

The Economic Impacts of Agriculture on the Economy of Lanark and Renfrew Counties

FINAL REPORT

Supported by:

Human Resources Development Canada Lanark County Federation of Agriculture Renfrew County Federation of Agriculture Arnprior Area Federation of Agriculture The County of Lanark The County of Renfrew The Lanark, Renfrew & Algonquin Training Board Ottawa Valley Association for Agricultural Self Reliance The City of Pembroke The Town of Smiths Falls Ontario Ministry of Agriculture, Food & Rural Affairs

> Prepared by: Harry Cummings & Associates Inc. 96 Kathleen St. Guelph Ontario, N1H 4Y3 Phone (519) 823-1647 Fax (519) 821-0202 <u>http://www.web.ca/~hca</u> <u>hca@web.ca</u>

Copies of the full report are available from: Graham Lightfoot Federation of Agriculture Field Representative 66 Pembroke St. West, Cobden, ON. K0J 1K0

Executive Summary

Rural Ontario has experienced enormous change in the last fifty years. While the rural population has become predominantly non-farm based, the structure of the rural economy has experienced a major transformation with service sector jobs now exceeding the number of jobs in agriculture. Other indicators such as declining farm numbers and farm jobs seems to confirm the view held by some that agriculture is a fading industry.

However, a closer look at the Agriculture sector shows that it remains an important engine of economic growth in Ontario. Between 1985 and 1995, farm gate sales in Ontario experienced an average annual increase of 3.5%, rising from \$5,511 million to \$7,778 million. Projected farm gate sales of \$8,840 million for 1999 suggest that agriculture is continuing on its course of growth. Furthermore, the simultaneous increase in farm gate sales and the decline in farm jobs implies an increase in the productivity of farm workers and more capital intensive operations. The increase in farm gate sales and movement towards more efficient farming systems caused many individuals and interest groups from the agriculture sector to question whether the decline in agriculture was being overstated.

One outcome of the discussion process was a series of studies designed to assess the broader role or 'impact' of agriculture at the local or regional level. Dr. Harry Cummings, a private consultant and professor in the School of Rural Planning & Development at the University of Guelph, has overseen much of the research in this area to date. The first study in the series looked at the largest agricultural county in the province, Huron County (Cummings, Morris, McLennan, 1998). Subsequent economic impact studies were completed for Prescott, Russell, Stormont, Dundas & Glengarry Counties (Cummings & Deschamps, 1999), Simcoe County (Cummings & Associates, 1999), Lambton County (Cummings & Associates, 1999), Perth County (Cummings & Associates, 2000), Frontenac, Lennox & Addington, Leeds & Grenville Counties (Cummings et al., 2000), and Elgin, Middlesex & Oxford Counties (Cummings & Associates, 2000).

Lanark and Renfrew Counties are the focus of this report. With the completion of this study and a concurrent study in the new City of Ottawa, all of eastern Ontario will have been assessed using the same methodology. As in the other studies that have been completed, the basic focus of this research is on sales and jobs related to agriculture, directly or indirectly. The study involves a combination of 'economic base' and 'input-output like' methods and relies on data collected from Statistics Canada, the Ontario Ministry of Agriculture, Food & Rural Affairs, previous impact studies and a survey of agriculture-related businesses located in Lanark and Renfrew.

The jobs and sales data compiled by this study indicates that there are 7,021 jobs (9% of the study areas' total labour force) tied to the Agriculture sector

in Lanark and Renfrew and over \$240 million in sales from businesses that buy from and sell to farms per annum. The employment multiplier indicates that for every on-farm job in Lanark and Renfrew, there are an additional 1.3 jobs off the farm in the wider economy, serving the needs of local farm operators. The sales expenditure multiplier indicates that for each dollar in farm gate sales, there is an additional \$1.45 in sales by businesses that deal with farmers. Further details are provided in the report.

The first component of the study focuses on a review of secondary data to provide an economic profile of the study area. As a region, Lanark and Renfrew experienced a rate of population growth between 1991 and 1996 that was consistent with the provincial average of 6.6%. However, when viewed as individual counties the rate of growth in Lanark was just over 9% while population growth in Renfrew was somewhat lower at 5%. In 1996, the economy of the study area supported 75,165 jobs, an increase of 2,470 jobs from 1991. While the study area experienced a 3.4% rate of job growth between 1991 and 1996, jobs in eastern Ontario as a whole experienced negative rates of growth. A review of personal income levels shows that on average, families in both Lanark and Renfrew Counties had lower incomes than the average income levels reported for families in Ontario.

Much of the recent job growth in Lanark and Renfrew centres around manufacturing, wholesale trade and the accommodation, food and beverage sector. In 1996, manufacturing industries supported the largest share of jobs in both Lanark and Renfrew. Over 11,000 jobs or 14.9% of all jobs in the study area were in manufacturing in 1996. Government service industries and retail trade were the next leading sectors in the study area in terms of the job numbers they supported.

Agricultural jobs in the study area remained fairly stable between 1991 and 1996. The agriculture sector supported 3,010 jobs in 1996, down slightly (1%) from 3,050 in 1991. Job losses in agriculture at the provincial level were much more severe during the same period experiencing a decline of 6.3%. Direct employment in agriculture accounts for 4% of all jobs in the study area, a larger share than is the case for the eastern Ontario region (2.48%) and Ontario (2.43%).

The number of farm jobs in Lanark and Renfrew area is impressive considering the limited availability of Class 1, 2 and 3 soils over much of the study area; over 50% of Renfrew's land area is within the Canadian Shield. Soils in these classes cover less than 15% of the total land area in Lanark and Renfrew. In Renfrew, municipalities located along the Ottawa River, as far north as Pembroke, typically have larger parcels of land where soil conditions permit a more diverse agricultural base including field crops. In Lanark, the Canadian Shield encroaches across the north-west portion of the county and more marginal soils are a feature of this area. Field crop production in both counties is also limited by the crop heat units in the area, especially in Renfrew which is rated as a 2,500 crop heat unit area.

Despite these limitations, agricultural production in Lanark and Renfrew is diverse. Approximately one-third of all farmland in Lanark and Renfrew is under crops. Beef farms make up the majority of farms in both counties. Beef farms account for over 50% of all farms in Renfrew County and 43% of farms in Lanark County. Dairy, field crop and miscellaneous specialty type farms account for most of the remaining farms types in the study area. Lanark and Renfrew are leaders in the region in hay production, maple syrup production and Christmas tree production. The profile of farming in Lanark and Renfrew is undergoing change. Between 1986 and 1996, field crop and miscellaneous type operations have been steadily increasing in number while beef farms have shown a steady decline in the study area.

Farm size data suggest that average farm size in Lanark and Renfrew is larger than the average for the province (206 acres/farm) and the eastern Ontario region (239 acres). While provincial trends have shown an increase in average farm size between 1986 and 1996, the average farm size in Lanark and Renfrew has declined slightly.

Given the limitations that the natural environment places on agriculture in Lanark and Renfrew, production continues to increase over the long term. Farm gate sales in the study area amounted to \$97.7 million in 1995. While total farm gate sales in the study area declined by 6% between 1990 and 1995, the value of farm gates sales in 1995 represents a 28% increase over total sales in 1986. Farm gate sales in the study area averaged \$37,600 per farm in 1995. This is considerably lower than average farm gate sales reported at the provincial level (\$115,000 per farm) and for the eastern Ontario region (\$76,000 per farm). While total operating expenses for the study area were less than total farm gate receipts in 1995, farm expenses exceeded farm receipts in some of the townships.

As part of the study, first-hand information was provided by primary producers through focus groups. Farmers reported on a number of trends impacting agriculture in Lanark and Renfrew. Some of the more notable trends include: the loss of small farms through consolidation; the consolidation of processing plants and the implications for small farmers in finding a market for their goods; greater reliance on the private sector for services traditionally provided by the government; shortage of some skilled trades due to higher wages offered in other industries; and the ongoing loss of rural youth due to brighter prospects in other industries. Many farmers believe that the various issues challenging farming today are ultimately tied to one factor: low commodity prices. In attempting to draw attention to this chronic problem, farmers are frustrated when local politicians suggest that the farm crisis is the outcome of a rainy season.

The second component of the study involved a survey of businesses that buy from and sell to agriculture in Lanark and Renfrew Counties. The purpose of the survey was to estimate the value of sales related to agriculture and the number of jobs created by agri-related businesses. We estimate that there are 496 businesses beyond the farm gate related to agriculture in Lanark and Renfrew. The sample survey of 230 businesses, produced an estimate of 848 jobs among the 496 agri-related businesses

that serve farm operations. From other secondary sources, we estimate that an additional 3,163 induced jobs in education, government, health and social services are supported by direct and indirect agricultural jobs.

When direct, indirect and induced jobs are combined, the total employment contribution of agriculture in Lanark and Renfrew Counties amounts to just over 7,000 jobs. With respect to sales, we estimate that the \$97.7 million in farm gate sales generates \$142.2 million in agri-related sales across the study area.

Selected data indicate that the study area is active in exporting agri-related products and services beyond its borders. Sales of agri-related goods and services beyond the borders of the study area approached 14% of total sales for the businesses surveyed. A wide range agri-related businesses from various industrial sectors are involved in exporting their goods and services out of Lanark and Renfrew including agricultural related services, manufacturing, wholesale trade, construction and retail trade.

The study highlights the extensive linkages that agriculture in Lanark and Renfrew has with other sectors of the economy and its capacity to produce local economic benefits that extend well beyond the farm gate. The scale of these benefits is all the more impressive given the challenges posed by the natural environment in the region. Planners and policymakers need to view agriculture in the context of the overall benefits and opportunities it provides. The future of the agriculture sector in Lanark and Renfrew Counties lies in continued development of the agriculture and agri-related industries.

Acknowledgments

There are many individuals and organizations that nurtured this study of the economic impact of agriculture in Lanark and Renfrew counties. The Federations of Agriculture of Lanark, Renfrew and the Arnprior Area are pleased to present the findings of this study and wishes to thank the following for their assistance:

The individuals and organizations that saw a need for this study in our area, and selected individuals to sit on a Steering Committee in order to advance the idea;

Graham Lighfoot, OFA Field Representative, for his support, encouragement and participation;

Jean Sullivan, for her valuable leadership as Project Manager, and help in making this study a reality;

The individual Steering Committee members who gave their time to advance their industry;

Dr. Harry Cummings, Karen Morris, Don Murray, Vince Deschamps and Marie Puddister from the HCA research team for their expertise and understanding in carrying out this study;

The funders:

- Human Resources Development Canada, the lead sponsor for the study
- Lanark County Federation of Agriculture
- Renfrew County Federation of Agriculture
- Arnprior Area Federation of Agriculture
- The County of Lanark
- The County of Renfrew
- The Lanark, Renfrew & Algonquin Training Board
- Ottawa Valley Association for Agricultural Self Reliance
- The City of Pembroke
- The Town of Smiths Falls

Federation of Agriculture directors, and farm businesses for their support and assistance in compiling the lists of agriculture-related businesses, organizing focus groups and assisting with the promotion, project launch and presentation of the report;

OMAFRA for their in-kind contribution of staff time to get this project off the ground;

The businesses that participated in the study. Without their kind cooperation, this work could not have been done. Thank you to all who offered their time and information. Agriculture is a valuable resource to our area. May we continue to recognize and support the industry and see it grow and prosper in the future.

Sincerely,

Lillian Drummond, Chair Agriculture Impact Study, Lanark County Donna Campbell, Chair Agriculture Impact Study, Renfrew County

Table of Contents

Execut	ive Sum	maryi							
Acknow	vledgm	entsv							
Table o	of Conte	ntsvi							
List of	Tables &	& Figures							
1.0	Introdu	roduction							
	1.1	Background to the Study Methodology 2							
	1.2	Background to the Research Report							
	1.3	Introduction to the Lanark and Renfrew Research 3							
2.0	Agricul	ture in Lanark and Renfrew Counties 5							
	2.1	Spatial Aspects of Agriculture in the Lanark and Renfrew Counties 5							
		2.1.1 Agricultural Capabilities of Soils							
		2.1.2 Soil and Terrain Characteristics							
		2.1.3 Climate and Crop Heat Units 15							
		2.1.4 Land Area Classified by Use 19							
	2.2	Farms in Lanark and Renfrew Counties							
		2.2.1 Number of Farms							
		2.2.2 Farm Operation Arrangements							
		2.2.3 Farm Sizes 25							
		224 Farm Types 28							
	23	Agricultural Economics in Lanark and Renfrew Counties 34							
	2.0	2 3 1 Farm Gate Sales 34							
		2.3.2 Operating Expenditures 37							
		2.3.2 Operating Experiatares							
		2.3.3 Net Nevenue							
30	Popula	tion and Employment in Lanark and Renfrew Counties 44							
0.0	3 1	Introduction 44							
	3.2	Population and Population Change 44							
	3.2	Family Income Distribution							
	3.3	Employment and Employment Change /8							
	2.5	Age of Farm Operators 54							
	5.5								
4.0	Lanark	and Penfrow Primary Producers Focus Groups 55							
4.0		Tronds in Form Sizes in Length and Benfrow							
	4.1	A related Labour Force in Lanark and Denfrow.							
	4.2	Ag-related Labour Force in Lanark and Renirew							
	4.3	Cither Trendo and Challengeo							
	4.4	Other Trends and Challenges							
F 0	Davian	of Annioulfung Deleted Diaming Delieurin Lenenk and Denfrom Counties							
5.0	Review	of Agriculture Related Planning Policy in Lanark and Renfrew Counties 61							
	5.1	Introduction							
	5.2	Background							
	5.3	Types of Farming Permitted							
	5.4	Restrictions on the Severance of Agricultural Lots							
	5.5	Other Permitted Uses							
	5.6	Conclusion							
6.0	Facher	nie Impeet Anelyzie: An Overview							
0.0	⊏conor	Inc Impact Analysis: An Overview							
	0.1 C O								
	0.2	Economic Base Approacn							

	6.3	Multipliers6	38
7.0	Lana	rk and Renfrew Study Methodology6	39
	7.1	Direct Impact Methodology	39
	7.2	Indirect Impact Methodology	6 9
		7.2.1 Development of the Business Inventory and Survey Sample	70
		7.2.2 Total Gross Sales for the Businesses Surveyed	70
		7.2.3 Agriculture-related Sales for the Businesses Surveyed	70
		7.2.4 Total Gross Sales for Study Areas' Agri-related Businesses	71
		7.2.5 Agri-related Sales for all Agri-related Businesses	
		in the Study Area	72
		7.2.6 Location of Total Agri-related Sales for All Agri-related	
		Businesses in the Study Area	73
		7.2.7 Number of Full-time Equivalent Employees Working	
		at the Businesses Surveyed	73
		7.2.8 Number of Full-time Equivalent Employees Working	
		in Agri-related Businesses in the Study Area	74
	7.3	Induced Impact Methodology 7	75
8.0	Resu	lts	76
	8.1	Introduction to the Study Area Results	76
	8.2	Direct. Indirect and Induced Impact Results	76
		8.2.1 Estimated Direct Sales and Jobs	76
		8.2.2 Estimated Indirect Sales and Jobs	76
		8.2.2.1 Location of Agri-related Businesses in the Survey	77
		8.2.2.2 Characteristics of the Businesses Surveyed	77
		8.2.2.3 Importance of the Agriculture-related Business Survey 8	31
		8.2.2.4 Exports of the Agri-related Businesses Surveyed.	34
		8.2.2.5 Summary: Agriculture-related Businesses in Lanark	
		and Renfrew.	85
		8.2.3 Estimated Induced Jobs	36
		8.2.4 Total Direct. Indirect and Induced Impacts.	37
	8.3	Comparison to Previous Studies.	37
	8.4	Results Conclusion.	90
	•••	•••••••••••••••••••••••••••••••••••••••	. •
Biblio	graphy	9	3 2

