 commodities by 25 industries in each province and territory of Canada.

The end result of the process described is a set of input/output profiles of each of the Niagara agricultural sub-sectors listed in **Figure 5.1**. For each sub-sector, these profiles show, in percentage terms, the inputs purchased and the outputs sold. In conjunction with information embodied in a synthetic Input-Output table for Niagara, these input profiles serve to “link” the 10 agricultural sub-sectors in **Figure 5.1** with the broader economy of the region.

### 5.3 Measuring the Economic Impact of Agricultural Production in Niagara

**Figure 5.1** shows that the agricultural sector of Niagara generated more than \$500 million worth of output in 2001. It would not be unreasonable to assume this level of output represents the lower limit of output in all subsequent years. To sustain the production of more than \$0.5 billion in agricultural output annually (e.g., poultry, hogs, flowers, grapes etc.), the various sub-sectors of agriculture must be purchasing hundreds of millions of dollars worth of inputs from various sectors of the regional economy (e.g., labour, chemicals, fuel, financial services etc.). Given that the Niagara economy represents a relatively mature and diversified economy, it is reasonable to assume that the Region is able to capture a large percentage of these transactions.

Agricultural production in Niagara therefore can be viewed as the origin of a seemingly limitless series of economic transactions (i.e., purchases and sales) between sectors of the regional economy that culminate in a substantial total impact on the regional economy. The Niagara Region Impact Model (NRIM) has been developed to model this series of economic transactions stemming from agricultural production in the region, and to estimate the total economic impact of this activity on the regional economy. That is, for a given level of production in each of the commodity groups shown in **Figure 5.1** above, the NRIM estimates the direct, indirect and induced effects that are generated as a result.

### 5.4 Results

**Figure 5.2** shows that all sectors of the Niagara economy, including all 10 individual commodity groups, have substantial multiplier effects associated with them. This is typical of mature (and diversified) regional economies. The large multipliers for most sectors (including the agricultural commodity groups or sub-sectors) reflect the fact that the bulk of the inputs required by all sectors of the regional economy can be produced by sectors in the Niagara economy (i.e., locally), as opposed to being imported from another region (or country).<sup>4</sup>

The dairy commodity group, for example, as shown in **Figure 5.2** below, has a simple output multiplier of 2.40. This means that each additional dollar of output from the dairy industry in Niagara stimulates \$2.40 in output across all sectors of the regional economy (inclusive of the original \$1.00 in dairy output). The total impact, as represented by the simple output multiplier, is the sum of the direct and indirect effects of the original \$1.00 of dairy output, while the total output multipliers represent a total impact of the same \$1.00 in dairy output that includes induced effects in addition to the direct and indirect effects.<sup>5</sup> (See **Figure 5.3**).

<sup>4</sup> Mature economies typically possess production capacity in a wide variety of industrial categories from primary extraction to high-end services. As such, firms sourcing inputs in such an economy can often purchase the necessary inputs locally. In developing or under-developed economies, production capacity in all but the most basic of industries is lacking and, as a result, firms sourcing inputs must look to suppliers in other regions or other countries. A given industry in a mature/diversified economy would therefore have a larger multiplier associated with it than would a counterpart in a developing or under-developed economy.

<sup>5</sup> The direct effect of increasing dairy output by \$1.00 would be the sum of all additional inputs the dairy sector must buy to produce the additional dollar in output (e.g., feed for cattle, veterinary services, electricity to milk cows etc.). The indirect effects would include all of the input purchases made by each of the sectors that supply inputs to those sectors that supply dairy directly. For example, as mentioned earlier, an example of a direct impact of increasing dairy production would be the purchase of veterinary services. For the veterinarian to offer his/her services he/she must buy medicines, fuel for vehicles, as well as professional services (i.e., even vets have an input structure) etc.. These input purchases made by the vet would constitute part of the indirect effect of the original shock (i.e., supplying the additional \$1.00 in dairy output). An induced effect represents additional industry output that is stimulated as a result of the additional income earned