Tables and Figures

Tables		
1	Acreage of Soil Capabilities in Ontario	10
2	Acreage of Soil Capabilities in Lanark.	11
3	Acreage of Soil Capabilities in Renfrew	12
4	Distribution of Soils by CLI Capability for Agriculture in Lanark and Renfrew	13
5	Acres of Soil Class 1, 2 & 3 for Lanark County.	14
6	Acres of Soil Class 1, 2 & 3 for Renfrew County.	15
7	Farm Land and Land in Crops in Lanark County, Renfrew County, Eastern Ontario and	
	Ontario, 1986, 1991 & 1996 1	19
8	Land Area Classified by Use in Lanark County, 1996 (in acres)	20
9	Land Area Classified by Use in Renfrew County, 1996 (in acres).	22
10	Number of Farms in Lanark County, Renfrew County, Eastern Ontario and Ontario, 1986-	
	1996	24
11	Farm Operation Arrangements in Lanark County, Renfrew County, Eastern Ontario and	
	Ontario, 1986 and 1996	25
12	Farm Land and Average Farm Size in Lanark County, Renfrew County, Eastern Ontario an	d
	Ontario, 1986, 1991 & 1996	26
13	Farm Land and Average Farm Size in Lanark County, 1986, 1991 & 1996	27
14	Farm Land and Average Farm Size in Renfrew County, 1986, 1991 & 1996 2	28
15	Types of Farms in Lanark County by Major Products, 1996	29
16	Types of Farms in Renfrew County by Major Products, 1996	32
17	Farm Gate Sales in Lanark County, Renfrew County, Eastern Ontario and Ontario for 1985	,
	1990 & 1995	34
18	Counties with the Highest Farm Gate Sales in Ontario, 1990 and 1995	35
19	Farm Gate Sales per Farm and per Acre of Farm Land in Lanark County, 1995 3	36
20	Farm Gate Sales per Farm and per Acre of Farm Land in Renfrew County, 1995 3	36
21	Operating Expenditures in Lanark County, Renfrew County, Eastern Ontario and Ontario	
	for 1985, 1990 & 1995	37
22	Operating Expenditures per Farm and per Acre of Farm Land in Lanark County 3	38
23	Operating Expenditures per Farm and per Acre of Farm Land in Renfrew County 4	40
24	Net Revenue per Farm and per Acre of Farm Land in Lanark County, 1995 4	42
25	Net Revenue per Farm and per Acre of Farm Land in Renfrew County, 1995 4	43
26	Population in Ontario, Eastern Ontario, Lanark and Renfrew Counties, 1976-1996	44
27	Population and Percent Change for Lanark County, Renfrew County, Eastern	
	Ontario and Ontario, 1991 & 1996	15
28	Population and Percent Change for Lanark County, 1991 & 1996	15
29	Population and Percent Change for Renfrew County, 1991 & 1996	46
30a	Family Income Distribution for Canada, Ontario and Eastern Ontario, 1996 4	47
30b	Family Income Distribution for Lanark and Renfrew Counties, 1996.	18
31	Standard Industrial Classification Divisions	18
32	Employment by Standard Industrial Classification Divisions (SIC 1980) for Lanark and	
	Renfrew Counties, Eastern Ontario and Ontario, 1996	50
33	Employment and Employment Change by Standard Industrial Classification Divisions (SIC	; - 4
	1980) for Lanark and Renfrew Counties, Eastern Ontario and Ontario, 1991-1996	21
34	Age of Farm Operators in Lanark County, Renfrew County, Eastern Ontario and Ontario,	- 4
25)4 c.4
20 20	Permitted Uses for Lanark County's Agricultural Lands.)4 8 F
30 27	Agriculture and Non Agri related Sales for Pusinesses Surveyed	JJ 74
31 20	Agriculture and Non Agri-related Sales for Dusinesses Surveyed.	/ 74
30	i otal Agriculture Sales and Location of Sales for the Dusinesses Surveyed	11

39	Estimated Total Gross Sales for all Agri-related Businesses in the Study Area Using Sale	•
	Multipliers	72
40	Estimated Agri-related Sales for all Agri-related Businesses in the Study Area Using Sale)
	Multipliers	73
41	Total Value of Agriculture Sales and Location of Sales of all Agri-related Businesses in the	he
	Study Area	73
42	Total and Agri-related FTE Jobs at the Businesses Surveyed	74
43	Estimated Total and Agri-related FTE Jobs Using Job Multipliers	75
44	Location of Agri-related Businesses that Participated in the Survey	77
45	Total Sales and Employment Related to Agriculture in Lanark and Renfrew	87
46	Total Agri-related Sales for Selected Areas of Ontario (\$million)	88
47	Total Agri-related Jobs for Selected Areas of Ontario.	89
48	Location of Agri-related Business Sales for Selected Areas of Ontario	90

Figures

1	Lanark and Renfrew Counties - Census Subdivision
2	Soil Capabilities Classes and Crop Heat Units for the Lanark County
3	Soil Capabilities Classes and Crop Heat Units for the Renfrew County
4	Lanark County Farm Land Use by Municipality, 1996
5	Renfrew County Farm Land Use by Municipality, 1996
6	Lanark County Farm Types by Municipality, 1996
7	Renfrew County Farm Types by Municipality, 1996
8	Lanark County Farm Gate Receipts & Farm Operating Expenses, 1995
9	Renfrew County Farm Gate Receipts & Farm Operating Expenses, 1995
10	Employment by Industrial Sector for Lanark County, 1991 & 1996
11	Employment by Industrial Sector for Renfrew County, 1991 & 1996
12	Business Response Rate by Industrial Sector
13	Percentage of Agri-related Sales by Industrial Sector for the Businesses Surveyed 83
14	Average Number of Full-Time Equivalent (FTE) Jobs per Business Surveyed, by Industrial
	Sector
15	Location of Agri-related Sales by Industrial Sector for the Businesses Surveyed 85

1.0 Introduction

The report is based on a study of the economic impacts of agriculture in the counties of Lanark and Renfrew. This research initiated and assisted by the Federations of Agriculture in Lanark and Renfrew and was conducted by Harry Cummings and Associates (HCA).

The first section of the report provides an overview of the work, the background to the study, and an introduction to the work done in Lanark and Renfrew. The second section of the report provides information on the spatial aspects of agriculture in the counties. It provides maps and discussion on the agricultural characteristics of the local soils found in the region, the soil terrain characteristics, climate and crop heat units for the region. Other aspects of agricultural, including farmland use, farm numbers, sizes and types, and farm gate receipts are mapped by township and discussed in detail. The section concludes with a detailed discussion of agricultural economics in Lanark and Renfrew counties, including a review of historic and current trends in farm gate sales, operating expenses and net revenue (in total, as well as per farm and acre).

The third section of the report provides a profile population and employment Lanark and Renfrew. This includes information on population and population changes experienced in the region, and the distribution of family income as compared to Eastern Ontario, Ontario and Canada. An in-depth discussion is given to the employment situation in the area, including changes in employment numbers over time. This section provides information on the number of jobs in each sector of the economy, including agriculture, manufacturing, construction, government and service industries. Sections 2 and 3 provide the basis for estimating the direct impacts of agriculture on the economies of Lanark and Renfrew counties, specifically in terms of on-farm jobs and farm gate sales.

Several focus groups were conducted in Lanark and Renfrew to provide richer and more in-depth information regarding agriculture in the region. The results of these focus groups are presented in Section 4. Primary producers were questioned about the trends in terms of farm size in recent years, as well as other current trends within the industry noted by the farmers. Topics such as the consolidation of farms into larger and more intensive farms, the decline of agricultural commodity prices, the prominence of environmental issues and the declining support for agriculture among the public were noted. Labour force issues as they relate to the industry, including the availability of qualified labour and training were discussed by farmers within the focus group. The link that agriculture has with the wider economy was noted by farmers as an important issue to highlight. Pricing control, access to capital and increased costs to operate a farm were some of the important concerns discussed by farmers. Section 5 provides additional insight to the opportunities and challenges facing agriculture in the region through a review of township-level official plans in Lanark and Renfrew counties.

Section 6 provides a basic overview of economic impact analysis, including the

aspects of input-output analysis, economic base approach, and multipliers. Section 7 describes the specific methodology used within this study. This includes a description of the direct, indirect and induced impacts and the methods used to derive them.

The indirect impact methodology is a focal point of this study. As such, the study gives special attention to agriculture beyond the farm gate: the livestock feed processors, the veterinarians, the trucking companies and others who deal with the agriculture industry. In the past, many studies of this type have restricted themselves to reports of conditions on the farm. By ignoring the size and importance of agriculture beyond the farm gate, the impact of agriculture was under-emphasized. This study hopes to set the record straight and present a more complete picture of the agricultural economy.

Section 8 presents the results of the study, including the direct, indirect and induced impacts of agriculture. The results of the survey conducted with agriculturally related businesses to estimate the indirect impact of agriculture are reviewed. A comparison to previous studies undertaken by the consultants is also provided. The section closes the report with the results conclusion.

1.1 Background to the Study Methodology

The study focuses on dollars and jobs created by agriculture. The methodology relies mainly on 'input-output' analysis as a tool for assessing the impact of agriculture. This approach depicts the economy as a series of sectors that buy and sell goods to each other until they reach the point of consumption. The purchases of products by sectors from other sectors are the inputs, and the sales to other sectors by a sector are the outputs.

The research presented in the report relies on data from the Population Census, Agricultural Census, surveys of Agricultural-related businesses located in the study area and information from local citizens knowledgeable of the area. The report includes a discussion of the role of agriculture in the study area economy, as well as a discussion of related socio-economic conditions.

1.2 Background to the Research Report

From a demographic perspective, the composition of the rural population has become predominantly non-farm based. By 1981, the farm-based population in rural Ontario accounted for only eighteen percent of the total rural population compared to fifty-five percent in 1931 (Dasgupta, 1988, pp.26-30). The rural economy has also undergone considerable structural change as a consequence of global economic restructuring. Restructuring of the economy came about as other regions of the world developed competitive manufacturing sectors that challenged many of the manufacturing industries that were the heart of Canada's industrial economy (steel, automobiles, farm machinery, consumer electronics, etc.). In an effort to become more competitive, Canadian firms responded by reducing the size of their domestic workforce, adopting more automation and shifting production operations offshore.

At the same time the manufacturing sector was adjusting to global restructuring, agriculture experienced problems of reorganization and restructuring in response to overproduction, a declining market for unprocessed agricultural goods, and new competition in the world market (Goe and Kenney, 1991, p140-141).

Although rural economies continue to have a strong resource base, the percentage of jobs directly employed in agriculture production has been declining in Canada since the turn of the century (Keddie, 1999, pp.11-18). The job movement out of agriculture and other resource sectors has been accompanied by growth in service sector employment. In rural Ontario, the service sector now exceeds the goods producing sector as the principal employer (Bollman and Biggs, 1992, pp.21-28; Keddie, 1999, pp.30-31).

These changes have led some analysts to question the importance of agriculture as an engine of economic growth (Whyte, 1978, p.43). Indeed, analysts and policymakers are increasingly looking to other economic activities such as tourism to spur economic growth in rural areas.

It is important to note that, even though there were declines in the number of direct jobs in agriculture (ie. on-farm jobs), the value of farm gate sales has continued to rise. Between 1986 and 1996, farm gate sales in Ontario rose from \$5,511 million to \$7,778 million (a growth rate of 3.5% per year) while employment on farms declined. Not only did the value of production increase, the volume of production also increased. This implies an increase in the productivity of farm workers and more capital intensive farm operations. With fewer people working on farms, the linkages to industries and sectors supporting agriculture become all the more important.

1.3 Introduction to the Lanark and Renfrew Research

In recent years, a number of research initiatives have been undertaken in different regions of Ontario to assess the total impact of agriculture on the local economy. The findings indicate that agriculture has extensive industry linkages and is responsible for generating a significant number of jobs in the local economy beyond the primary production stage.

The research conducted in the combined counties of Prescott, Russell, Stormont, Dundas and Glengarry gained the attention of local Federation of Agriculture affiliates in Lanark and Renfrew. These Federations of Agriculture recognized that conventional economic indicators associated with agriculture were inadequate in showing the total impact agriculture has on the economy as a whole.

A working group was formed to address the issue with representatives from local

Federation of Agriculture affiliates in Lanark and Renfrew, Ottawa Carleton and Arnprior, the Regional Municipality of Ottawa Carleton and the Ontario Ministry of Agriculture, Food and Rural Affairs. An Request for Proposal was distributed by this working group. Dr. Harry Cummings, a consultant and professor at the University of Guelph School of Rural Planning and Development, won the bid to carry out the work using a similar methodology to the Huron, Simcoe, Elgin, Middlesex and Oxford, and Prescott, Russell, Stormont, Dundas and Glengarry studies. This report is the result of this work done by Dr. Cummings and his associates through his consulting firm, Harry Cummings and Associates (HCA).

2.0 Agriculture in Lanark and Renfrew Counties

2.1 Spatial Aspects of Agriculture in Lanark and Renfrew Counties

This component of the study provides insights into the variable nature of agriculture across the study area by mapping various attributes at the Census Subdivision level. Lanark and Renfrew Counties share a common distinction in that the Canadian Shield extends across a large portion of their total land area. The presence of this geological feature across the local landscape places greater limitations on certain cropping practices than are found in other parts of the province. Thus, the challenges posed by local bio-physical conditions make the achievements of the agricultural industry in Lanark and Renfrew all the more impressive.

Renfrew and Lanark Counties are located in the Eastern Ontario Region¹, and are part of the Ottawa Valley (Figure 1). Renfrew County extends from the outskirts of the City of Ottawa in the east, along the Ottawa River and the Province of Quebéc, to the northern tip of Algonquin Park. Renfrew County is the largest county in the province of Ontario, encompassing an area of 1.9 million acres. The county measures 120 miles long by 90 miles wide. Renfrew is bounded on the west by the District of Nipissing and a portion of Hastings County. The southern boundary abuts the counties of Lennox & Addington, Frontenac and Lanark. The total area of Lanark County is 757,120 acres. Frontenac County serves as its western boundary while the City of Ottawa borders on the eastern side. The Rideau River acts as a natural boundary in the south separating Lanark from Leeds and Grenville County.

Lanark and Renfrew are well served by several highways including highways 17, 60, 62 and 132 in Renfrew and highways 7,15 and 43 in Lanark. Both counties are well within a day's drive from three of Canada's principal metropolitan markets, Ottawa, Montreal and Toronto. Ottawa International Airport is just 60 minutes from many parts of Lanark and the southern part of Renfrew. Both jurisdictions have their own municipal airports.

Data for the study were drawn from Statistics Canada data compiled during the Census of Agriculture. The Census is conducted every five years, and organizes the data at a number of levels: Canada, Province/Territory, Census Divisions (e.g. Counties, Regional Minicipalities and Districts) and Census Subdivisions (e.g. Townships, Towns and Villages) .Agricultural statistics for Lanark County were drawn from eleven Census Subdivisions. In Renfrew, agricultural statistics were drawn from 19 Census Subdivisions. The Census of Agriculture is published every five years. Agricultural data associated with Ottawa and Nepean were combined by Statistics

¹ Eastern Ontario Region includes: Frontenac County, Lanark County, Leeds and Grenville United Counties, Lennox and Addington County, Ottawa-Carleton Regional Municipality, Prescott and Russell United Counties, Renfrew County, and Stormont, Dundas and Glengarry United Counties.

Canada to protect the confidentiality of the small number of farm operations in Ottawa. With the exception of data on soils, all of the data in this section have been taken from data collected by Statistics Canada. Most of the data were extracted from the 1996 census but data from the 1991 and 1986 census are also featured in this section.

Figure 1 Lanark and Renfrew Counties - Census Subdivisions



2.1.1 Agricultural Capabilities of Soils

The Canada Land Inventory (CLI) classification system of land capability for agriculture groups mineral soils into seven classes according to their potential and limitations for agricultural use (Environment Canada, 1980:1). The most highly rated soils, those having no significant limitations for cropping, are designated Class 1. Soils with no agricultural potential are designated Class 7. Soils designated 2 to 6 indicate, in declining order, capability for agriculture. For organic soils a separate category, Class 0, was established.

Classes 1, 2 and 3 are considered suitable for sustained production of common field crops if specified management practices are observed. Class 4 is physically marginal for sustained arable agriculture. Class 5 is capable of use only for permanent pasture and hay. Class 6 is capable of use only for grazing and Class 7 soils are considered to be unsuitable for agriculture (although specialty certain specialty crops such as tobacco thrive under very controlled conditions in Class 7 soils). While the soil areas in Classes 1 to 4 are suited for cultivated crops, they are also suited for permanent pasture. Soil areas in all classes may be suited for forestry, wildlife and recreational uses. Organic soils and specialty crops such as tobacco, fruits and vegetables are not considered in this classification system. Although the ratings are based on the characteristics of land for growing field crops, they have some application to other agricultural uses. A soil rated Class 1 for field crops is generally excellent for garden crops, orchards, small fruits and nurseries (Shut & Wilson, 1987:77). Summary descriptions of these soil classes are as follows (Environment Canada, 1980:1):

- **Class 1: No significant limitations in use for crops.** The soils are deep, well to perfectly drained, hold moisture well and in a virgin state are well supplied with plant nutrients. They can be managed and cropped without difficulty. Under good management they are moderately high to high in productivity for a wide range of field crops.
- Class 2: Moderate limitations that restrict the range of crops or require moderate conservation practices. The soils are deep and hold moisture well. The limitations are moderate and the soils can be managed and cropped with little difficulty. Under good management they are moderately high to high in productivity for a fairly wide range of cops.
- Class 3: Moderately severe limitations that restrict the range of crops or require special conservation practices. The limitations are more severe than Class 2 soils. They affect one or more of the following practices: timing and ease of tillage; planting and harvesting; choice of crops; and methods of conservation. Under good management they are fair to moderately high in productivity for a fair range of crops.

- *Class 4:* Severe limitations that restrict the range of crops or require special conservation practices, or both. The limitations seriously affect one or more of the following practices: timing and ease of tillage; planting and harvesting; choice of crops; and methods of conservation. The soils are low to fair in productivity for a fair range of crops but may have high productivity for a specially adapted crop.
- *Class 5:* Very severe limitations that restrict their capability to produce perennial forage crops, and improvement practices are feasible. The limitations are so severe that the soils are not capable of use for sustained production of annual field crops. The soils are capable of producing native or tame species of perennial forage plants, and may be improved by use of farm machinery.
- **Class 6: Capable only of producing perennial forage crops and improvement practices are not feasible.** The soils provide some sustained grazing for farm animals, but the limitations are so severe that improvement by the use of farm machinery is impractical. The terrain may be unsuitable for use of farm machinery, or the soils may not respond to improvement, or the grazing season may be very short.
- *Class 7: No capability for arable culture or permanent pasture.* This class also includes rockland, other non-soil areas, and bodies of water too small to show on the maps.
- *Class 0: Organic soils.* These soils are not placed in capability classes.

2.1.2 Soil and Terrain Characteristics

The tables from which the data are drawn (Hoffman and Noble, 1975) indicate the potential for agriculture for most of the land in Ontario, except for areas listed as 'unmapped'. Unmapped areas are those for which information about agricultural potential is unavailable for various reasons, and include military bases, parks and large urban and other areas which have never been mapped. The total acreage of soil capability for agriculture in Ontario, according to Canada Land Inventory classifications, are shown in Table 1.

Soil Class	Total Acres in Ontario
Class 1	4,818,520
Class 2	5,272,652
Class 3	6,240,574
Class 4	5,329,887
Class 5	3,395,346
Class 6	2,405,696
Class 7	19,850,048
Class 0	5,240,218
Unmapped	471,579
Total	53,024,520

 Table 1.
 Acreage of Soil Capabilities in Ontario.

Source: Hoffman and Noble, 1975:7.

Tables 2 and 3 provide a breakdown for the acreage of soil capabilities in Lanark and Renfrew Counties. This information has been adapted from Hoffman and Noble (1975). A graphic depiction of the soil capability classes is presented in Figures 2 & 3.

Municipality	Soil Class 1	Soil Class 2	Soil Class 3	Soil Class 4	Soil Class 5	Soil Class 6	Soil Class 7	Soil Class 0	Total
Bathurst	1,640	10,092	40	3,712	1,680	2,436	35,650	6,880	62,130
Beckwith	1,196	4,744	1,204	2,831	113	28,586	2,475	18,901	60,050
Drummond	1,960	17,904	680	6,156	440	7,620	7,230	18,360	60,350
Lanark	40	4,204	2,400	2,128	200	2,188	42,800	10,000	63,960
Lavant, Dalhousie & N. Sherbrooke ^a	-	1,148	926	2,383	173	3,973	177,339	10,958	196,900
Montague	1,668	6,388	492	1,280	160	39,172	3,140	18,080	70,380
North Elmsley	177	5,100	1,310	4,324	71	9,593	3,258	7,047	30,880
North Burgess	40	2,160	780	800	440	2,980	28,880	2,840	38,920
Pakenham	4,592	2,356	11,688	1,000	-	3,764	40,600	1,920	65,920
Ramsay	11,144	5,080	3,256	808	280	15,312	24,520	4,120	64,520
S. Sherbrooke	40	120	40	232	80	588	33,790	2,680	37,570
Unmapped	-	-	-	-	-	-	-	-	5,540
Totals	22,497	59,296	22,816	25,654	3,637	116,212	399,682	101,786	757,120

 Table 2.
 Acreage of Soil Capabilities in Lanark County².

Source: Hoffman and Noble, 1975:28.

² Data for Darling Township are included as part of Lavant, Dalhousie and North Sherbrooke Township to ensure confidentiality in Darling Township.

		1						1	
Municipality	Soil Class 1	Soil Class 2	Soil Class 3	Soil Class 4	Soil Class 5	Soil Class 6	Soil Class 7	Soil Class 0	Total
Admaston	-	26,216	-	2,041	-	210	50,958	1,515	80,940
Alice & Fraser	-	5,622	7,325	10,593	1,005	1,437	86,883	575	113,440
Bagot & Blythfield	-	550	390	2,770	890	520	98,130	1,160	104,410
Bromley	-	19,600	7,600	8,030	-	4,330	9,080	2,040	50,680
Brudenell & Lyndoch	-	500	1,110	2,540	2,610	320	100,650	1,960	109,690
Gratten	-	5,440	300	10,760	7,420	2,480	45,040	1,680	73,120
Hagarty & Richards	-	300	2,260	23,180	6,220	6,520	57,130	3,280	98,890
Horton	-	19,680	1,010	6,100	390	6,060	7,600	160	41,000
McNab	-	9,646	20,192	11,503	746	6,182	17,800	651	66,720
Pembroke	-	4,640	2,840	1,420	-	420	-	200	9,520
Raglan	-	-	-	5,240	6,280	120	53,240	2,880	67,760
Rolph, Buchanan, Wylie & McKay	-	342	1,813	108,912	791	4,620	297,005	737	414,220
Ross	-	30,450	3,520	5,730	200	9,700	7,520	320	57,440
Sebastopol	-	1,444	300	6,825	2,085	1,817	190,839	1,120	204,430
Sherwood, Jones & Burns	-	-	1,594	8,958	9,220	-	143,230	1,508	164,510
South Algona	-	840	1,980	7,310	2,300	8,610	31,020	4,440	56,500
Stafford	-	9,900	3,520	3,370	-	4,130	120	1,360	22,400
Westmeath	-	15,860	16,960	17,740	3,300	10,540	3,740	6,680	74,820
Wilberforce	-	7,620	2,430	14,220	4,750	8,700	24,850	2,840	65,410
Indian Reserve #39	-	-	-	-	-	-	1,720	-	1,720
Unmapped	-	-	-	-	-	-	-	-	11,660
Totals	-	158,650	75,144	257,242	48,207	76,716	1,226,555	35,106	1,889,280

 Table 3.
 Acreage of Soil Capabilities in Renfrew County ³.

Source: Hoffman and Noble, 1975:45.

From the tables above, the proportional distribution of soils across Lanark and

³ In order to ensure confidentiality in townships with low numbers of farms, data have been consolidated as follows: Sebastopol Township includes data Brougham Township and Griffith and Matachewan Township. Sherwood, Jones and Burns Township includes data from Radcliffe. South Algona Township includes data from North Algona Township. Rolph, Buchanan, Wylie and McKay Township includes data from Petawawa Township, and Head, Clara and Maria Township.

Renfrew by capabilities for agriculture can be determined. This is presented in Table 4.

Soil Class	Lanark	Renfrew	Comments
Class 1	2.9%	-	Suitable for sustained
Class 2	7.8%	8.4%	production of common field crops if specified management
Class 3	3.0%	4.1%	practices are followed.
Class 4	3.3%	13.6%	Physically marginal for sustained arable use.
Class 5	0.5%	2.5%	Capable of use only for permanent pasture and hay.
Class 6	15.3%	4.1%	Capable of use only for grazing.
Class 7	52.8%	64.9%	Unsuitable for agriculture.
Class 0	13.4%	1.8%	Organic soils
Other	0.7%	0.6%	Unmapped

 Table 4.
 Distribution of Soils by CLI Capability for Agriculture in Lanark and Renfrew.

Source: Hoffman and Noble, 1975:33.

As shown in Table 4, 5 & 6, Class 7 soils make up a large portion (52.8% in Lanark and 64.9% in Renfrew) of the total land base in Lanark and Renfrew, a reflection of the presence of the Canadian Shield. Soils that are viewed as suitable for sustained production of common field crops account for 13.7% (104,600 acres) of the total land area in Lanark and 12.5% (233,700 acres) of the total land area in Renfrew.

In Lanark County, Class 1, 2 and 3 soils are concentrated around the towns of Pakenham, Carleton Place, Perth and Smiths Falls. Townships located in the western regions of Lanark County (Lavant, Dalhousie and North Sherbrooke, South Sherbrooke, Lanark and North Burgess) have a much more limited availability of Class 1, 2 and 3 soils. Table 5 shows the acreage of soil classes in Lanark County.

	Acres of Class 1, 2 & 3 Soils	Percentage of Total Land Area
Bathurst	11,772	19.0%
Beckwith	7,144	11.9%
Drummond	20,544	34.0%
Lanark	6,644	10.4%
Lavant, Dalhousie & North Sherbrooke	2,074	1.1%
Montague	8,548	12.2%
North Burgess	2,980	7.7%
North Elmsley	6,587	21.3%
Pakenham	18,636	28.3%
Ramsay	19,480	30.2%
South Sherbrooke	200	0.5%
Lanark County	104,609	13.8%

 Table 5.
 Acres of Soil Class 1, 2 & 3 in Lanark County.

Source: Hoffman and Noble, 1975:28.

Renfrew County is distinct in that it does not possess any Class 1 soils. Class 2 and 3 soils are largely located along the Ottawa River and tend to be concentrated around the towns of Arnprior, Renfrew, and Pembroke. As in Lanark County, townships located in the western regions of Renfrew County have a much more limited availability of Class 2 and 3 soils. Table 6 shows the acreage of land classes in Renfrew County.

	Acres of Class 2 & 3 Soils	Percentage of Total Land Area	
Admaston	26,216	32.4%	
Alice & Fraser	12,947	11.4%	
Bagot & Blythfield	940	0.9%	
Bromley	27,200	53.7%	
Brundenell & Lyndoch	1,610	1.5%	
Grattan	5,740	7.9%	
Hagarty & Richards	2,560	2.6%	
Horton	20,690	50.5%	
McNab	29,838	44.7%	
Pembroke	7,480	78.6%	
Raglan	0	0.0%	
Rolph, Buchanan, Wylie and McKay	2,155	0.5%	
Ross	33,970	59.1%	
Sebastopol	1,744	0.9%	
Sherwood, Jones & Burns	1,594	1.0%	
South Algona	2,820	5.0%	
Stafford	13,420	59.9%	
Westmeath	32,820	43.9%	
Wilberforce	10,050	15.4%	
Renfrew County	233,794	12.4%	

 Table 6.
 Acres of Soil Class 2 & 3 for Renfrew County.

Source: Hoffman and Noble, 1975:45.

2.1.3 Climate and Crop Heat Units

The Crop Heat Unit system (CHU), once referred to as Corn Heat Units, was developed in the 1960's and is used to recommend corn hybrids and soybean varieties which are best suited for production in specific CHU zones in various regions of Canada. There is a wide selection of hybrids and varieties for most crops. Most of the warm-season crops have a wide range of maturities. The CHU ratings are based on the total accumulated CHUs for the frost-free growing season in each area of the province.

Daily CHU are calculated from daily minimum and maximum air temperatures

drawn from separate calculations taken during the day and night. The daytime relationship uses 10 degrees Celsius (50F) as the base temperature and 30 degrees Celsius (86F) as the optimum, because warm-season crops do not develop when daytime temperatures fall below 10 degrees Celsius and they develop fastest at about 30 degrees. The nighttime relationship uses 4.4 degrees Celsius (40F) as the base temperature and does not specify an optimum temperature because nighttime temperatures very seldom exceed 25 degrees Celsius in Ontario. Daily CHU are calculated by using the average of the two daily values.

Latitude, elevation and distance to the Great Lakes all affect daily temperatures and have a marked influence on the accumulated CHU across southern Ontario. The change between CHU isolines is gradual. However, the slope and soil type at a site also influence temperature. For example, south-facing slopes receive more heat than northfacing slopes, and sandy soils warm up faster than loam or clay soils. Microclimates also influence specific land situations. This makes it impossible to estimate the CHU rating closer than 50 heat units for any location.

Lanark County ranges between 2,500 CHU in the west and 2,700 CHU in the east (Figure 2). Renfrew County ranges from 2,100 CHU in extreme western region of the county to 2,500 in the eastern regions of the county (Figure 3). The CHU's in both counties result in some limitations on the types of crops that can be grown in the study area.

Figure 2 Soil Capability Classes and Crop Heat Units for Lanark County



- A total of 104,609 acres or 13.8% of the total land area in Lanark County is classified as suitable for sustained production of common field crops
- Greater availability of Class 1, 2, and 3 soils around the towns of Pakenham, Carleton Place, Perth and Smith Falls
- Availability of Class 1, 2 and 3 soils in north-west portion of Lanark County is much more limited due to the Canadian Shield

Soil Classes

In the Canada Land Inventory (CLI) classification system of land capability for agriculture, mineral soils are grouped into seven classes according to their potential and limitations for agricultural use. Classes 1, 2 and 3 are considered suitable for sustained production of common crops if specified management practices are observed. Soils designated 4 through 6 are increasingly less suited for agriculture. Class 7 soils are generally considered unsuitable for agriculture.

Crop Heat Units

The Crop Heat Unit system (CHU) is an indexing system used to recommend appropriate plant and crop varieties for specific geographic regions of Canada. Calculations for CHU are made based on average daily air temperature and number of available planting days. Latitude, elevation, distance to large bodies of water, slope and soil type, all affect daily temperatures.

Source: Hoffman & Noble, 1975; Brown & Bootsma, 1993; http://geogratis.cgdi.gc.ca



Figure 3 Soil Capability Classes and Crop Heat Units for Renfrew County

- A total of 233,794 acres or 12.4% of the total land area in Renfrew County is classified as suitable for sustained production
 of common field crops... largely concentrated along the Ottawa Valley
- Greater availability of Class 2 and 3 soils around the towns of Amprior, Renfrew and Pembroke... there are no Class 1 soils in Renfrew County
- Availability of Class 2 and 3 soils in the western portion of Renfrew County is much more limited due to the Canadian Shield

Soil Classes

In the Canada Land Inventory (CLI) classification system of land capability for agriculture, mineral soils are grouped into seven classes according to their potential and limitations for agricultural use. Classes 1, 2 and 3 are considered suitable for sustained production of common crops if specified management practices are observed. Soils designated 4 through 6 are increasingly less suited for agriculture. Class 7 soils are generally considered unsuitable for agriculture.

Crop Heat Units

The Crop Heat Unit system (CHU) is an indexing system used to recommend appropriate plant and crop varieties for specific geographic regions of Canada. Calculations for CHU are made based on average daily air temperature and number of available planting days. Latitude, elevation, distance to large bodies of water, slope and soil type, all affect daily temperatures.

Source: Hoffman & Noble, 1975; Brown & Bootsma, 1993; http://geogratis.cgdi.gc.ca

2.1.4 Land Area Classified by Use

Table 7 compares the total farmland, land in crops and percentage of farmland in crops in Lanark County, Renfrew County, Eastern Ontario and Ontario. On average, the allocation of farmland for crop farms in Lanark and Renfrew Counties is substantially less than for either Eastern Ontario or Ontario as a whole. This is likely due to a combination of factors, most importantly the low percentage of class one, two and three soils in the area and the low number of Crop Heat Units (CHU) in the two counties, compared to either of the two larger units. As a result, farms in the western parts of Lanark and Renfrew counties typically have a lower proportion of farmland dedicated to crops.