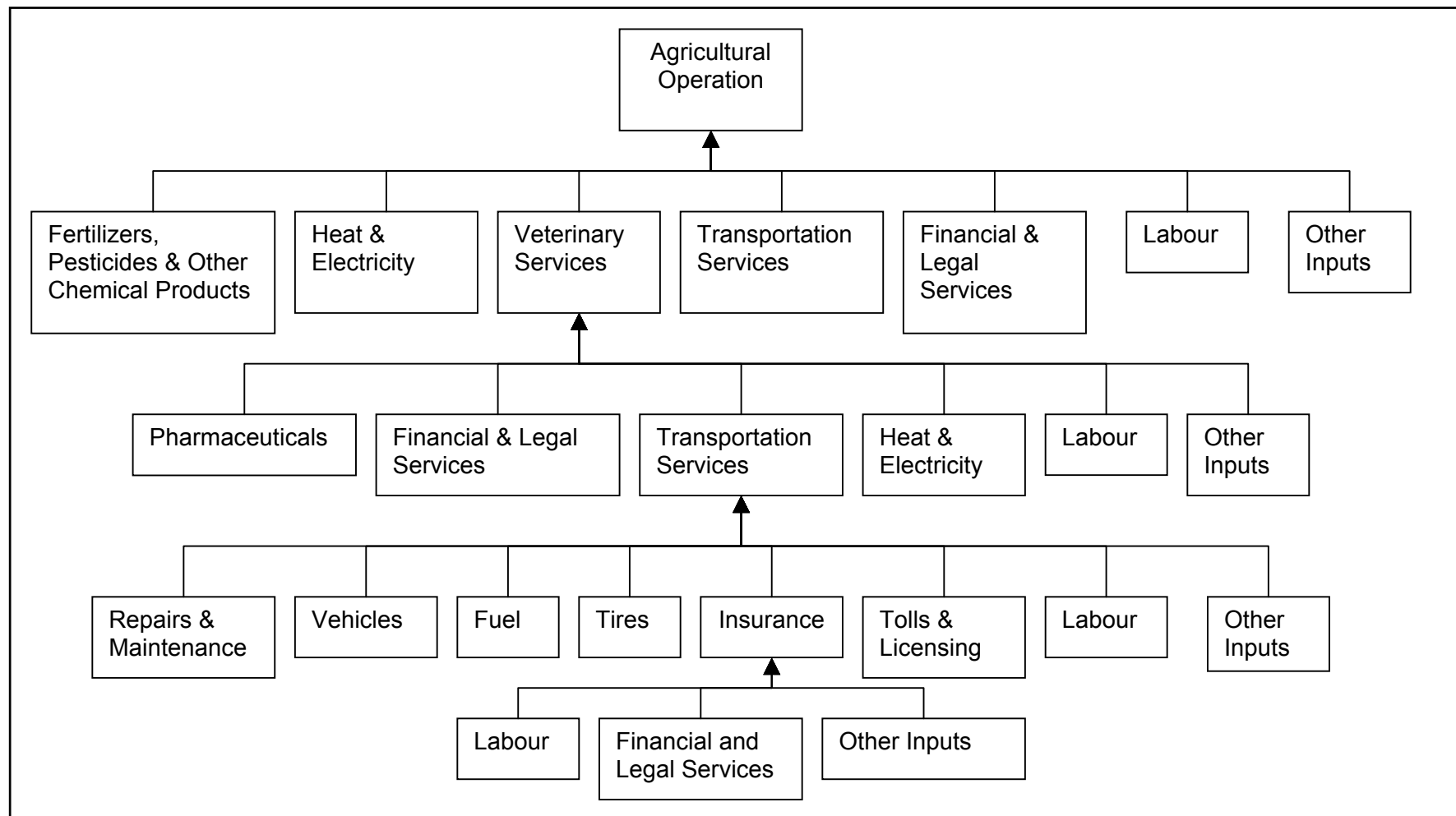
Clearly, that sector of Niagara that possesses the largest multiplier represents the most propulsive sector of the economy, while that sector with the smallest multiplier is the least propulsive. Based on this, many sub-sectors of agriculture possess output multipliers that are as large, or larger, than those associated with high value-added sectors like manufacturing. The important fact to take from **Figure 5.2** is that on a dollar for dollar basis, all of the sub-sectors of agriculture in the Niagara economy have substantial output multipliers (i.e., they are propulsive and therefore they do generate substantial economic spin-off effects in Niagara).

**Figure 5.2: Output Multipliers for All Sectors of the Niagara Economy (Including Sub-sectors of Agriculture)**

No.	Sector	Total Output Multiplier	Simple Output Multiplier
1	Miscellaneous Agriculture	2.40	1.84
2	Greenhouse	2.87	1.94
3	Hog	2.94	2.34
4	Cash Crop	2.74	2.20
5	Nursery	3.12	1.46
6	Poultry	2.65	2.09
7	Grape	2.94	1.62
8	Tender Fruit	2.99	1.41
9	Beef	2.94	2.44
10	Horse And Pony	2.86	2.11
11	Dairy	2.98	2.40
12	Forestry And Logging	2.33	1.69
13	Fishing, Hunting And Trapping	2.53	1.65
14	Support Activities For Agriculture And Forestry	2.58	1.49
15	Mining And Oil And Gas Extraction	2.18	1.49
16	Utilities	1.65	1.15
17	Construction	2.50	1.57
18	Manufacturing	2.41	1.79
19	Wholesale Trade	2.48	1.45
20	Retail Trade	2.52	1.42
21	Transportation And Warehousing	2.52	1.61
22	Information And Cultural Industries	2.34	1.57
23	Finance, Insurance, Real Estate, Renting & Leasing	1.89	1.36
24	Professional, Scientific And Technical Services	2.59	1.55
25	Administrative And Other Support Services	2.59	1.47
26	Education Services	2.24	1.32
27	Health Care And Social Assistance	2.01	1.33
28	Arts, Entertainment And Recreation	2.56	1.60
29	Accommodation And Food Services	2.62	1.64
30	Other Services (Except Public Administration)	2.59	1.39
31	Operating, Office, Cafeteria, & Laboratory Supp	2.49	2.04
32	Travel & Entertainment, Advertising & Promotion	2.92	2.24
33	Transportation Margins	2.98	2.25
34	Non-Profit Institutions Serving Households	2.82	1.46
35	Government Sector	2.57	1.44

by individuals throughout the entire economy as a result of the direct and indirect effects of the original shock. So, a \$1.00 increase in the output of dairy may require an additional \$0.05 in labour. Clearly, \$23 million in dairy output (see **Figure 5.1**) would require \$1,150,000.00 worth of labour input (directly). Some of this income could be used by an employee of the farmer, or of one of the farmer's suppliers, to buy a new GMC truck. This would represent an induced effect of the original shock (\$23 million worth of dairy sector output). Given the presence of General Motors of Canada in Niagara, much of this induced effect would be captured locally.

**Figure 5.3: Schematic Representation of a Hypothetical (and truncated) Pattern of Linkages Emanating from an Agricultural Operation<sup>6</sup>**



<sup>6</sup> It is very important to note that this figure is truncated in that to be accurate EVERY box shown should have inputs feeding into it, and many of the input providers could very well be purchasing from firms that they also sell to. Most of these linkages have been removed for clarity.



**Figure 5.4** translates the multiplier effects of **Figure 5.2** into total, direct, indirect and induced impacts in Niagara.<sup>7</sup> To make sense of **Figure 5.4**, consider the “Greenhouse” commodity group (row 2). In 2001, this sub-sector recorded over \$217 million in gross farm receipts, making it the largest component of the Region’s agricultural complex (i.e., 47% of total gross farm receipts). Using our survey-based input/output profiles (**Appendix 4-A**) and the NRIM, we calculate that in order for the greenhouse sub-sector of the Region to generate \$218 million in gross sales, the broader Niagara economy must generate \$769 million in combined output to cover the direct, indirect and induced effects of this production.(see **Figure 5.3** for a discussion of linkages extending from agricultural operations)..