Table 7.	Farmland and Land in Crops in Lanark County, Renfrew County, Eastern Ontario
	and Ontario, 1986, 1991& 1996.

	Total Farmland (in acres)			Total Land in Crops (in acres)			% of Farmland in Crops (in acres)		
	1986	1991	1996	1986	1991	1996	1986	1991	1996
Ontario	13,953,009	13,470,653	13,879,565	8,544,820	8,430,414	8,759,707	61.2%	62.6%	63.1%
Eastern Ontario	2,596,535	2,480,000	2,500,799	1,206,281	1,183,033	1,227,219	46.5%	47.7%	49.1%
Lanark County	291,076	267,700	256,485	86,533	83,117	85,052	29.7%	31.0%	33.2%
Renfrew County	423,714	409,353	412,558	143,485	138,959	141,059	33.9%	33.9%	34.2%

Source: Census of Canada, Agricultural Profile of Ontario, 1986, 1991 & 1996.

About 85,000 acres, or approximately one-third, of the total farm land base in Lanark County was in crops in 1996. Between 1991 and 1996, the area of farm land under crops in Lanark increased by 2.3% (1,935 acres). Renfrew County also had about a third of its total farm land base in crops in 1996 (141,000). Between 1991 and 1996, the area of farm land under crops in Renfrew increased by 1.5% (2,100 acres). The increase in both counties is consistent with trends at the regional and provincial level. However, the rate of increase in Lanark and Renfrew is not as large as that found for eastern Ontario (3.7%) or for the province of Ontario (3.9%).

Table 8 and Figure 4 provide more detailed looks at the allocation of land use in Lanark County. Lands classified as Other include all lands used for Christmas trees farms and those agricultural lands not elsewhere classified. The symbol N/A (Not Available) has been inserted in townships where there are too few farms reporting data to ensure confidentiality. As such, N/A does not equal zero, rather it indicates a positive figure exists for the township, and has been included in calculating the total area of the use. Due to low concentrations, land in Summer Fallow has been included with Other Uses in Figure 4.

Other uses (including 23 Christmas tree farms covering 525 acres) take up the greatest amount of farmland in Lanark County; 35.7% of land is dedicated to other uses, followed by crop land (33.2%) and pasture areas (31.0%), both improved (8.3%)

and unimproved (22.7%). Only 0.07% of the available agricultural land in Lanark County is summer fallow. The composition of land uses varies from township to township, with the greatest reported concentration of other land uses in Lavant, Dalhousie and North Sherbrooke Township and Ramsay Township. Ramsay Township also has the largest area under crops, followed closely by Drummond Township. The implication of these uses of agricultural land are reflected in the types and concentration of farms across the county, which are explored in section 2.2.4, Farm Types.

	Under Crops	Summer Fallow	Improved Pasture	Unimproved Pasture	Other	Total
Bathurst TP	10,680	0	2,463	7,125	9,920	30,188
Beckwith TP	8,696	0	1,672	4,791	7,434	22,593
Drummond TP	14,573	61	4,355	5,481	10,646	35,116
Lanark TP	5,634	N/A	2,226	4,209	N/A	23,498
Lavant, Dalhousie & North Sherbrooke TP	3,142	0	1,105	7,506	17,448	29,201
Montague TP	7,547	N/A	1,906	7,301	N/A	24,049
North Burgess TP	2,462	N/A	N/A	3,941	N/A	10,213
North Elmsley TP	5,834	0	1,022	4,563	4,539	15,958
Pakenham TP	10,756	N/A	1,898	4,993	N/A	25,017
Ramsay TP	14,866	92	4,166	5,526	11,307	35,957
South Sherbrooke TP	862	0	N/A	2,876	N/A	4,695
Lanark County	85,052	188	21,285	58,312	91,648	256,485

 Table 8.
 Land Area Classified by Use in Lanark County, 1996 (in acres).

Source: Census of Canada, Agricultural Profile of Ontario, 1996.

Figure 4 Lanark County Farmland Use by Municipality, 1996



Table 9 and Figure 5 provide similar information for Renfrew County. Crop land is the dominant agricultural land use in the county (34.2%), followed by pasture (33.6%, comprised of 9.1% improved pasture and 24.5% unimproved pasture). Other land uses make up 32.1% of agricultural land use in the county. This includes 35 Christmas tree farms covering 1,460 acres. Renfrew County accounted for 25% of the total land area in Christmas tree production in eastern Ontario in 1996. Summer fallow makes up a very small percent of total agricultural land use (0.13%).

	Under Crops	Summer Fallow	Improved Pasture	Unimproved Pasture	Other	Total
Admaston TP	14,682	0	3,619	9,562	9,877	37,740
Alice and Fraser TP	8,010	21	2,782	3,677	6,967	21,457
Bagot and Blythfield TP	852	N/A	361	1,879	N/A	7,463
Bromley TP	18,749	0	4,326	8,416	7,539	39,030
Brundenell and Lyndoch TP	2,434	0	709	4,870	9,822	17,835
Grattan TP	5,976	32	1,732	14,615	9,531	31,886
Hagarty and Richards TP	3,407	66	1,036	5,081	8,505	18,095
Horton TP	8,427	N/A	2,092	6,288	N/A	21,404
McNab TP	13,397	111	4,434	6,975	9,934	34,851
Pembroke TP	2,020	0	201	637	829	3,687
Raglan TP	1,866	N/A	528	2,426	N/A	11,517
Rolph, Buchanan, Wylie and McKay TP	955	N/A	286	429	N/A	4,357
Ross TP	15,604	N/A	3,661	8,174	N/A	35,285
Sebastopol TP	1,792	N/A	435	3,727	N/A	12,500
Sherwood, Jones and Burns TP	1,107	0	249	3,698	6,448	11,502
South Algona TP	3,371	N/A	1,338	6,872	N/A	18,673
Stafford TP	8,207	N/A	1,897	2,653	N/A	16,559
Westmeath TP	34,321	75	6,737	6,671	10,061	47,865
Wilberforce TP	5,882	N/A	1,189	4,443	N/A	20,852
Renfrew County	141,059	541	37,612	101,093	132,253	412,558

 Table 9.
 Land Area Classified by Use in Renfrew County, 1996 (in acres).

Source: Census of Canada, Agricultural Profile of Ontario, 1996.

Figure 5 Renfrew County Farmland Use by Municipality, 1996



2.2 Farms in Lanark and Renfrew Counties

Lanark and Renfrew Counties have a limited availability of Class One, Two and Three soil types (13.8% and 12.4%, respectively) than other regions of the province. Despite these limitations, agriculture makes an important contribution to the local economy in terms of generating income and providing employment. This section will outline some of the aspects of agriculture in Lanark and Renfrew Counties, with an emphasis on changes to the industry over the past five to ten years.

2.2.1 Number of Farms ⁴

Table 10 shows the number of farms in Lanark County, Renfrew County, Eastern Ontario and Ontario for the years 1986, 1991, and 1996. Between 1986 and 1991 the number of farms decreased in each of the four regions. The number of farms in Lanark County fell by 59 (-5.3%) and in Renfrew County by 44 (-2.8%). Over the same period, the number of farms in Eastern Ontario fell by 4.3% and in Ontario they fell by 5.6%. However, between 1991 and 1996 the number of farms in Lanark and Renfrew Counties increased by 12 (1.1%) and 27 (1.8%) farms, respectively. The number of farms in the Eastern Ontario region and Ontario continued to fall at rates of 1.8% and 1.6%, respectively.

Table 10.	Number of Farms in Lanark County, Renfrew County, Eastern Ontario and Ontario,
	1986-1996.

	1986	1991	1996		
Lanark County	1,112	1,053	1,065		
Renfrew County	1,549	1,505	1,532		
Eastern Ontario	11,136	10,655	10,473		
Ontario	72,713	68,633	67,520		

Source: Census of Canada, Agricultural Profile of Ontario, 1986, 1991 & 1996.

2.2.2 Farm Operation Arrangements

Table 11 provides data on the types and number of farm operation arrangements in Lanark County, Renfrew County, Eastern Ontario and Ontario for the ten-year period from 1986 to 1996. Unfortunately, similar data gathered during the 1991 Agricultural

⁴ In 1996, Statistics Canada defined a census farm as an agricultural operation that produces at least one of the following products intended for sale: crops (field crops, tree fruits or nots, berries or grapes, vegetables or seed); livestock (cattle, pigs, sheep, horses, exotic animals, etc.); poultry (hens, chickens, turkeys, exotic birds, etc.); animal products (milk or cream, eggs, wool, fur, meat); or other agricultural products (greenhouse or nursery products, Christmas trees, mushrooms, sod, honey, maple syrup products). The definition of a census farm was expanded for the 1996 Census of Agriculture to include commercial poultry hatcheries and operations that produced only Christmas trees. This expanded definition resulted in the inclusion of 138 commercial poultry hatcheries and 1,593 operations across Canada that produced only Christmas trees.

Census for this category were collected differently, and as a result comparisons with that census year are not possible. The table uses four categories of operation arrangements. *Sole Proprietor* farms are one-person farming operations. *Partnership* includes farms operating with and without written agreements between the partners. *Corporation* includes Family and Non-family farms. *Other* farms include institution farms, community pastures and other types of farms that are not otherwise categorized.

	Sole Proprietor		Partnership		Corporation		Other		
	1986	1996	1986	1996	1986	1996	1986	1996	
Lanark County	907	659	187	371	15	35	3	0	
	(81.6%)	(61.9%)	(16.8%)	(34.8%)	(1.3%)	(3.3%)	(0.3%)	(0.0%)	
Renfrew County	1,330	1,015	205	433	13	83	1	1	
	(85.9%)	(66.2%)	(13.2%)	(28.3%)	(0.8%)	(5.4%)	(0.1%)	(0.1%)	
Eastern Ontario	8,951	6,191	1,814	3,416	346	852	25	14	
	(80.4%)	(59.1%)	(16.3%)	(32.6%)	(3.1%)	(8.1%)	(0.2%)	(0.1%)	
Ontario	56,708	38,465	11,684	21,076	4,192	7,909	129	70	
	(78.0%)	(57.0%)	(16.1%)	(31.2%)	(5.8%)	(11.7%)	(0.2%)	(0.1%)	

 Table 11.
 Farm Operation Arrangements in Lanark County, Renfrew County, Eastern Ontario and Ontario, 1986 & 1996.

Source: Census of Canada, Agricultural Profile of Ontario, 1986 & 1996.

Most of the farms in Lanark County, Renfrew County, Eastern Ontario and Ontario continue to be managed under a sole proprietor operating arrangement. However, between 1986 and 1991 the proportion of farms being operated under that arrangement has declined substantially. As farms become larger and decrease in number, which they have in all four regions since 1986, an increasing proportion of farms are being operated as either a partnership or corporation. Partnership arrangements have grown the most in terms of real numbers, as well as making up a greater share of farm operation arrangements. Other categories of operation arrangements have fallen during the ten-year period, and now play only a marginal role in managing Ontario's farms.

A substantial portion of the total farm land base in Lanark and Renfrew counties is rented or leased. In 1996, 22% (55,900 acres) of all farm land in Lanark and 18% (73,900 acres) of all farm land in Renfrew was rented/leased in 1996. These figures are somewhat lower than the provincial average of 29.7% but are consistent with the average for eastern Ontario, 21%. Both counties experienced an increase in the proportion of acreage rented between 1991 and 1996.

2.2.3 Farm Sizes

The average size of Ontario's farms has increased; smaller farms are sold and consolidated, resulting in fewer, but bigger farms. This has been the case throughout
most of Ontario for a number of decades, and it is a trend which continues today (see Table 12). However, in both Lanark and Renfrew Counties, the number of farms increased from 1991 to 1996, although neither county has the number of farms that it did in 1986. Farms in the two counties are, on average, larger than farms in either Eastern Ontario or Ontario. However, while farm size in Eastern Ontario and Ontario continue to increase, the average farm size in Lanark and Renfrew Counties continues to decrease below 1986 sizes. This may be due to the loss of agricultural lands in the two counties to competing land uses, most notably development projects and urbanization, which is limiting the ability of farms to expand their land bases. Expansion of farm operations is also limited by the availability of Class 1, 1 and 3 soils.

	Number of Farms			Total F	armland (in	Acres)	Averag	verage Farm Siz		
	1986	1991	1996	1986	1991	1996	1986	1991	1996	
Ontario	72,713	68,633	67,520	13,953,009	13,470,653	13,879,565	192	196	206	
Eastern Ontario	11,136	10,655	10,473	2,596,535	2,480,000	2,500,799	233	233	239	
Lanark County	1,112	1,053	1,065	291,076	267,700	256,485	262	254	241	
Renfrew County	1,549	1,505	1,532	423,714	409,353	412,558	274	272	269	

Table 12.Farmland and Average Farm Size in Lanark County, Renfrew County, Eastern
Ontario and Ontario, 1986, 1991 & 1996.

Source: Census of Canada, Agricultural Profile of Ontario, 1986, 1991 & 1996.

Table 13 provides data on the number and average sizes of farms at the township level in Lanark County for 1986, 1991 and 1996. Ramsay Township has the greatest number of farms in the county, which is to be expected as it has the most farm land of any of Lanark's townships. However, Ramsay Township has the smallest average farm size in the county (194 acres per farm in 1996). Farm sizes are in decline throughout most of the townships, decreasing in average size by 21 acres (8.0% between 1986 and 1996). The largest farms continue to be found in Lavant, Dalhousie and North Sherbrook Township, although they decreased in average size by 16.1% between 1986 and 1996.

	Number of Farms			Total Farmland (in Acres)			Average Farm Size (in Acres)		
	1986	1991	1996	1986	1991	1996	1986	1991	1996
Lanark County	1,112	1,053	1,065	291,07	267,70	256,48	262	254	241
Bathurst TP	127	119	125	31,585	33,114	30,188	249	278	242
Beckwith TP	107	104	101	27,037	25,385	22,593	253	244	224
Drummond TP	155	131	144	42,041	34,879	35,116	271	266	244
Lanark TP	105	100	95	27,870	25,747	23,498	265	257	247
Lavant, Dalhousie & North Sherbrooke TP	84	78	92	31,717	26,611	29,201	378	341	317
Montague TP	98	115	101	26,625	27,622	24,049	272	240	238
North Burgess TP	32	42	34	10,754	13,238	10,213	336	315	300
North Elmsley TP	64	58	55	16,990	14,705	15,958	265	254	290
Pakenham TP	124	125	116	26,421	25,054	25,017	213	200	216
Ramsay TP	190	151	185	42,256	33,171	35,957	222	220	194
South Sherbrooke TP	26	30	17	7,780	8,174	4,695	299	272	276

 Table 13.
 Farmland and Average Farm Size in Lanark County, 1986, 1991 & 1996.

Source: Census of Canada, Agricultural Profile of Ontario, 1986, 1991 & 1996.

Table 14 provides similar data for Renfrew County. Farm sizes in Renfrew are larger than Lanark County, and are declining in size at a much slower rate (1.8% between 1986 and 1996 vs. 8.0% decline in Lanark County).

	Number of Farms			То	tal Farmla (in Acres)	nd	Average Farm Size (in acres)		
	1986	1991	1996	1986	1991	1996	1986	1991	1996
Renfrew County	1,549	1,505	1,532	423,71	409,35	412,55	274	272	269
Admaston TP	125	122	120	37,786	36,226	37,740	302	297	315
Alice and Fraser TP	98	100	98	22,980	22,248	21,457	234	222	219
Bagot and Blythfield TP	34	32	28	10,126	10,445	7,463	298	326	267
Bromley TP	116	115	113	39,344	38,716	39,030	339	337	345
Brundenell and Lyndoch TP	39	46	41	18,133	20,323	17,835	465	442	435
Grattan TP	80	88	90	27,944	29,802	31,886	349	339	354
Hagarty and Richards TP	59	53	60	18,768	16,994	18,095	318	321	302
Horton TP	98	94	88	21,968	20,706	21,404	224	220	243
McNab TP	183	171	172	38,854	34,236	34,851	212	200	203
Pembroke TP	24	25	26	4,391	4,202	3,687	183	168	142
Raglan TP	35	31	38	11,263	10,111	11,517	322	326	303
Rolph, Buchanan, Wylie and McKay TP	31	30	26	5,334	4,858	4,357	172	162	168
Ross TP	124	122	135	34,215	31,324	35,285	276	257	261
Sebastopol TP	36	35	37	14,623	12,941	12,500	406	370	338
Sherwood, Jones and Burns TP	39	41	43	11,293	12,645	11,502	290	308	267
South Algona TP	32	39	45	12,194	16,290	18,673	381	418	415
Stafford TP	73	69	69	16,642	17,161	16,559	228	249	240
Westmeath TP	208	200	208	52,244	48,753	47,865	251	244	230
Wilberforce TP	115	92	95	25,612	21,372	20,852	223	232	219

 Table 14.
 Farmland and Average Farm Size in Renfrew County, 1986, 1991& 1996.

Source: Census of Canada, Agricultural Profile of Ontario, 1986, 1991 & 1996.

Westmeath Township has the largest agricultural land base and the greatest number of farms in the County (208). Brundenell and Lyndoch Township has the largest average farm size (435 acres); Rolph, Buchanan, Wylie and McKay Township has the smallest average farm size (168). Average farm sizes declined by 6.4% and 2.3% between 1986 and 1996.

2.2.4 Farm Types

In 1996, Lanark County had 1,065 farms. This was 47 fewer farms than it had in 1986 (Figure 6). Ramsay Township had the most farms (185) of any township in

Lanark County while South Sherbrooke had the least (17). In 1996, 832 farms in Lanark had sales of \$2,500 or more. Beef farms were the most common type of farm operation in 1996 (43.8% of all farms in Lanark County with sales of \$2,500 or more) followed by specialty type farms (18.1%) and dairy farms (15.6%). In terms of absolute numbers, beef farms are somewhat more concentrated in the central and eastern municipalities including Drummond, Ramsay, Pakenham and Beckwith. Dairy farms are more concentrated in Ramsay, Drummond and Bathurst while specialty farms are more concentrated in Ramsay, Lavant, Dalhousie & North Sherbrooke and Montague. Table 15 shows the diversity of farm types in Lanark County, by major product type⁵, for 1996.

	Dairy	Beef	Hogs	Poultry	Field Crops	Fruit	Veg.	Misc. Spec.	Livestock Combo	Other Combo
Lanark County	130	364	2	2	120	8	7	151	28	20
Bathurst TP	18	50	2	0	15	1	2	15	1	0
Beckwith TP	10	39	0	0	9	1	0	14	1	1
Drummond TP	19	59	0	1	21	1	0	11	1	2
Lanark TP	13	34	0	0	7	0	0	12	2	3
Lavant, Dalhousie & N. Sherbrooke TP	2	19	0	1	5	1	1	26	6	1
Montague TP	5	32	0	0	12	1	0	18	4	2
North Burgess TP	8	13	0	0	0	0	2	4	0	3
North Elmsley TP	11	17	0	0	9	0	0	6	1	0
Pakenham TP	15	43	0	0	14	1	0	14	3	5
Ramsay TP	28	54	0	0	27	2	1	28	8	3
South Sherbrooke TP	1	4	0	0	1	0	1	3	1	0

Table 15. Types of Farms in Lanark County by Major Products, 1996 (with >\$2,499 in sales).

Source: Census of Canada, Agricultural Profile of Ontario, 1996.

⁵ Each census farm is classified according to the predominant commodity produced. Statistics Canada does this by estimating the potential receipts from the inventories of crops and livestock reported on the questionnaire. The commodity or group of commodities that accounts for 51% or more of the total potential receipts determines the farm type. For example, a census farm with total potential receipts of 60% from dairy, 20% from hogs and 20% from field crops, would be classified as a dairy farm. Where there is no single major commodity associated with the farm operation (ie. 45% dairy, 45% hogs and 10% field crops; 40% grains and oilseeds, 35%, hogs, 25% maple syrup), the farm is categorized as either a 'livestock combination' or 'other combination' operation. Field Crop farms include wheat, grain, oilseed and other field crops. Miscellaneous specialty includes greenhouse flower and plant production, bulbs, shrubs, trees, sod, ornamentals, mushroom houses, honey production, maple syrup production, etc.



Figure 6 Lanark County Farm Types by Municipality, 1996 (Farms with annual gross farm receipts of \$2,500 or more)

One of the more prominent specialty farm types in Lanark County is maple syrup production. In 1996, 37% of all taps on maple trees in eastern Ontario were in Lanark County. Lanark County reported 111,085 taps on maple trees in 1996, approximately 10% of the provincial total. With the exception of Waterloo Regional Municipality (143,166 taps), Lanark County had more taps on maple trees in 1996 than any other county or regional municipality in Ontario. However, farms in Lanark County have a higher number of taps per farm (1,068 taps/farm) than is the case in Waterloo Region (601 taps/farm). Between 1991 and 1996, the number of trees tapped in Lanark increased by 11.8%. Maple syrup production is also a feature of the agricultural sector in Renfrew County although the industry operates on a smaller scale than in Lanark. While the number of taps in Renfrew remained fairly consistent between 1991 and 1996 (approximately 30,000 taps), the number of farms reporting maple syrup production increased from 90 to 102. In recent years the maple industry has been estimated to be worth \$15 million annually to the Ontario economy. This has expanded from an estimated worth of \$7 million in the mid-1980's (Ontario Ministry of Agriculture, Food and Rural Affairs, 2000). Ontario is the fourth largest maple syrup producing region in the world after Quebec, Vermont and New York State.

In 1996, Renfrew had 1,532 farms. This was 17 fewer farms than it had in 1986 (see Figure 7). In 1996, Westmeath Township had the most farms (208) of any township while Pembroke and Rolph, Buchanan, Wylie & McKay had least (26). In 1996, 1,273 farms in Renfrew had sales of \$2,500 or more. Beef farms were the most common type of farm operation in 1996 (55.5% of all farms in Renfrew County with sales of \$2,500 or more) followed by dairy farms (14.7%) and field crop type farms (12.2%). Dairy farms are concentrated in the eastern municipalities while beef farms tend to be more dispersed across the study area. Sixty-five percent of all dairy farms in Renfrew are located in four townships: Westmeath, Bromley, Admaston and Ross. In contrast, the four leading municipalities in terms of beef farms (Westmeath, McNab, Ross and Wilberforce) account for 43% of all beef farms in Renfrew. Table 16 provides data on the types of farms by major product for Renfrew County.

	Dairy	Beef	Hogs	Poultry	Field Crops	Fruit	Veg.	Misc. Spec.	Livestock Combo	Other Combo
Renfrew County	187	707	13	4	155	6	4	142	29	26
Admaston TP	24	48	0	0	19	0	0	10	0	1
Alice and Fraser TP	11	43	0	0	11	2	1	7	1	0
Bagot and Blythfield TP	2	10	0	0	2	0	0	4	1	1
Bromley TP	31	48	2	0	13	0	0	5	3	2
Brundenell and Lyndoch TP	1	21	0	0	5	0	0	7	0	1
Grattan TP	9	49	1	0	7	0	0	7	2	1
Hagarty and Richards TP	1	30	0	1	4	0	0	8	1	2
Horton TP	5	32	0	0	15	1	0	7	2	2
McNab TP	9	82	0	0	18	1	1	23	3	4
Pembroke TP	5	8	0	1	1	1	0	3	0	1
Raglan TP	2	15	1	0	6	0	0	5	0	0
Rolph, Buchanan, Wylie and McKay TP	0	4	0	0	5	0	0	8	1	1
Ross TP	18	74	2	0	12	0	0	9	5	0
Sebastopol TP	1	14	1	0	7	0	1	5	0	1
Sherwood, Jones and Burns TP	3	13	0	0	4	0	1	3	3	1
South Algona TP	1	26	1	2	1	1	0	3	0	1
Stafford TP	12	38	0	0	3	0	0	6	3	1
Westmeath TP	48	94	3	0	18	0	0	14	3	3
Wilberforce TP	4	58	2	0	4	0	0	8	1	3

 Table 16.
 Types of Farms in Renfrew County by Major Products, 1996 (with >\$2,499 in sales).

Source: Census of Canada, Agricultural Profile of Ontario, 1996.

Hay is an important field crop in Renfrew County. In 1995, Renfrew County was one of only five counties in Ontario with over 100,000 acres of farmland in hay production. The total value of hay production in Renfrew in 1995 amounted to \$15.8 million, \$2.7 million more than any other county in eastern Ontario.

Farms in Renfrew County generate substantial sales from forest products. Sales of forest products in 1995 amounted to \$1.44 million, 48% of the eastern Ontario total. Only two other counties in Ontario generated higher forest product sales, Huron and Bruce. Between 1990 and 1995, sales of forest products in Renfrew increased by just over \$400,000 while the number of farms reporting sales increased from 215 to 252. Forest product sales in Lanark County were also substantial in 1995 at \$510,000. However, while sales increased by \$65,000 between 1990 and 1995, the number of farms reporting forest product sales in Lanark decreased from 131 to 116.

The sheep industry in Lanark and Renfrew also has a substantial profile in the region and it appears to be growing in importance. In 1996 the two counties reported a combined total of 8,819 sheep and lambs, representing 21.7% of the total sheep and lamb inventory in eastern Ontario. Estimates for 1999 suggest that the combined sheep and lamb inventory for Lanark and Renfrew was 13,700 or 26.6% of the total sheep and Rural Affairs, 2000).



2.3 Agricultural Economics in Lanark and Renfrew Counties

2.3.1 Farm Gate Sales

Farm gate sales have increased in both Eastern Ontario and Ontario in each of the most recent census periods (Table 17). Sales in Lanark and Renfrew Counties also increased from 1985 to 1990 but fell \$5.2 million (12.2%) and \$1.3 million (2.1%), respectively, between 1990 and 1995. Over this same period farm gate sales increased by 9.0% in Eastern Ontario and by 16.5% in Ontario.

Table 17.	Farm Gate Sales in Lanark County, Renfrew County, Eastern Ontario and Ontario
	for 1985, 1990 & 1995.

	1985	1990	1995		
Ontario	\$5,511,666,761	\$6,671,452,382	\$7,778,476,483		
Eastern Ontario	\$542,582,409	\$733,984,007	\$800,003,735		
Lanark County	\$31,663,777	\$42,723,625	\$37,505,719		
Renfrew County	\$44,498,044	\$61,570,044	\$60,262,541		

Source: Census of Canada, Agricultural Profile of Ontario, 1986, 1991 & 1996.

The implications of reduced farm gate sales has impacted upon the viability of farms in some townships in Lanark and Renfrew Counties. This impact will be explored further in the following sections. In comparison to other agricultural counties in Ontario, farm gate sales in both Lanark and Renfrew Counties are low. Table 18 provides farm gate sales for the leading agriculture-producing counties in Ontario for the past two census periods.

County/Regional Municipality	1990 Farm Gate Sales (\$ millions)	1995 Farm Gate Sales (\$ millions)	Percent Change
Huron County	436.9	511.9	17.2%
Haldimand-Norfolk R.M.	378.3	453.1	19.8%
Middlesex County	417.3 450.4		7.9%
Kent County	295.0	444.4	50.6%
Perth County	366.2	430.3	17.5%
Oxford County	341.5	418.6	22.6%
Niagara R.M.	318.9	408.3	28.0%
Wellington County	320.1	373.1	16.6%
Essex County	218.5	315.7	44.5%
Lambton County	258.0	301.4	16.8%
Waterloo R.M.	257.8	301.4	16.9%

 Table 18.
 Counties with the Highest Farm Gate Sales in Ontario, 1990 & 1995.

Source: Census of Canada, Agricultural Profile of Ontario, 1991 & 1996.

Farm gate sales per farm and per acre are compared in Table 19. Per farm and per acre sales in Lanark County are substantially less than sales in Eastern Ontario and Ontario. Lanark County farms averaged \$35,217 in gross farm gate sales in 1995, compared with \$76,387 in average sales in Eastern Ontario and \$115,203 in Ontario. Farms in Beckwith Township had the highest average sales per farm (\$49,709); Lavant, Dalhousie and North Sherbrooke Township farms had the lowest (\$15,052). Lanark County farms also had lower sales per acre of farmland (\$146) than either Eastern Ontario or Ontario farms (\$320 and \$560, respectively). Beckwith Township had the highest average sales and South Sherbrooke had the lowest (\$47).

	Farm Gate Sales	# of Farms	Sales per Farm	# of Acres	Sales per Acre
Ontario	\$7,778,476,483	67,520	\$115,203	13,879,565	\$560
Eastern Ontario	\$800,003,735	10,473	\$76,387	2,500,799	\$320
Lanark County	\$37,505,719	1,065	\$35,217	256,485	\$146
Bathurst TP	\$4,920,769	125	\$39,366	30,188	\$163
Beckwith TP	\$5,020,626	101	\$49,709	22,593	\$222
Drummond TP	\$4,498,406	144	\$31,239	35,116	\$128
Lanark TP	\$2,426,834	95	\$25,546	23,498	\$103
Lavant, Dalhousie & North Sherbrooke TP	\$1,385,714	92	\$15,062	29,201	\$47
Montague TP	\$2,598,034	101	\$25,723	24,049	\$108
North Burgess TP	\$1,387,501	34	\$40,809	10,213	\$136
North Elmsley TP	\$2,706,783	55	\$49,214	15,958	\$170
Pakenham TP	\$5,313,669	116	\$45,807	25,017	\$212
Ramsay TP	\$6,819,678	185	\$36,863	35,957	\$190
South Sherbrooke TP	\$427,705	17	\$25,159	4,695	\$91

 Table 19.
 Farm Gate Sales per Farm and per Acre of Farmland in Lanark County, 1995.

Source: Census of Canada, Agricultural Profile of Ontario, 1996.

Table 20 provides per farm gate sales per farm and per acre at the Township level for Renfrew County.

	Farm Gate Sales	# of Farms	Sales per Farm	# of Acres	Sales per Acre
Ontario	\$7,778,476,483	67,520	\$115,203	13,879,565	\$560
Eastern Ontario	\$800,003,735	10,473	\$76,387	2,500,799	\$320
Renfrew County	\$60,262,541	1,532	\$39,336	412,558	\$146
Admaston TP	\$6,181,802	120	\$51,515	37,740	\$164
Alice and Fraser TP	\$2,325,686	98	\$23,731	21,457	\$108
Bagot and Blythfield TP	\$297,794	28	\$10,636	7,463	\$40
Bromley TP	\$10,943,453	113	\$96,845	39,030	\$280
Brundenell and Lyndoch TP	\$911,033	41	\$22,220	17,835	\$51
Grattan TP	\$2,376,188	90	\$26,402	31,886	\$75
Hagarty and Richards TP	\$835,935	60	\$13,932	18,095	\$46
Horton TP	\$1,600,634	88	\$18,189	21,404	\$75
McNab TP	\$4,595,074	172	\$26,716	34,851	\$132
Pembroke TP	\$2,087,567	26	\$80,291	3,687	\$566
Raglan TP	\$587,344	38	\$15,456	11,517	\$51
Rolph, Buchanan, Wylie and McKay TP	\$778,989	26	\$29,961	4,357	\$179
Ross TP	\$7,066,120	135	\$52,342	35,285	\$200
Sebastopol TP	\$849,593	37	\$22,962	12,500	\$68
Sherwood, Jones and Burns TP	\$310,926	43	\$7,231	11,502	\$27
South Algona TP	\$1,920,394	45	\$42,675	17,673	\$109
Stafford TP	\$4,053,552	69	\$58,747	16,559	\$245
Westmeath TP	\$11,213,293	208	\$53,910	47,865	\$234
Wilberforce TP	\$1,327,164	95	\$13,970	20,852	\$64

 Table 20.
 Farm Gate Sales per Farm and per Acre of Farmland in Renfrew County, 1995.

Source: Census of Canada, Agricultural Profile of Ontario, 1996.

Average sales per farm in Renfrew County in 1995 were also lower than either Eastern Ontario or Ontario, although they were somewhat higher than Lanark County. At the township level average sales per farm ranged from \$7,231 in Sherwood, Jones and Burns Township to \$96,845 in Bromley Township. Westmeath Township had the highest total farm gate sales in the county, at just over \$11.2 million. In terms of sales per acre, Renfrew County had lower average sales than either Eastern Ontario or Ontario, and the same as Lanark County. Farm gate sales per acre in Renfrew County ranged from \$27 in Sherwood, Jones and Burns Township to \$566 in Pembroke Township.