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<sup>7</sup> Specifically, gross farm receipt totals, input profiles and output profiles were used as inputs to the NRIM, and the model generated the values shown in **Figure 5.4**.

**Figure 5.4: Sub-Sector Impact Summary**

	<i>2001 Output Level</i> \$	<i>Total Output Impact (Including Induced Effects)<sup>8</sup></i> \$	<i>Total Output Impact (direct and indirect effects only)</i> \$	<i>Total Direct Effect</i> \$	<i>Total Indirect Effect</i> \$	<i>Total Induced Effect</i> \$	<i>Total Labour Income Effect</i> \$
All Sub-Sectors Combined	511,132,568	1,795,578,137	963,436,573	401,482,352	561,954,220	832,141,563	344,285,902
Greenhouse	217,601,942	768,729,921	421,224,852	174,326,303	246,898,548	347,505,068	143,774,931
Poultry	90,830,853	277,601,470	189,483,479	62,263,725	127,219,754	88,117,991	36,457,477
Grape	50,000,000	193,369,016	81,205,100	42,806,149	38,398,950	112,163,916	46,406,112
Tender Fruit	48,000,000	197,405,549	67,681,554	43,014,079	24,667,475	129,723,995	53,671,327
Nursery	27,694,269	119,125,529	40,312,814	25,946,989	14,365,825	78,812,714	32,607,560
Dairy	23,292,716	79,023,863	55,990,612	18,350,683	37,639,929	23,033,251	9,529,657
Hog	8,084,560	27,215,440	18,953,811	6,567,038	12,386,772	8,261,628	3,418,123
Beef	4,443,911	14,667,169	10,833,890	3,353,643	7,480,246	3,833,279	1,585,960
Horse And Pony	4,199,796	14,231,917	8,863,211	3,183,335	5,679,875	5,368,705	2,221,222
Cash Crop	2,088,302	6,512,080	4,595,708.30	1,493,570	3,102,138	1,916,372	792,869

<sup>8</sup> Induced effects are those effects stimulated by the re-circulation (i.e., spending) of the wages and salaries paid as a result of the initial shock. To ignore induced effects would be tantamount to saying that when workers receive wages and salaries as a result of work generated by the initial shock, they do not spend any of it in the economy. Induced effects acknowledge the fact that a portion of this income is re-spent in the economy in the form of personal consumption purchases (e.g., food stuffs, clothing, automobiles, services etc.).



To explain the various effects (i.e., direct, indirect and induced effects), the greenhouse sector example will be continued, and the logic used here can be applied to explain/understand these effects for any of the sectors in the model. In order for the greenhouse sector to produce 1.00 worth of output, it has to buy inputs (this information is embodied in the input profiles shown in **Appendix 4-A**). If, hypothetically, to produce this 1.00 in output, the greenhouse sector buys 0.10 in labour, 0.15 in natural gas, 0.20 in chemical products, and 0.30 in nursery products, etc., then these input purchases represent the direct impact of the greenhouse sector producing 1.00 of output.

Each of the sectors that supply inputs to the greenhouse sector to enable it to produce this 1.00 in output, must also buy inputs from their suppliers. So, a nursery operation that sells to a greenhouse operation may also have to buy electricity, natural gas, transportation, labour etc. Likewise, all of the nursery sector's suppliers would have to buy inputs from their suppliers, and so on (this linkage structure is laid out diagrammatically in **Figure 5.3**). The sum total of all of these input expenditures triggered by the activities of the suppliers to the greenhouse sector is the indirect effect.

As shown in **Figure 5.3**, at each level in the linkage structure, labour is used (indeed, all sectors of the economy use labour). Wages paid to labour, across direct and all levels of indirect effects, constitute the total labour income effect tracked in **Figure 5.4** above. A portion of this labour income is spent on personal consumption (e.g., food, clothing, services, durable items etc.) and on personal investment (e.g., housing). These expenditures (made possible by the wages earned as a result of the greenhouse sector in this example) therefore create additional demands on the various sectors of the economy that must be satisfied. For example, if an employee of a given sector uses some of his/her income to purchase a GMC truck, then the automotive sector must produce one additional truck. This is an induced effect.

Returning to our discussion of **Figure 5.4**, and of the greenhouse sector specifically, if induced effects are ignored (see the 4<sup>th</sup> column of **Figure 5.4**) the same output level in the greenhouse sub-sector requires that the rest of the Niagara economy produce only \$421 million worth of output (down from nearly \$769 million when induced effects are included). Ignoring induced effects is tantamount to assuming that wages paid to employees in all firms in the Region are saved in their entirety, and not re-circulated. Clearly, this is not the case, and induced effects should be included.

Tables in **Appendix 4-B** illustrate how the total, direct, indirect and induced impacts associated with the activities of each agricultural commodity group are distributed across all sectors in Niagara.

The NRIM also generated estimates of the total value of wages and salaries paid to all workers in all sectors of Niagara as a result of the operations of each of the 10 agricultural commodity groups, and of the agricultural sector in its entirety. Overall, the sector "Crop and Animal Production" in the Region generated \$511 million in gross farm receipts in 2001. The NRIM results indicate that to sustain this level of output, Niagara will generate \$344 million in wages and salaries as a result (see **Figure 5.4** and **Figure 5.3** above). It is important to note that this is not a measure of the wages and salaries of those who work in the agricultural sector, but rather it is a measure of all wages and salaries paid to all workers in all sectors of the economy as a result of sustaining this level of output in the Niagara agricultural sector.

## 5.5 Positioning in Niagara Economy

The results reported above highlight the fact that agriculture, while not amongst the largest direct employers in the Region, generates a substantial region-wide economic impact by virtue of both its

input purchases and output sales (i.e., from and to sectors that do directly employ large numbers of people in Niagara).<sup>9</sup>

Specifically, gross farm receipts of approximately \$511 million stimulate a total output impact across all regional sectors of nearly \$1.8 billion (or \$960 million if the open model is used – see **Figure 5.4**). Included in this figure is more than \$344 million in labour income earned by employees across all sectors of Niagara's economy. While no information presented here allows one to appreciate these impacts relative to those which would flow from alternative uses of the same land, the fact that the agricultural sector of Niagara has a substantial economic impact on the Regional economy is undeniable. The importance of maintaining a sector capable of generating nearly \$2 billion dollars in economic activity in Niagara is clear to see.

Within the Niagara agriculture sector itself, those commodity groups (or sub-sectors) that are most propulsive (i.e., have the largest multiplier effects associated with them) are:

- nursery (3.12)
- tender fruit (2.99)
- grape (2.94)
- beef (2.94)
- hog (2.94)
- greenhouse (2.87) etc.

No commodity group in Niagara has a multiplier below 2.60 (including induced effects). In terms of magnitude, the greenhouse sector clearly dominates this sector of the Niagara economy.

Based on these findings, decisions could be made on the redesignation of agricultural land. Those lands initially considered for redesignation could be those which have the lowest productivity and generate the smallest regional economic benefit. This in part, is what the Regional planning policies have tried to encourage. Unfortunately certain conditions for implementation of the strategy, such as the construction of a mid peninsula transportation corridor, are not there.

Unfortunately, development pressure has been, and will continue to be, most intense on the tender-fruit lands that are juxtaposed between the Queen Elizabeth Way (QEW) and the Niagara Escarpment. Tender-fruit operations are in the middle of the pack in terms of total economic impacts, but still these operations generated \$48 million in gross sales in 2001, and nearly \$200 million in region-wide economic impacts. Allowing development to proceed along the QEW, and to supplant tender-fruit operations has the potential to negatively impact Niagara's economy. Through the efforts of private individuals, the Wine council and initiatives such as Twenty Valley/Jordan Harbour Tourism Development Project<sup>10</sup>, these lands are also the basis for a significant portion of the tourism in Niagara.

While we were unable to quantify the relationship between tourism in Niagara and the various agricultural commodity groups, anecdotal evidence suggests that tourism in the Region is linked to the health and vitality of the tender fruit, and specifically the grape growing operations. To allow the tender fruit and grape lands to be encroached upon by other uses not only means that the spin-offs

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<sup>9</sup> In 2001, "Crop and Animal Production" represented one of the smallest sectors of Niagara in employment terms. Viewed in this manner, it would be easy to discount the importance of agriculture in the Niagara. The above analysis has shown however that, by virtue of myriad linkages between the commodity groups that define the Niagara agricultural complex, and the other sectors of the regional economy, agricultural production in the Region generates significant economic impacts across all sectors of the economy.

<sup>10</sup> "Twenty Valley/Jordan Harbour Tourism Development Project", Tourism Strategy Development Vision: Hough Woodland Naylor Dance Leinster, Jack B. Elliss & Associates, Andre Scheinman-Heritage Consultant and Dan Gregory-Ecologist. (2001)

associated with these agricultural activities will be lost, but also that the tourism expenditures related to these activities will be foregone. The relationship between tourism in Niagara, and its agricultural complex is something that deserves further study.

Prior to the development of NRIM, and the analysis presented above, an objective assessment of the economic impact of lost agricultural capacity, by commodity group, was not possible. The next logical step in this analysis would be to compare the overall economic response of Niagara to a variety of land use (i.e., agricultural/non-agricultural) scenarios. Future work should be directed to utilizing an enhanced version of the NRIM to evaluate the relative impacts of various land use configurations in Niagara in an attempt to add even more to the decision makers' information arsenal.

Undoubtedly, an optimal blend of land uses, encompassing very propulsive agricultural activities, and other very propulsive non-agricultural activities on lands not suitable for prime agricultural production could be identified, and suitable locations and development corridors identified. As shown elsewhere in this report, the location of land parcels with specific characteristics is known, as are the locations of development pathways. What is not known however, is how differential allocations of these parcels to agricultural and non-agricultural uses will play out in terms of the overall health of the Regional economy. The next step referred to above is all about answering this question.

## 5.6 The Agri Food Sector

The previous sections of the report have identified the overall economic impact of agriculture in the Region. As noted throughout this report, the agricultural industry in Niagara is made up not only of farms (primary producers) but also of providers of agriculturally related goods and services. Broadly defined, this includes manufactures, wholesalers and retailers of agricultural products. These industrial and commercial components do not necessarily depend directly upon the quality and quantity of the land. However, they may or may not depend on local land based producers or local urban customers.

Agriculturally related businesses include those which either sell products or services to, and/or buy products or services from agricultural producers. Many of these other services have dealings with other sectors of the economy, and are not exclusively devoted to agriculture.

**Figure 5.5** is an outline of the contemporary Agri-Food System<sup>11</sup>. This figure reinforces the complexity of the agri-food system, and demonstrates the linkages from inputs into farming activities to outputs from the farming community. It also provides the linkages to regulatory agencies, service and training facilities and ultimately consumption of food products.

The agri-food system is global in nature. Goods and services are not exclusively obtained from the local area. As noted in **Appendix 2** (Farm Survey and Questionnaire Analysis), almost 40% of the survey respondents purchase goods and services from outside of Niagara. Similarly, over 40% of farms export products outside of Niagara. For example, some greenhouse and horticultural operations obtain many of their inputs (e.g., seeds, bulbs) from Europe, and then distribute their product to various locations in Canada, the United States, and Mexico.