2.3.2 Operating Expenditures

Table 21 compares operating expenditures in Lanark County, Renfrew County, Eastern Ontario and Ontario in 1985, 1990 and 1995. Increases in operating expenditures have increased in each of the four regions, with the exception of Lanark County from 1990 to 1995. However, it is important to note that gross farm gate sales fell in Lanark County over the same period.

Ontario for 1985, 1990 & 1995.									
	1985	1990	1995						
Ontario	\$4,711,942,124	\$5,462,588,275	\$6,545,516,325						
Eastern Ontario	\$450,974,874	\$582,416,025	\$650,478,696						
Lanark County	\$29,112,103	\$35,462,972	\$34,771,609						
Renfrew County	\$39,501,524	\$50,752,876	\$55,280,691						

Table 21.Operating Expenditures in Lanark County, Renfrew County, Eastern Ontario and
Ontario for 1985, 1990 & 1995.

Source: Census of Canada, Agricultural Profile of Ontario, 1986, 1991 & 1996.

At the township level, the decrease in farm sales has impacted upon the viability of individual farms; many of the townships report negative net revenue in 1995. Table 22 shows farm operating expenditures at the township level in Lanark County in 1995. Average expenses in Lanark County at both the per farm and per acre basis were notably less than those for Eastern Ontario and Ontario. In Lanark County, average expenditures per farm ranged from \$16,316 in Lavant, Dalhousie and North Sherbrooke Township to \$47,087 in Beckwith Township. Average expenditures per acre ranged from \$51 in Lavant, Dalhousie and North Sherbrooke Township.

	Operating Expenditures	# of Farms	Costs Per Farm	# of Acres	Costs Per Acre
Ontario	\$6,545,516,325	67,520	\$96,942	13,879,565	\$472
Eastern Ontario	\$650,478,696	10,473	\$62,110	2,500,799	\$260
Lanark County	\$34,771,609	1,065	\$32,649	256,485	\$136
Bathurst TP	\$4,298,058	125	\$34,384	30,188	\$142
Beckwith TP	\$4,755,752	101	\$47,087	22,593	\$210
Drummond TP	\$4,254,276	144	\$29,544	35,116	\$121
Lanark TP	\$2,239,717	95	\$23,576	23,498	\$95
Lavant, Dalhousie & North Sherbrooke TP	\$1,501,106	92	\$16,316	29,201	\$51
Montague TP	\$2,610,527	101	\$25,847	24,049	\$109
North Burgess TP	\$1,053,207	34	\$30,977	10,213	\$103
North Elmsley TP	\$2,173,224	55	\$39,513	15,958	\$136
Pakenham TP	\$4,819,607	116	\$41,548	25,017	\$193
Ramsay TP	\$6,720,925	185	\$36,329	35,957	\$187
South Sherbrooke TP	\$345,210	17	\$20,306	4,695	\$74

 Table 22.
 Operating Expenditures per Farm and per Acre of Farmland in Lanark County, 1995

Source: Census of Canada, Agricultural Profile of Ontario, 1996.

Figure 8 compares farm gate receipts with operating expenses in Lanark County.

Figure 8 Lanark County Farm Gate Receipts and Farm Operating Expenses, 1995



Table 23 provides expenditure data for Renfrew County. Average expenses in Renfrew County at both the per farm and per acre basis were also less than those for Eastern Ontario and Ontario, and higher than the average per farm expenditures for Lanark County (although lower on a per acre basis). In Renfrew County, average expenditures per farm ranged from \$11,701 in Sherwood, Jones and Burns Township to \$82,721 in Bromley Township. Average expenditures per acre ranged from \$43 in Hagarty and Richards Township to \$503 in Pembroke Township.

1995.					
	Operating Expenditures	# of Farms	Costs per Farm	# of Acres	Costs per Acre
Ontario	\$6,545,516,325	67,520	\$96,942	13,879,565	\$472
Eastern Ontario	\$650,478,696	10,473	\$62,110	2,500,799	\$260
Renfrew County	\$55,280,691	1,532	\$36,084	412,558	\$134
Admaston TP	\$5,333,564	120	\$44,446	37,740	\$141
Alice and Fraser TP	\$2,712,015	98	\$27,674	21,457	\$126
Bagot and Blythfield TP	\$437,576	28	\$15,628	7,463	\$59
Bromley TP	\$9,347,441	113	\$82,721	39,030	\$239
Brundenell and Lyndoch TP	\$1,060,407	41	\$25,864	17,835	\$59
Grattan TP	\$2,407,647	90	\$26,752	31,886	\$76
Hagarty and Richards TP	\$771,903	60	\$12,865	18,095	\$43
Horton TP	\$1,814,209	88	\$20,616	21,404	\$85
McNab TP	\$4,401,394	172	\$25,590	34,851	\$126
Pembroke TP	\$1,852,892	26	\$71,265	3,687	\$503
Raglan TP	\$588,290	38	\$15,481	11,517	\$51
Rolph, Buchanan, Wylie and McKay TP	\$566,777	26	\$21,799	4,357	\$130
Ross TP	\$6,835,520	135	\$50,633	35,285	\$194
Sebastopol TP	\$872,219	37	\$23,573	12,500	\$70
Sherwood, Jones and Burns TP	\$503,133	43	\$11,701	11,502	\$44
South Algona TP	\$1,682,414	45	\$37,387	17,673	\$95
Stafford TP	\$3,407,601	69	\$49,386	16,559	\$206
Westmeath TP	\$9,206,231	208	\$44,261	47,865	\$192
Wilberforce TP	\$1,479,458	95	\$15,573	20,852	\$71

Table 23.	Operating Expenditures per Farm and per Acre of Farmland in Renfrew County,
	1995.

Source: Census of Canada, Agricultural Profile of Ontario, 1996.

Figure 9 compares farm gate receipts and operating expenses in Renfrew County.



2.3.3 Net Revenue

Table 24 provides data on net revenue per farm and per acre in Lanark County. This has been calculated by subtracting total expenditures from gross farm gate sales. The data show that net revenue per farm is much lower in Lanark County than in either Eastern Ontario or Ontario. In Lavant, Dalhousie and North Sherbrooke Township, and Montague Township the average net revenue per farm and per acre was negative. Average net revenue per acre in Lanark County was only one-sixth that of the Eastern Ontario, and one-ninth that of Ontario. However, these low figures were not representative of all Lanark County's townships, as average net revenues per farm ranged as high as \$9,832 in North Burgess Township, and per acre net revenues as high as \$34 in North Elmsley Township.

	Sales per Farm	Costs per Farm	Net Revenue per Farm	Sales per Acre	Costs per Acre	Net Revenue per Acre
Ontario	\$115,203	\$96,942	\$18,261	\$560	\$472	\$88
Eastern Ontario	\$76,387	\$62,110	\$14,277	\$320	\$260	\$60
Lanark County	\$35,217	\$32,649	\$2,568	\$146	\$136	\$10
Bathurst TP	\$39,366	\$34,384	\$4,982	\$163	\$142	\$21
Beckwith TP	\$49,709	\$47,087	\$2,622	\$222	\$210	\$12
Drummond TP	\$31,239	\$29,544	\$1,695	\$128	\$121	\$7
Lanark TP	\$25,546	\$23,576	\$1,970	\$103	\$95	\$8
Lavant, Dalhousie & North Sherbrooke TP	\$15,062	\$16,316	\$-1,254	\$47	\$51	\$-4
Montague TP	\$25,723	\$25,847	\$-124	\$108	\$109	\$-1
North Burgess TP	\$40,809	\$30,977	\$9,832	\$136	\$103	\$33
North Elmsley TP	\$49,214	\$39,513	\$9,701	\$170	\$136	\$34
Pakenham TP	\$45,807	\$41,548	\$4,259	\$212	\$193	\$19
Ramsay TP	\$36,863	\$36,329	\$534	\$190	\$187	\$3
South Sherbrooke TP	\$25,159	\$20,306	\$4,853	\$91	\$74	\$17

 Table 24.
 Net Revenue per Farm and per Acre of Farmland in Lanark County, 1995

Source: Census of Canada, Agricultural Profile of Ontario, 1996.

Table 25 provides net revenue per farm and per acre data for Renfrew County. The data show that net revenue per farm is also lower in Renfrew County than in either Eastern Ontario or Ontario, but higher than Lanark County. Negative average net revenue per farm is also observed in Alice and Fraser, Bagot and Blythfield, Brundenell and Lyndoch, Grattan, Horton, Raglan and Sherwood, Jones and Burns townships. Average net revenue per acre in Renfrew County was about one-fifth that of the Eastern Ontario, and one-eighth that of Ontario. However, some townships in Renfrew County compared well with Eastern Ontario and Ontario average per farm revenue, notably Bromley Township (\$14,124 average per farm net revenue) and Pembroke Township (\$63 average per acre net revenue).

	Sales per Farm	Costs per Farm	Net Revenue per Farm	Sales per Acre	Costs per Acre	Net Revenue per Acre
Ontario	\$115,203	\$96,942	\$18,261	\$560	\$472	\$88
Eastern Ontario	\$76,387	\$62,110	\$14,277	\$320	\$260	\$60
Renfrew County	\$39,336	\$36,084	\$3,252	\$146	\$134	\$12
Admaston TP	\$51,515	\$44,446	\$7,069	\$164	\$141	\$23
Alice and Fraser TP	\$23,731	\$27,674	\$-3,943	\$108	\$126	\$-18
Bagot and Blythfield TP	\$10,636	\$15,628	\$-4,992	\$40	\$59	\$-19
Bromley TP	\$96,845	\$82,721	\$14,124	\$280	\$239	\$41
Brundenell and Lyndoch TP	\$22,220	\$25,864	\$-3,644	\$51	\$59	\$-8
Grattan TP	\$26,402	\$26,752	\$-350	\$75	\$76	\$-1
Hagarty and Richards TP	\$13,932	\$12,865	\$1,067	\$46	\$43	\$3
Horton TP	\$18,189	\$20,616	\$-2,427	\$75	\$85	\$-10
McNab TP	\$26,716	\$25,590	\$1,126	\$132	\$126	\$6
Pembroke TP	\$80,291	\$71,265	\$9,026	\$566	\$503	\$63
Raglan TP	\$15,456	\$15,481	\$-25	\$51	\$51	\$0
Rolph, Buchanan, Wylie and McKay TP	\$29,961	\$21,799	\$8,162	\$179	\$130	\$49
Ross TP	\$52,342	\$50,633	\$1,709	\$200	\$194	\$6
Sebastopol TP	\$22,962	\$23,573	\$-611	\$68	\$70	\$-2
Sherwood, Jones and Burns TP	\$7,231	\$11,701	\$-4,470	\$27	\$44	\$-17
South Algona TP	\$42,675	\$37,387	\$5,288	\$109	\$95	\$14
Stafford TP	\$58,747	\$49,386	\$9,361	\$245	\$206	\$39
Westmeath TP	\$53,710	\$44,261	\$9,449	\$234	\$192	\$42
Wilberforce TP	\$13,970	\$15,573	\$-1,603	\$64	\$71	\$-7

 Table 25.
 Net Revenue per Farm and per Acre of Farmland in Renfrew County, 1995.

Source: Census of Canada, Agricultural Profile of Ontario, 1996.

3.0 **Population and Employment in Lanark and Renfrew Counties**

3.1 Introduction

This section provides a profile of trends in population and employment Lanark and Renfrew Counties. The first section focuses on population and population change, changes in family income distribution and changes in employment by industrial sector. The second half of this section examines employment in the two counties, with special emphasis on direct jobs in the Agriculture sector.

3.2 **Population and Population Change**

Population in Lanark and Renfrew counties grew by 35.4% and 8.0%, respectively, between 1976 and 1996 (Table 26). Lanark County's population has increased steadily over this time period. Population growth in Renfrew County has been less consistent, having experienced a 1.8% decline between 1976 and 1981 which did not recover until sometime between the 1986 and 1991 Census years. Population in Eastern Ontario grew by 30.7% between 1976 and 1996, and has increased with each Census period. The province has experienced similar growth at 30.1% over the same period.

	1976	1981	1986	1991	1996
Lanark County	44,197	45,676	49,649	54,803	59,845
Renfrew County	89,099	87,484	88,965	91,685	96,224
Eastern Ontario	1,020,905	1,056,026	1,139,292	1,256,226	1,334,371
Ontario	8,264,465	8,625,107	9,101,694	10,084,885	10,753,573

 Table 26.
 Population in Ontario, Eastern Ontario, Lanark and Renfrew Counties, 1976-1996

Source: Statistics Canada, 1996 Profile of Census Divisions and Subdivisions & 1991 Profile of Census Divisions and Subdivisions - Part B.

During the most recent Census period (1991 to 1996), population increased throughout Lanark County, Renfrew County, the Eastern Ontario Region and the Province of Ontario (Table 27). Of the three regions, Lanark County experienced the greatest rate of growth at 9.2%, well above the regional and provincial levels (6.2% and 6.6% respectively) and almost double the 5.0% population growth recorded in Renfrew County.

Region	1991	1996	% Change		
Lanark County	54803	59845	9.2%		
Renfrew County	91685	96224	5.0%		
Eastern Ontario	1256226	1334371	6.2%		
Ontario	10084885	10753573	6.6%		

Table 27.Population and Percent Change for Lanark County, Renfrew County, Eastern
Ontario, and Ontario, 1991-1996.

Source: Statistics Canada, 1996 Profile of Census Divisions and Subdivisions & 1991 Profile of Census Divisions and Subdivisions - Part B.

Table 28 examines changes in population at the Township (TP), Town (T) and Village (VL) levels in Lanark County between 1991 and 1996.

Region	1991	1996	% Change
Lanark County	54803	59845	9.2%
Almonte T	4382	4611	5.2%
Bathurst TP	2888	3179	10.1%
Beckwith TP	4564	5495	20.4%
Carleton Place T	7432	8450	13.7%
Darling TP	470	527	12.1%
Drummond TP	2771	3185	14.9%
Lanark V	890	865	-2.8%
Lanark TP	1461	1722	17.9%
Lavant, Dalhousie and North Sherbrooke TP	1381	1515	9.7%
Montague TP	3620	3802	5.0%
North Burgess TP	1021	1269	24.3%
North Elmsley TP	2833	3018	6.5%
Pakenham TP	1782	2007	12.6%
Perth T	5576	5886	5.6%
Ramsay TP	3624	4451	22.8%
Smiths Falls T	9439	9131	-3.3%
South Sherbrooke TP	669	732	9.4%

 Table 28.
 Population and Percent Change for Lanark County, 1991& 1996.

Source: Statistics Canada, 1996 Profile of Census Divisions and Subdivisions & 1991 Profile of Census Divisions and Subdivisions - Part B.

Population grew in all areas of Lanark County, with the exceptions of the town of Smiths Falls (-308, or 3.3%) and the village of Lanark (-25, or 2.8%). The highest rates of growth were experienced in North Burgess Township (24.3%), Ramsay Township (22.8%) and Beckwith Township (20.4%). Growth rates in the rural townships of Lanark County exceed those of the towns and villages; this trend has also been observed in other counties within the Eastern Ontario Region for the same time period (Cummings et al., 2000). In terms of real growth, Carleton Place had the greatest increase (1,108).

Table 29 examines changes in population at the Township (TP), Town (T), City (C) and Village (VL) levels in Renfrew County between 1991 and 1996.

Region	1991	1996	% Change
Renfrew County	91685	96224	5.0%
Admaston TP	1551	1648	6.3%
Alice and Fraser TP	3824	4124	7.8%
Arnprior T	6679	7113	6.5%
Bagot and Blythfield TP	1231	1371	11.4%
Barry's Bay VL	1088	1086	-0.2%
Beachburg VL	766	902	17.8%
Braeside VL	562	715	27.2%
Bromley TP	1201	1189	-1.0%
Brougham TP	205	262	27.8%
Brundenell and Lyndoch TP	778	791	1.7%
Chalk River VL	874	974	11.4%
Cobden VL	1026	1020	-0.6%
Deep River T	4571	4491	-1.8%
Eganville VL	1292	1319	2.1%
Grattan TP	1287	1328	3.2%
Griffith and Matawatchan TP	381	400	5.0%
Hagarty and Richards TP	1603	1678	4.7%
Head, Clara and Maria TP	256	294	14.8%
Horton TP	2426	2515	3.7%
Killaloe Station VL	707	669	-5.4%
McNab TP	5464	5765	5.5%
North Algona TP	636	664	4.4%
Pembroke C	13997	14177	1.3%
Pembroke TP	1761	2107	14.5%
Petawawa TP	8191	8764	7.0%
Petawawa VL	5793	6540	12.9%
Radcliffe TP	1077	1116	3.6%
Raglan TP	837	820	-2.0%
Renfrew T	8134	8125	-0.1%
Rolph, Buchanan, Wylie and McKay TP	1656	1810	9.3%
Ross TP	1832	1968	7.4%
Sebastopol TP	574	589	2.6%
Sherwood, Jones and Burns TP	2101	2140	1.9%
South Algona TP	335	386	15.2%
Stafford TP	2778	2837	2.1%
Westmeath TP	2419	2686	11.0%
Wilberforce TP	1792	1931	7.8%

 Table 29.
 Population and Percent Change for Renfrew County, 1991 & 1996.

Source: Statistics Canada, 1996 Profile of Census Divisions and Subdivisions & 1991 Profile of Census Divisions and Subdivisions - Part B.

Population in Renfrew County grew at a much slower pace than Lanark County, although rates of decline in the towns and villages was less pronounced. Brougham Township experienced the highest rate of growth (27.8%), followed by the village of Braeside (27.2%) and South Algona Township (15.2%). The village of Killaloe Station experienced the greatest percentage decline over the period (5.4%). In terms of real growth, the village of Petawawa grew by 747 people. The town of Deep River had the greatest real decline (80 people).

3.3 Family Income Distribution

Tables 30a and 30b provide data on the level of family incomes in Lanark County, Renfrew County, Eastern Ontario, Ontario and Canada, for 1996. On average, families in both Lanark and Renfrew Counties had lower incomes than families in Ontario and Canada. The median income (the point where half of the families in a given area earn more and half of the families earn less) is higher in Lanark County than it is for the Canadian median income, although it is less than the median income for Ontario. Median incomes in Renfrew County are lower than Ontario and Canada.. This is also reflected in the percentage of families in the lower (\$0-\$29,999), medium (\$30,000-\$79,999) and higher (\$80,000+) income categories. Lanark and Renfrew counties present similar statistics, with 59.9% and 58.5% respectively, of families falling into the middle income category. This is higher than the percentage of families in the middle income category in Canada (53.1%), Ontario (52.1%) and Eastern Ontario (52.4%). As a consequence, smaller percentages of families fall into the lower and higher income categories in Lanark and Renfrew counties than the other three administrative units. Lanark County has a smaller percentage of families falling into the lower income category than either Canada or Ontario (24.1% vs. 28.7% and 25.2%, respectively), but larger than Eastern Ontario (23.4%). Renfrew County has a larger percentage of families in the lower income category than either Eastern Ontario or Ontario, and a slightly smaller percentage than Canada. However, both Lanark and Renfrew counties have lower percentages of families in the higher income category (16.1% and 13.0%). respectively) than any of Canada (18.5%), Ontario (22.9%) or Eastern Ontario (16.1%).

Table ova. Talling meenie Distribution for Ganada, Ontario, Eastern Ontario, 1990.						
Femily Income	Canada		Onta	rio	Eastern Ontario	
Categories	Number of families	% of total	Number of families	% of total	Number of families	% of total
Under \$10,000	435,760	5.6%	148,050	5.1%	13,910	3.8%
\$10,000 - \$19,999	795,895	10.2%	256,625	8.8%	31,930	8.8%
\$20,000 - \$29,999	1,007,840	12.9%	332,130	11.3%	39,200	10.8%
\$30,000 - \$39,999	992,020	12.7%	336,440	11.5%	40,315	11.1%
\$40,000 - \$49,999	968,900	12.4%	340,330	11.6%	42,565	11.7%
\$50,000 - \$59,999	883,520	11.3%	324,365	11.1%	41,325	11.4%
\$60,000 - \$69,999	736,990	9.4%	289,155	9.9%	36,675	10.1%
\$70,000 - \$79,999	568,055	7.3%	235,015	8.0%	29,400	8.1%
\$80,000 - \$89,999	416,740	5.3%	179,905	6.1%	23,280	6.4%
\$90,000 - \$99,999	286,875	3.7%	127,950	4.4%	16,585	4.6%
\$100,000 and over	745,265	9.5%	362,765	12.4%	47,370	13.1%
Total families	7,837,860		2,932,730		362,475	
Average income, family (\$)	\$54,583		\$59,830			
Median income, family (\$)	\$46,951		\$51,520			

	Table 30a.	Family Income	Distribution fo	r Canada,	Ontario,	Eastern	Ontario,	1996
--	------------	---------------	-----------------	-----------	----------	---------	----------	------

Source: Statistics Canada, 1996 Profile of Census Divisions and Subdivisions.

	Lanark	County	Renfrew	County
Family Income	199	96	19	96
Categories	Number of families	% of total	Number of families	% of total
Under \$10,000	530	3.2%	1,090	4.0%
\$10,000 - \$19,999	1,475	8.8%	2,740	10.1%
\$20,000 - \$29,999	2,015	12.1%	3,885	14.3%
\$30,000 - \$39,999	2,250	13.5%	4,320	15.9%
\$40,000 - \$49,999	2,410	14.4%	4,260	15.7%
\$50,000 - \$59,999	2,165	13.0%	3,190	11.8%
\$60,000 - \$69,999	1,730	10.4%	2,555	9.4%
\$70,000 - \$79,999	1,440	8.6%	1,535	5.7%
\$80,000 - \$89,999	820	4.9%	1,150	4.2%
\$90,000 - \$99,999	610	3.7%	820	3.0%
\$100,000 and over	1,260	7.5%	1,575	5.8%
Total families	16,710		27,125	
Average income, family (\$)	\$54,120		\$48,916	
Median income, family (\$)	\$48,318		\$43,461	

 Table 30b.
 Family Income Distribution for Lanark and Renfrew Counties, 1996.

Source: Statistics Canada, 1996 Profile of Census Divisions and Subdivisions.

3.4 Employment and Employment Change

The Standard Industrial Classification (SIC) system refers to the standard system used to organize Canadian industries into easily distinguishable categories or classifications. At the greatest level of aggregation in published census data, these industries are divided into 18 separate categories, and are presented in Table 31. The study uses the SIC system in analyzing trends in employment in the study area.

Division	SIC Description	Division	SIC Description
А	Agriculture and Related Industries	J	Retail Trade Industries
В	Fishing and Trapping Industries	к	Finance and Insurance Industries
С	Logging and Forestry Industries	L	Real Estate Operator and Insurance Agent Industries
D	Mining, Quarrying and Oil Well industries	М	Business Service Industries
E	Manufacturing Industries	N	Government Service Industries
F	Construction Industries	0	Education Service Industries
G	Transportation and Storage Industries	Р	Health and Social Service Industries
н	Communication and Other Utility Industries	Q	Accommodation, Food and Beverage Service Industries
I	Wholesale Trade Industries	R	Other Service Industries

 Table 31.
 Standard Industrial Classification Divisions.

Source: Statistics Canada, 1980.

Accommodation, Food and Beverage industries include: Accommodation Service Industries (e.g. hotels, motels, tourist courts, lodging houses, residential clubs, camping grounds, travel trailer parks, recreation and vacation camps) and Food and Beverage Service Industries (e.g. food services, taverns, bars and nightclubs). Other Service industries include: Amusement and Recreational Service Industries, Personal and Household Service Industries, Membership Organization Industries, and Other Service Industries (e.g. machinery and equipment rental and leasing services, automobile and truck rental and leasing services, photographers, other repair services, services to buildings and dwellings, and travel services). Services relevant to agriculture in the Other Service category include: machinery and equipment rental and leasing, welding shops that repair farm equipment and auctioneers providing services for livestock and farm equipment owners.

Table 32 shows the levels of employment in each of the eighteen industrial sectors in Lanark County, Renfrew County, Eastern Ontario and Ontario in 1996. Manufacturing industries employ the greatest percentage of employees in Lanark and Renfrew counties (16.4% and 14.0%, respectively) and are also the leading employers in the province (17.1%). In Eastern Ontario, Government Services is the largest employer (15.0%), due to the heavy concentration of government functions in the Ottawa area. This concentration of Government Services influences employment in Renfrew County, where it is the second-largest employer (13.4%). Trends across the four administrative areas are relatively consistent, with Retail Trade accounting for 11.7% to 13.1% of total employment, followed by Health and Social Services which employ from 9.5% to 11.2% of total employees. Trends throughout the remaining sectors are also comparable across the four administrative units, with employment figures in Lanark and Renfrew counties being very close to regional and provincial figures.

	Lana	rk	Renfr	ew	Eastern C	Intario	Ontario		
Industrial Sector	# of Jobs	% Jobs	# of Jobs	% Jobs	# of Jobs	% Jobs	# of Jobs	% Jobs	
A) Agricultural and Related Services	1,200	4.1%	1,810	3.9%	16,810	2.5%	131,060	2.4%	
B) Fishing and Trapping	10	0.0%	0	0.0%	75	0.0%	1,915	0.0%	
C) Logging and Forestry	85	0.3%	590	1.3%	1,295	0.2%	11,405	0.2%	
D) Mining, Quarrying & Oil	65	0.2%	120	0.3%	655	0.1%	26,050	0.5%	
E) Manufacturing	4,755	16.4%	6,435	14.0%	68,935	10.2%	922,565	17.1%	
F) Construction	2,065	7.1%	2,825	6.1%	35,440	5.2%	290,430	5.4%	
G) Transportation and Storage	975	3.4%	1,315	2.9%	21,545	3.2%	198,555	3.7%	
H) Communication and Other Utility	860	3.0%	1,225	2.7%	20,430	3.0%	173,040	3.2%	
I) Wholesale Trade	1,165	4.0%	1,270	2.8%	23,295	3.4%	278,220	5.2%	
J) Retail Trade	3,610	12.4%	6,030	13.1%	79,610	11.7%	662,815	12.3%	
K) Finance and Insurance	570	2.0%	655	1.4%	17,400	2.6%	228,880	4.2%	
L) Real estate and Insurance	455	1.6%	525	1.1%	12,155	1.8%	111,890	2.1%	
M) Business Service Industries	1,730	6.0%	3,465	7.5%	59,265	8.7%	411,070	7.6%	
N) Government Service Industries	2,435	8.4%	6,195	13.4%	101,650	15.0%	304,640	5.6%	
O) Educational Service Industries	1,710	5.9%	2,680	5.8%	52,830	7.8%	369,320	6.8%	
P) Health and Social Service	3,250	11.2%	4,635	10.1%	70,380	10.4%	513,615	9.5%	
Q) Accommodation, Food & Bev.	1,825	6.3%	3,210	7.0%	44,305	6.5%	350,945	6.5%	
R) Other Service Industries	2,305	7.9%	3,095	6.7%	52,930	7.8%	414,980	7.7%	
Total All Sectors	29,075		46,090		679,005		5,401,395		

Table 32.Employment by Standard Industrial Classification Divisions (SIC 1980) for Lanark
and Renfrew Counties, Eastern Ontario, and Ontario, 1996.

Source: Statistics Canada, 1996 Profile of Census Divisions and Subdivisions.

Table 33 compares employment and employment change in 1991 and 1996 in Lanark County, Renfrew County, Eastern Ontario and Ontario. Overall employment in Lanark County grew by 1,720 jobs, or 6.3%, from 27,355 jobs in 1991 to 29,075 jobs in 1996. Renfrew County also experienced growth over the five-year period, increasing by 750, or 1.7% to increase the total number of jobs in the County from 45,340 in 1991 to 46,090 jobs in 1996. Both of these percentage gains in employment are higher than the overall decline in employment demonstrated in both Eastern Ontario (-0.8%) and Ontario (-0.6%).

	Lanark County				Renfrew County			Eastern Ontario				Ontario				
Industrial Sector	1991	1996	Total Change	% Change	1991	1996	Total Change	% Change	1991	1996	Total Change	% Change	1991	1996	Total Change	% Change
Agricultural & Related Serv.	1,220	1,200	-20	-1.6%	1,830	1,810	-20	-1.1%	17,630	16,810	-820	-4.7%	139,880	131,060	-8,820	-6.3%
Fishing & Trapping	15	10	-5	-33.3%	10	0	-10	-100.0%	115	75	-40	-34.8%	1,965	1,915	-50	-2.5%
Logging and Forestry	75	85	10	13.3%	520	590	70	13.5%	1,560	1,295	-265	-17.0%	13,965	11,405	-2,560	-18.3%
Mining, Quarrying, Oil	95	65	-30	-31.6%	155	120	-35	-22.6%	970	655	-315	-32.5%	34,355	26,050	-8,305	-24.2%
Manufacturing	4,420	4,755	335	7.6%	6,085	6,435	350	5.8%	63,920	68,935	5,015	7.9%	942,995	922,565	-20,430	-2.2%
Construction	2,005	2,065	60	3.0%	3,365	2,825	-540	-16.0%	41,770	35,440	-6,330	-15.2%	358,890	290,430	-68,460	-19.1%
Transportation & Storage	1,010	975	-35	-3.5%	1,135	1,315	180	15.9%	20,155	21,545	1,390	6.9%	187,830	198,555	10,725	5.7%
Communication & Other Utility	930	860	-70	-7.5%	1,275	1,225	-50	-3.9%	25,335	20,430	-4,905	-19.4%	188,630	173,040	-15,590	-8.3%
Wholesale Trade	805	1,165	360	44.7%	1,115	1,270	155	13.9%	19,300	23,295	3,995	20.7%	233,915	278,220	44,305	18.9%
Retail Trade	3,770	3,610	-160	-4.2%	6,160	6,030	-130	-2.1%	82,370	79,610	-2,760	-3.4%	700,925	662,815	-38,110	-5.4%
Finance and Insurance	695	570	-125	-18.0%	815	655	-160	-19.6%	20,520	17,400	-3,120	-15.2%	253,135	228,880	-24,255	-9.6%
Real Estate and Insurance	345	455	110	31.9%	425	525	100	23.5%	9,835	12,155	2,320	23.6%	100,090	111,890	11,800	11.8%
Business Service	1,575	1,730	155	9.8%	3,240	3,465	225	6.9%	52,760	59,265	6,505	12.3%	367,200	411,070	43,870	11.9%
Government Service	2,775	2,435	-340	-12.3%	7,040	6,195	-845	-12.0%	128,630	101,650	-26,980	-21.0%	411,450	304,640	-106,810	-26.0%
Educational Service	1,550	1,710	160	10.3%	2,585	2,680	95	3.7%	52,175	52,830	655	1.3%	365,235	369,320	4,085	1.1%
Health and Social Service	3,115	3,250	135	4.3%	4,485	4,635	150	3.3%	64,560	70,380	5,820	9.0%	457,115	513,615	56,500	12.4%
Accommodation, Food & Bev.	1,255	1,825	570	45.4%	2,540	3,210	670	26.4%	40,475	44,305	3,830	9.5%	322,955	350,945	27,990	8.7%
Other Service Industries	1,695	2,305	610	36.0%	2,560	3,095	535	20.9%	42,695	52,930	10,235	24.0%	355,310	414,980	59,670	16.8%
Total All Divisions	27,355	29,075	1,720	6.3%	45,340	46,090	750	1.7%	684,775	679,005	-5,770	-0.8%	5,435,840	5,401,395	-34,445	-0.6%

Table 33.Employment and Employment Change by Standard Industrial Classification Divisions (SIC 1980) for Lanark and Renfrew
Counties, Eastern Ontario, and Ontario, 1991-1996.

Source: Statistics Canada, 1996 Profile of Census Divisions and Subdivisions & 1991 Profile of Census Divisions and Subdivisions - Part B.

Figure 10 illustrates employment and changes in employment for each of the industrial sectors in Lanark County for the years 1991 and 1996.



Figure 10. Employment by Industrial Sector for Lanark County, 1991 & 1996.