The balance of this section provides information on a variety of agriculturally related business activities in Niagara. It attempts to bring together data from a number of sources, and is intended to show the range of activities in Niagara that support, or are supported by, the agricultural community.

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<sup>11</sup> Source: Fig 4.1, GTA Agricultural Economic Impact Study, adapted in part from Whatmore (1995)

The information noted below should not be construed as representing a complete assessment of agriculturally related business activities in Niagara. Rather, its purpose is to highlight, and where appropriate, draw conclusions on these related businesses.

The primary source of information for this review is the 2002/2003 Niagara Business Directory<sup>12</sup>, supplemented by a variety of other sources, including municipal and specific business websites.

### 5.6.1 The Agriculturally Related Economy

The Region of Niagara, through the Economic & Tourism Corporation, has been active in analyzing the state of the Region's economy, and proposing initiatives to improve and expand the employment sectors of the economy. Some of that research affects the agricultural sector and some of its related businesses.

In December 2001, Dr. Emanuel Carvalho prepared for the Niagara Economic & Tourism Corporation a report entitled: "Building on the Momentum: A Competitive Analysis of Industries in the Regional Municipality of Niagara"<sup>13</sup>. The report reviewed the Region's economic base and identified opportunities to maximize the Region's potential for the following:

- Retention of existing business enterprises;
- Expansion of established firms;
- Stimulation of entrepreneurial activity; and
- Attraction of new investment opportunities.<sup>14</sup>

Two components of the study are relevant to this study: the agricultural sector; and the food and beverage products manufacturing sector.

With respect to the agricultural industry in general, the report noted:

*"Promoting business development in the agricultural sector remains a high priority for the region.... A recent study by KPMG (1998) suggests that "the Niagara region is one of the most favourable areas in North America and Europe for investment in food production and related industry investment."<sup>15</sup>*

*"Within the Goods-Producing sector, the Agriculture sector in the Niagara region significantly outperformed the province and the nation between 1989 and 1999 with a 117.7% employment growth compared to -1.5% and -10.0% for Ontario and Canada respectively.... According to the industrial mix effect, Agriculture appeared to be a declining sector both provincially and nationally. However, the differential shift effect clearly pointed to Agriculture possessing a significant competitive advantage in the Niagara region."<sup>16</sup>*

The Food, Beverage and Tobacco products manufacturing sector deals with what would generally be classified as "direct agriculturally related businesses". It is interesting to note that between 1989 and 1999, Niagara experienced a 14.7% decline in employment in the overall manufacturing sector, which

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<sup>12</sup> Niagara Business Directory 2002/03, a publication of the Niagara Economic and Tourism Corporation, Copyright 2002.

<sup>13</sup> Building on the Momentum: A Competitive Analysis of Industries in the Regional Municipality of Niagara, Prepared by Dr. Emanuel Carvalho, December 2001.

<sup>14</sup> Ibid, p. 5

<sup>15</sup> Ibid, p. 12

<sup>16</sup> Ibid, p. 19

compared to a slight but positive 0.6% increase in Ontario and a 4.3% growth in Canada.<sup>17</sup> However, when the Food, Beverage and Tobacco products manufacturing component is analyzed, employment is quite different:

*“The Niagara region’s 47.1% employment growth in the Food, Beverage and Tobacco Products Manufacturing industry over the period 1989-1999 far surpassed the performance observed for the province at -7.5% and the nation at -1.9%.... Based on the industrial mix effect, Food, Beverage and Tobacco Products Manufacturing consistently proved to be a declining industry both provincially and nationally; however, according to the differential shift effect, this industry demonstrated a competitive advantage in the Niagara region in the 1989-1999 and 1995-1999 time periods.”<sup>18</sup>*

Both the Agricultural sector and the Food, Beverage and Tobacco products manufacturing sector were defined in the report as “transitional” sectors – i.e., they contribute to the Region’s economic performance, but, because they are a generally declining industry in provincial and national terms, their impact on the economy needs to be assessed on an ongoing basis.

### 5.6.2 Agriculturally Related Businesses in the Region of Niagara

The focus of this section is on businesses that have been categorized through NAICS (North American Industrial Classification System) as being related to agriculture. Excluded from this list are businesses whose categories could not be directly attributed to agriculture, for example, banks & financial institutions. Also excluded from this portion of the review of businesses are most food retail activities.

The Niagara Business Directory 2002/03 and various web sites were reviewed to identify businesses and manufacturing establishments that could be classified as “agriculturally related”. The identification of whether or not these establishments were agriculturally related was based on the NAICS categories. It is clear from our review of other sources that relying on the Business Directory underestimates the number of agriculturally related business establishments in the area. It does, however, provide a measure of the overall significance of these businesses, particularly in relation to the overall geographic distribution of the businesses and the employment estimates. Throughout this section, where sources other than the Business Directory are utilised to estimate the number of establishments, these sources will be noted.

The Business Directory lists a total of 61 establishments under the categories of Food Manufacturing. **Figure 5.6** identifies the number of food manufacturing establishments, their type, and their locations in Niagara. Of the 61 food related manufacturing establishments, almost 40% are concentrated in Niagara Falls and St. Catharines, with the balance distributed throughout the rest of the region.

The types of establishments vary from bakeries (which include retail bakeries in addition to commercial bakeries) (16 establishments or 26.2%); meat product manufacturers, (12 establishments or 19.7%); fruit and vegetable processing plants (8 establishments or 13.1%); sugar and confectionary products (7 establishments or 11.5%), and animal food manufacturing (6 establishments or 9.8%).

**Figure 5.7** summarizes the employment characteristics of the food manufacturing establishments. Fruit and Vegetable processing operations employ the largest number of persons (673 or 23.2% of

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<sup>17</sup> Ibid, p. 21

<sup>18</sup> Ibid, p. 22

the total), followed by meat product manufacturing (646 or 22.3%) and Grain and Oilseed Milling (393 or 13.5%). Five of the establishments employ over 200 people.

**Figure 5.8** summarizes the number of Beverage Product Manufacturing Establishments in Niagara. There are a total of 46 establishments listed. The dominant industry is clearly the wine industry, with a total of 36 establishments.<sup>19</sup> The wine industry is concentrated in Lincoln and Niagara-on-the-Lake.

**Figure 5.9** summarizes the employment characteristics of the beverage product manufacturing establishments. Of the 2,204 employees identified, 1911 or 86.7% are in the wineries. The size of the operations varies considerably, from single person operations to facilities with over 1,000 employees.

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<sup>19</sup> As noted previously, this figure under-represents the total number of wineries in Niagara, with some wineries not listed in the Directory.

**Figure 5.6** Number of Food Manufacturing Establishments, by type and location

NAICS Code	3111	3112	3113	3114	3115	3116	3117	3118	3119	Total	%
Type	Animal Food Manufacture	Grain & Oilseed Milling	Sugar & Confectionary	Fruit & Veg Processing	Dairy Product Manufacturing	Meat Product Manufacturing	Seafood Prod Manufacturing	Bakeries (Retail & Commercial)	Other Food		
Fort Erie	1	-	1	-	-	-	-	2	-	4	6.6
Grimsby	-	-	-	-	-	1	-	-	1	2	3.3
Lincoln	1	-	-	3	1	2	-	-	1	9	14.7
Niagara Falls	-	1	3	-	2	-	-	5	1	12	19.7
Niagara-on-the-Lake	1	-	1	2	1	-	-	1	-	6	9.8
Pelham	-	-	-	-	-	-	-	-	-	0	0
Port Colborne	2	2	-	-	-	1	1	1	-	7	11.5
St. Catharines	-	-	1	3	-	2	-	4	1	11	18.1
Thorold	-	-	-	-	-	-	-	1	-	1	1.6
Wainfleet	-	-	1	-	-	-	-	-	-	1	1.6
Welland	-	-	-	-	-	2	-	1	-	3	4.9
West Lincoln	1	-	-	-	-	4	-	-	-	5	8.2
Total	6	3	7	8	4	12	1	16	4	61	
Percentage	9.8	4.9	11.5	13.1	6.6	19.7	1.6	26.2	6.6		

Source: Niagara Economic & Tourism Corporation, Niagara Business Directory 2002/03.

**Figure 5.7** Employment Characteristics of Agriculturally Related Establishments

NAICS code	Type	Total Employees	%	Minimum	Maximum	Average	# of Establishments
3111	Animal Food Manufacturing	133	4.6	5	63	67	2
3112	Grain & Oilseed Milling	393	13.5	77	235	131	3
3113	Sugar/Confectionary Products	285	9.8	4	155	41	7
3114	Fruit & Vegetable Processing	673	23.2	2	500	84	8
3115	Dairy Product Manufacturing	139	4.8	4	70	35	4
3116	Meat Product Manufacturing	646	22.3	2	250	54	12
3117	Seafood Prod Manufacturing	7	.2	-	-	-	1
3118	Bakeries (Retail & Commercial)	374	12.9	3	210	23	16
3119	Other Food	253	8.7	2	224	63	4
	Total	2,903					57

Source: Niagara Economic & Tourism Corporation, Niagara Business Directory 2002/03



**Figure 5.8** Number of Beverage Product Manufacturing Establishments, by type and location

NAICS Code	31211	31212	31213	31214		
Type	Soft Drink & Ice	Breweries <sup>1</sup>	Wineries	Distilleries	Total	%
Fort Erie	-	-	-	-	-	-
Grimsby	-	-	2	-	2	4.4
Lincoln	-	-	18	-	18	39.1
Niagara Falls	1	2	1	-	4	8.7
Niagara-on-the-Lake	-	-	12	-	12	26.1
Pelham	-	-	-	-	-	-
Port Colborne	-	-	-	-	-	-
St Catharines	6	1	3	-	10	21.7
Thorold	-	-	-	-	-	-
Wainfleet	-	-	-	-	-	-
Welland	-	-	-	-	-	-
West Lincoln	-	-	-	-	-	-
Total	7	3	36	-	46	-
Percentage	15.2	6.5	78.3	-		

Source: Niagara Economic & Tourism Corporation, Niagara Business Directory, 2002/03  
Note 1. Includes 1 "Brew your own" operation and one beer & wine supply establishment

**Figure 5.9** Employment Characteristics of Beverage Product Manufacturing Establishments

NAICS code	Type	Total Employees	%	Minimum	Maximum	Average	# of Establishments
31211	Soft Drink & Ice	239	10.8	1	175	34	7
31212	Breweries <sup>1</sup>	54	2.5	2	40	18	3
31213	Wineries	1,911	86.7	2	1,020	73.5	26 <sup>2</sup>
31214	Distilleries	-	-	-	-	-	-
	Total	2,204					36

Source: Niagara Economic & Tourism Corporation, Niagara Business Directory 2002/03  
Note 1. Includes 2 "Brew your own" operations  
2. Ten establishments listed in the Directory did not include number of employees

A large number of the agriculturally related businesses have been in operation for a significant number of years, and represent established "household names" in food production. A sampling of these firms include:

- Nabisco Ltd (1897)
- Kraft Canada (1904)
- Cherry Lane Frozen Fruit (WHM Smith) (1907)
- ADM Milling (1911)
- Vineland Growers' Co-operative (1913)
- Greaves Jams & Marmalades (1927)
- Yurchuk Candies (1929)
- Welland Meat Packers (1929)

Of the wineries listed in the Niagara Directory, Vincor (Wine Exported) indicated it has been in business since 1890. Of the remaining 25, one has operated since 1969 (Andres Wines); four were

established between 1970 and 1979; six between 1980 and 1989; thirteen between 1990 and 1999; and one since 2000.

Through the survey of farm operators, **(Appendix 2)** members of the agricultural community provided a summary of businesses that either provide goods and services or receive their output. This listing is quite comprehensive, and provides a glimpse of the variety of businesses involved with agriculture. These include seed dealers, farm supply dealers, packaging, equipment dealers, elevators, veterinarians, machine shops, electrical trades, professional services (legal, accounting, insurance, banking), hardware and building materials, energy suppliers (hydro, petroleum), vehicle repairs, breeders, butchers, transportation (trucking, rail).

In the survey of farmers for the neighbouring City of Hamilton<sup>20</sup> it was determined that a large number of Hamilton farm operators rely on a variety of businesses that are located in Niagara, both for distribution and processing of goods, and to obtain various services.

The Niagara Business Directory and other sources were reviewed to collect information on businesses that are providing direct services to the agricultural community. **Figures 5.10 and 5.11** provide a summary of those businesses in the Directory that referred specifically to providing services to the agricultural community. It is recognized that these businesses, while providing services to the agricultural industry, also provide services to other sectors of the economy.

As noted in **Figure 5.11**, a total of 33 construction related firms, employing 1792 people; a total of 42 equipment firms employing 1763; and a total of 26 operational sales establishments employing 615, provide agriculturally related services.

**Figure 5.10** provides information on services. Fewer of these businesses specifically listed agricultural services. The transportation and warehousing services constitute the largest sectors providing service to agriculture. An estimated 29 transport companies employing 1,000 persons, and 11 warehouse operations employing 167, provide services to agriculture. A significant number of agricultural operations operate their own trucks.

**Figure 5.12** identifies a total of 44 customs brokers that indicate they provide services to the agricultural community. These firms employ 495 people and are concentrated in Fort Erie.

A number of educational institutions have developed programs that are related to the agricultural community. These include specific programs at Brock University, Niagara College and the Niagara Parks Commission School of Horticulture. Additional information about training and educational programs is contained in Chapter 8.

The survey of farm operators solicited information on where farmers obtained their machinery and equipment and where they purchased goods and services. Almost 85% of major machinery and equipment purchases are made in Niagara. Local suppliers provided a range of machinery and equipment, including tractors, specialty equipment, combines and greenhouses. Similarly, over 80% of services are obtained locally. The principal services used are financial services, veterinary services and crop consultation.

Finally, there are a number of establishments and activities that depend on the agricultural community for all or part of their support or existence. **Figure 5.13** identifies a number of these activities. The highlights from this figure include:

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<sup>20</sup> City of Hamilton Agricultural Economic Impact & Development Study. PLANSCAPE, June 2000.

- Niagara supports a large number of bed and breakfast establishments, a number of which are associated with farms;
- There are at least 63 retail nurseries located throughout the Region;
- The Region supports at least 19 retail farm stands and 31 retail wine boutiques;
- At least 31 establishments offer wine tours, and an additional 15 establishments offer farm tours;
- There are at least 37 “pick your own” operations in the Region; and
- There are at least six farmer’s markets, five agricultural fairs and 52 events or festivals associated with the farming community.

In making this claim it is acknowledged that the relationship between agriculture and tourism in Niagara has not been quantified. However, based on research and observation it was concluded that agriculture contributes to tourism in the area both directly and indirectly. In reaching this conclusion reliance was placed on the definition of agri-tourism contained in Section 7.1.7 of the report.

**Figure 5.10** Establishments Providing Direct Services to the Agricultural Community, by type, Location and Employment

<i>Geographic Location</i>	<i>Real Estate/ Law/Finance/ Insurance</i>	<i># Employed</i>	<i>Equip Repair &amp; Service</i>	<i># Employed</i>	<i>Security Systems</i>	<i># Employed</i>
Fort Erie	2	5				
Port Colborne	1	2	2	21		
Welland	5	24	1			
Lincoln	2	7				
West Lincoln	1		1	1		
Niagara-on-the-Lake	2	27	2	7		
Niagara Falls	2	14	1	6	1	6
Grimsby	2	50				
St. Catharines	10	115	8	57	5	61
Pelham			1	3		
Thorold						
Wainfleet						
<b>Total</b>	<b>27</b>	<b>244</b>	<b>16</b>	<b>95</b>	<b>6</b>	

<i>Geographic Location</i>	<i>Technical/ Consultants/ Assoc</i>	<i># Employed</i>	<i>Wholesale/ Distributor</i>	<i># Employed</i>	<i>Transport</i>	<i># Employed</i>
Fort Erie	1	5	1		2	90
Port Colborne	1	5			3	173
Welland	1	10			3	211
Lincoln					1	70
West Lincoln					1	13
Niagara-on-the-Lake	1	10			3	29
Niagara Falls			1	14	3	111
Grimsby					1	10
St. Catharines	3	17	2	47	7	201
Pelham						
Thorold					2	44
Wainfleet					3	108
<b>Total</b>	<b>7</b>	<b>47</b>	<b>4</b>	<b>61</b>	<b>29</b>	<b>1060</b>

<i>Geographic Location</i>	<i>Warehouse Storage &amp; Refrigeration</i>	<i># Employed</i>	<i>Employ- ment Services</i>	<i># Employed</i>	<i>Veterinary</i>	<i>Coaches</i>	<i>Other</i>	<i># Employed</i>
Fort Erie	2	38	1	12	1			
Port Colborne	1	12						
Welland	1	18			1		1	6
Lincoln					1	4	1	20
West Lincoln					1	1		
Niagara-on-the-Lake	2	29			1			
Niagara Falls	3	40	1	6			1	4
Grimsby								
St. Catharines	1	2	2	26		1	1	7
Pelham					1	1		
Thorold	1	25						
Wainfleet								
<b>Total</b>	<b>11</b>	<b>164</b>	<b>4</b>	<b>44</b>	<b>6</b>	<b>7</b>	<b>4</b>	<b>37</b>

Source: Niagara Economic & Tourism Corporation, Niagara Business Directory 2002/03; various municipal and business product web sites.



**Figure 5.11** Direct Suppliers of Construction, Equipment and Operational Services to the Agricultural Community, by type, Location and Employment

<b>Geographic Location</b>	<b>Construction Services</b>	<b># Employed</b>	<b>Equipment Sales</b>	<b># Employed</b>	<b>Operational Sales *</b>	<b># Employed</b>
Fort Erie	1	10	3	26	3	53
Port Colborne			2	50	1	20
Welland	2	22	3	845	1	40
Lincoln	4	186	3	49	4	92
West Lincoln			5	44	2	12
Niagara-on-the-Lake	1	3	3	200	5	38
Niagara Falls	7	1000	5	74	4	161
Grimsby	3	78	3	325		
St. Catharines	10	299	13	130	4	155
Pelham	3	158	1	20		
Thorold	1	13			1	19
Wainfleet	1	23	1		1	25
<b>Total</b>	<b>33</b>	<b>1792</b>	<b>42</b>	<b>1763</b>	<b>26</b>	<b>615</b>

Source: Niagara Economic & Tourism Corporation, Niagara Business Directory 2002/03  
Note: \* Includes fertilizers, seed and other material suppliers

**Figure 5.12** Custom Broker Services to the Agricultural Community, by Area Municipality, 2003.

<b>Geographic Location</b>	<b>Custom Broker</b>	<b># Employed</b>
Fort Erie	29	406
Port Colborne		
Welland		
Lincoln		
West Lincoln		
Niagara-on-the-Lake	6	31
Niagara Falls	9	58
Grimsby		
St. Catharines		
Pelham		
Wainfleet		
<b>Total</b>	<b>44</b>	<b>495</b>

Source: Niagara Economic & Tourism Corporation,  
Niagara Business Directory 2002/03

**Figure 5.13** Other Niagara Establishments and Activities Related to the Agricultural Community \*

<b>Geographic Location</b>	<b>Nurseries &amp; Sod Retail</b>	<b>Farm Stands Retail</b>	<b>Wine Boutiques Retail</b>	<b>Farm Tours</b>	<b>Wine Tours</b>	<b>Pick Your Own</b>	<b>B &amp; B</b>
Fort Erie	3	1					3
Port Colborne							4
Welland	4	3				3	3
Lincoln	40	3	15	1	15	5	27
West Lincoln	1					2	5
Niagara-on-the-Lake	1	8	13	4	14	12	199
Niagara Falls	2	1					34
Grimsby	4	1	2	1	2	5	6
St. Catharines	1	1	1	7		2	47
Pelham	7	1		1		6	2
Thorold						1	2
Wainfleet				1		1	1
<b>Total</b>	<b>63</b>	<b>19</b>	<b>31</b>	<b>15</b>	<b>31</b>	<b>37</b>	<b>333</b>
<b>Geographic Location</b>	<b>Farmers' Market</b>	<b>Events/ Festivals</b>	<b>Banquet/ Meeting Facilities</b>	<b>Wine Tasting</b>	<b>Dining</b>	<b>Education/ Seminars</b>	<b>Fairs</b>
Fort Erie							
Port Colborne	1	1					
Welland	1	7					1
Lincoln			7	12	8	8	1
West Lincoln							1
Niagara-on-the-Lake		20	8	14	8	6	
Niagara Falls	2	13					
Grimsby		1		1	1		
St. Catharines	2	6	2	2	3		1
Pelham							
Thorold							
Wainfleet		4					1
<b>Total</b>	<b>6</b>	<b>52</b>	<b>17</b>	<b>29</b>	<b>20</b>	<b>14</b>	<b>5</b>

Source: [www.winesofcanada.com](http://www.winesofcanada.com); [www.wineroute.com](http://www.wineroute.com) & links to winery websites; Harvest Ontario [www.harvestontario.com/](http://www.harvestontario.com/); [www.bbonline.com/](http://www.bbonline.com/); <http://www.bbregistry.com/>; [www.discoverniagara.com](http://www.discoverniagara.com); [www.landscapeontario.com](http://www.landscapeontario.com);  
Area Municipality Websites in Niagara Region: [www.equinedirectorv.com](http://www.equinedirectorv.com); [www.downtown.maa.com](http://www.downtown.maa.com)

Note: \* It is acknowledged that the degree of relationship will vary. It was beyond the scope of this study to quantify the relationship

As noted throughout this section, the agricultural community supports a broad range of other economic activities in the Region, from providers of services to the agricultural operations, to services provided by the agricultural producers to the community.

Agriculture has a pervasive presence in Niagara which is sometimes taken for granted. However there are examples where the potential to develop agriculturally related businesses is being promoted. Port Colborne, as an excellent example, has launched an initiative to become “Carbohydrate Valley”. This initiative is based on the presence of Casco which each year processes more than 15 million barrels of corn, 90% of which is grown locally<sup>21</sup>. Jungbunzlauer, the world’s largest producer of citric acid has recently located next door to Casco as part of this cluster, that also includes Robin Hood Multifoods. Port Colborne is not resting on its achievements but has launched a campaign to attract greenhouse operations and other agriculturally related businesses to the community.

<sup>21</sup> Port Colborne Leader, May 22, 2002



## 5.7 Summary

Agriculture is a significant component of the Niagara economy. Gross farm receipts of approximately \$511 million stimulate a total output impact across all regional sectors of nearly \$1.8 billion or \$960 annually if the open model is used. Included in this figure is in excess of \$344 million in labour income earned by employees across all sectors of the Niagara economy.

The businesses which are dependent on, or provide services to agriculture in Niagara are considerable. Niagara historically has had a strong infrastructure of agri related businesses and food processing sector. This is one of the elements of the economy which has potential for growth. Hopefully this potential will be realized.