As shown in the figure, Manufacturing continues to be the dominant employment industry in Lanark County, growing by 335 jobs, or 7.6%, from 1991 to 1996. This is comparable to the increase of Manufacturing jobs in Eastern Ontario (7.9%) and much higher than the 2.2% decline in Manufacturing experienced at the provincial level. Retail Trade, Lanark County's second largest employer in both 1991 and 1996, fell by 160 jobs, or 4.2% over the period. This is also comparable to declines in Retail Trade jobs in Eastern Ontario (-3.4%) and Ontario (-5.4%).

Health and Social Service industries in Lanark County rose by 135 jobs (4.3%), although this increase was substantially less than the 9.0% increase in Eastern Ontario and the 12.0% increase experienced at the provincial level. Government Services was the fourth largest employer in Lanark County in 1996, although the sector declined by 340 jobs (-12.3%) from 1991. It represents the greatest number of jobs lost of any sector during the 1991 to 1996 period in Lanark County. This decline, however, is much less than the 21.0% and 26.0% declines experienced by the sector in, respectively, Eastern Ontario and Ontario. Other Service industries grew by 610 jobs, or 36.0% between 1991 and 1996. This represented the highest increase in jobs of any sector in the County. The rate of growth in the sector in Lanark County was higher than was experienced at either the Eastern Ontario (24.0%) or provincial level (16.8%). Accommodation, Food and Beverage industries had a growth rate of 45.4% over the period, which represents the highest rate of growth of any of Lanark County's sectors.

Source: Statistics Canada, 1991 & 1996 Profile of Census Divisions and Subdivisions.

The number of jobs in Agriculture and Related Service industries fell by 20 jobs, or 1.6%, over the 1991 to 1996 time period, and was the tenth-largest employer in Lanark County in 1996. In 1996 there were 1,200 jobs in Agriculture and Related Service industries in the County. Although this indicates that on-farm jobs declined over the period, the rate of decline is less than the 4.7% decline in agricultural jobs experienced in Eastern Ontario and substantially less than the 6.3% decline experienced across Ontario as a whole.

Figure 11 illustrates employment and changes in employment for each of the industrial sectors in Renfrew County for the years 1991 and 1996.



Figure 11. Employment by Industrial Sector for Renfrew County, 1991 & 1996.

Source: Statistics Canada, 1991 & 1996 Profile of Census Divisions and Subdivisions.

As in Lanark County, Manufacturing industries were the largest employer in Renfrew County in 1996, having grown by 350 jobs, or 5.8% from 1991. In 1991 Manufacturing was only the third largest employer behind Government Service industries and Retail Trade industries. Even though they are still dominant sectors in the local economy, the two latter sectors have declined by 845 jobs (-12.0%) and 130 jobs (-2.1%), respectively. The decline in Government Service jobs represented the greatest real decline of any of the sectors in Renfrew County. However, the rates of decline in the Government Service and Retail Trade sectors in Renfrew County are still less than those demonstrated in either Eastern Ontario (-21.0% in Government Service industries and -3.4% in Retail Trade) or Ontario (-26.0% in Government Service industries and -5.4% in Retail Trade industries).

Health and Social Service industries was the fourth largest employer in Renfrew County, and grew by 150 jobs (3.3%) between 1991 and 1996. This rate of growth is

less than the 9.0% experienced in Eastern Ontario and the 12.4% experienced at the provincial level. Business Service industries was the fifth largest employer, growing by 225 jobs, or 6.9% over the five-years period. This rate of growth is also lower than that shown in Eastern Ontario (12.3%) and Ontario (11.9%). In terms of growth, Accommodation, Food and Beverage industries had the largest increase in jobs with 670, or 26.4% over the period, which also represents the highest rate of growth of any of Renfrew County's sectors.

Agriculture was the tenth-largest employer in Renfrew County in 1996, falling by 20 jobs, or 1.1% since 1991. In 1996 there were 1,810 jobs in Agriculture and Related Service industries in the County. As is the case in Lanark County, this rate of decline is smaller than that experienced by the sector in either Eastern Ontario (-4.7%) or Ontario (-6.3%), demonstrating that on-farm employment remains a consistent and important source of jobs in the two counties.

3.5 Age of Farm Operators

Table 34 provides detail in the age of farm operators for the 1986 and 1996 periods. More farmers are in the middle-age category (35 - 54 years of age) in 1996 than there were in 1986; almost half of the farmers in each of the four regions are now in this category. This is not to say that the farming population is getting older; the proportion of older farmers has declined at a greater rate than the proportion of young farmers.

	Lanark	County	Renfrew	County	Eastern	Ontario	Ontario		
Age	1986	1996	1986	1996	1986	1996	1986	1996	
Under 35	118	155	196	260	1,401	2,155	11,483	13,835	
	(10.6%)	(10.4%)	(12.7%)	(12.5%)	(12.6%)	(14.1%)	(15.8%)	(14.3%)	
35 - 54	509	740	703	1,005	5,377	7,725	33,929	49,000	
	(45.8%)	(49.5%)	(45.4%)	(48.2%)	(48.3%)	(50.7%)	(46.7%)	(50.5%)	
55 +	485	600	650	820	4,358	5,355	27,301	34,105	
	(43.6%)	(40.1%)	(42.0%)	(39.3%)	(39.1%)	(35.1%)	(37.5%)	(35.2%)	
Total	1,112	1,495	1,549	2,085	11,136	15,235	72,713	96,940	

Table 34.Age of Farm Operators in Lanark County, Renfrew County, Eastern Ontario and
Ontario, 1986 & 1996.

Source: Census of Canada, Agricultural Profile of Ontario, 1986 & 1996.

In 1996, the average age of farm operators in Lanark County was 52. In Renfrew County it was 51. These average ages were slightly higher than the average ages in Eastern Ontario (50) and Ontario (49).

4.0 Lanark and Renfrew Primary Producers Focus Groups

Focus groups were conducted with primary producers in Lanark and Renfrew Counties on October 4th and 5th. A total of ten farmers from seven different municipalities in Renfrew County and thirteen farmers from eight different municipalities in Lanark County came together to provide the study team with their thoughts on trends, issues and challenges facing agriculture. The farmers represented a broad range of production sectors including dairy, beef, egg, sheep, hog, field and horticultural crops, and maple syrup. The following section provides the results from these focus groups, organized according to three primary subject areas:

- trends in farm sizes in Lanark and Renfrew;
- agri-related labour force in Lanark and Renfrew; and
- linkages with the local business community.

4.1 Trends in Farm Sizes in Lanark and Renfrew

Farmers in Lanark and Renfrew typically view acreage as an indicator of farm size. With the Lanark group, farm sizes ranged from 70 acres to 1,500 acres while farm sizes in the Renfrew group ranged from 82 acres to 680 acres (includes owned & rented land). Farmers also associate the number of livestock units in any operation as an indicator of farm size. While a few of the operators considered their farm operation to be large, they noted that the size of operations in central and southern Ontario were more substantial.

While it is generally accepted that farms in the area will continue to increase in size (acreage and herd/flock size), farmers do not expect intensive farming issues to emerge as a problem in the area, at least not in the near future. Indeed, few of the operators expect farms in Lanark and Renfrew to approach the intensive profile associated with certain farming enterprises in central and western Ontario. There was a strong sense among many farmers that small to medium scale farms would remain on the landscape (farms with under 100 head of cattle). For some of the farmers, the 'preservation' of family operated farms is closely linked to the maintenance of production quotas such as those found in the dairy and egg sectors. It was suggested that the elimination of the quota system would drive the industry into the hands of large corporate interests such as feed companies and other farm supply companies.

From an acreage standpoint, it was noted that there are very few 'large blocks' of farmland in the region. It was suggested that the limited availability of large farm blocks would make it difficult to implement the type of a nutrient management plan required by an intensive type operation. The large number of towns in the area was also cited as a potential problem for the development of intensive farming in the area.

Safety was also mentioned as a factor that might intervene in the development of intensive operations in the area. It was suggested that the family farm represents a

'safer' means of farming in contrast to 'corporate' intensive operations. With a more personal stake in the farm operation, it was felt that the family based farm would devote greater attention to critical farm practices such nutrient management and the application of chemicals.

Several farmers indicated that they are aware of municipalities in the province that have adopted guidelines to regulate livestock numbers and associated farm practices. Farmers would like municipalities to be clearer in their description of what is meant by 'normal' farm practices. Farmers are also aware that the provincial government is looking into the matter of regulating livestock units. The farmers feel that if province wide regulations are to be brought in with respect to setting limits on livestock numbers, the formula should somehow take into consideration the variation in farming conditions that exist across the province.

Attitudes toward intensive farming varied among the farm operators. Some farmers felt that intensive farming was acceptable as long as sound nutrient management practices were adhered to. Other farmers felt that the were too many potential 'pitfalls' associated with pursuing intensive farming. There is concern that intensive livestock production practices will draw complaints from non-farm interests living in the area and that ultimately, additional regulations will be added to the weight of existing regulations making the cost of farming for small scale farmers increasingly prohibitive. As well, there was a suggestion that intensive farming with its large capital costs would make it more difficult for future generations to shoulder the costs of taking over the farm.

Many of the problems associated with farm production are seen to stem from low commodity prices and farmers in Lanark and Renfrew feel that the industry is being driven to adopt intensive practices in order to gain benefits associated with economies of scale. This they say, is the deeper problem facing the industry that needs to be addressed.

4.2 Ag-related Labour Force in Lanark and Renfrew

Farm labour needs are being met through a variety of sources. The bulk of farm work is often conducted by the owners/operators themselves and their families. Indeed, farmers in Lanark and Renfrew indicated that support from family members in the form of labour is crucial. Students are also relied on to a great extent in some operations depending on the level of skills required. Students are usually hired in a seasonal or part time capacity. Retired farmers are also employed in a seasonal capacity. A significant advantage of hiring retired farmers is the experience and farm-ready skills they bring to the job. Farmers noted that retired farm hands/operators possess the right work attitude and are very reliable.

Farmers noted that more specialized skills are being required by certain agricultural sectors such as hog and dairy production where small errors in the work

place can have serious ramifications. This is making the task of hiring qualified workers more difficult. Farm experience is a key element sought in any employee and workers are expected to bring their experience and skills to the job.

Farmers commented on the lack of interest shown by local youth in pursuing a career in agriculture. This trend comes as no surprise to farmers given the high entry costs and minimal returns associated with farming. Still, several farmers reported having positive experiences with hired youth in their operations. A common observation made by farmers is that many youth simply view the farm job as a temporary position... "a job for the time-being... until the economy picks up and something else comes along." This makes family support on the farm all the more critical.

Farmers believe the school co-op programs are a good idea but the program needs to be refined to address accessibility issues. Most students lack a drivers permit or do not have access to a vehicle to get to the farm and farmers often do not have the time to pick-up and drop-off students. 'Agri-crews' were also identified as a good idea but farmers asserted the program can only work if it has the support of government to help subsidize wages. Without the support of government, farmers suggest that it is very difficult to attract and maintain workers when other sectors of the economy are offering more attractive wages and benefits. Again, the issue of farmers generating insufficient returns on their commodities was identified as a core problem that contributes to the challenge faced by farmers in securing adequate labour.

With respect to training opportunities, some farmers feel there is value in certain courses offered through the Ontario Agricultural Training Institute (OATI) such as the commodity courses. However, many farmers feel that the courses are not well attended and this is seen as undermining the learning experience. Interaction with other farmers is often viewed as an important means of acquiring new information. Further criticism was leveled at OATI for being a top-down "Toronto' organization that is out of touch with the needs and interests of farmers.

The 4-H program is considered to be an important learning vehicle for youth. Farmers suggested that Lanark County continues to feature a diversity of 4-H clubs. Farmers associate long term career benefits with the leadership skills that are promoted through 4-H. However, farmers feel that the 'rural community' is losing its 'gifted' people that possess leadership skills. There is concern that a shortage of next generation rural leaders will result in the further erosion of farm rights.

4.3 Linkages with the Local Business Community

Farmers deal with a number of different business types. These include a variety of 'traditional' farm-related businesses (livestock feed, seed, and chemical companies, equipment dealers, cartage businesses, fuel and lubricant dealers, custom farm contractors, and drainage contractors), as well as professional services (banks, accountants, and lawyers) and other business types that cater to the wider public

(retailers and general contractors).

Farmers identified a number of communities where they purchase goods and services for their farm operation. Some of the more common places identified by Lanark County farmers include Perth, Carleton Place, Arnprior, Almonte, Smith Falls, Rideau Ferry, Pakenham and Ashton. Communities identified most often by farmers in Renfrew County include Renfrew, Arnprior, Cobden and Pembroke.

Farmers in the Lanark group indicated that their farm operations are currently being well served by the businesses in the area. One exception however, is a perceived shortage of skilled carpenters in the region. Farmers also noted that welders that start their trade in the area are often lured away by better pay in other industrial sectors.

Farmers from Lanark County feel that farm supply businesses will continue to serve the needs of smaller producers. It was suggested that the growth of 'horse farming' in the area was creating greater demand for bagged feed and providing a further incentive for feed mills to maintain a line of products that cater to smaller producers in the area.

Some changes were observed in the way agri-related businesses are responding to changes on the rural landscape. Farmers noted that vet clinics are expanding their market area in response to declining farm numbers in the region. Farmers also noted that operators in the area are becoming more active in going outside the region to search across central and western Ontario for better deals on major purchases such as farm implements. With respect to future agri-business opportunities, representatives from the dairy sector indicated that significant capital upgrades will be required by many dairy operations in the area if they intend to expand their herd size.

From the stand point of marketing commodities, concern was expressed about the level of consolidation occurring in the processing industry. Farmers suggested that small scale livestock farms may be forced to upgrade their production facilities to accommodate the standards being set by processors. Farmers feel the costs of these upgrades, if placed solely on the shoulders of the farmer, may drive some small scale producers out of the industry.

Farmers acknowledged that they have become more reliant on seeking out professional advise from agents in the private sector. Typically these agents are in the employment of agri-related businesses, acting as the 'in-house specialist'. In many instances, the services offered by these agents are part of a service/product package being purchased by the farmer. Veterinarians and feed suppliers for example commonly offer herd health and nutrition information. While ongoing cuts to OMAFRA services were seen as contributing to this development, several farmers from Lanark County noted that the movement toward alternative services has been underway for a number of years. However, many farmers were critical of OMAFRA for implementing changes so quickly without offering a "bridge" or transition period that would have allowed farmers to identify or become more familiar with the range of private sector services that are available.

In Renfrew County, farmers also suggested that their business needs are being adequately addressed and they shared a similar concern with Lanark County operators regarding the consolidation of companies and the threat that poses to the small producer. Farmers in this region were also somewhat critical of the recent changes at OMAFRA and believe that the ministry needs to do a better job of informing farmers about where information and alternative services can be located in the private sector.

Farmers in the Renfrew group noted that were some gaps in the availability of certain goods and services. There was some difference in opinion between farmers on whether the region had a sufficient number of large animal vets. A local beekeeper identified a problem with sourcing government approved containers for selling honey. Recently a Canadian jar manufacturer that produced jars consistent with Canadian standards was bought out by a U.S. based company and production was moved to the U.S. The loss of the local jar manufacturer created two problems for honey producers. The U.S. based company is no longer manufacturing jars that meet Canadian measurement standards and Canadian manufactured lids with metric threads are not compatible with the U.S. jars featuring imperial threads.

The damage caused to hay crops this year on account of the wet weather caused several farmers to reflect on the events surrounding the closure of a local dehydration plant. It was noted that at the time of the plant closure the plant was running at full capacity employing upwards of 30 seasonal workers. Farmers associate the closure of the plant with complaints from residents of a nearby trailer park. The complaints focused on the unpleasant odors that were being produced through the drying process. Farmers suggested that had the plant been maintained, a higher quality of product would have made it to market this year. What emerged from the discussion surrounding the loss of this one business was the recognition that decision makers and planners must take greater account of the impacts that official plans and policies have on industries that support agriculture.

4.4 Other Trends and Challenges

Farmers believe that rural youth will continue to leave farming for career opportunities in other industries. Farmers feel that the problem can be partly addressed by reducing barriers to entry such as high start up costs. For the dairy industry it was suggested that a certain amount of milk quota be reserved for young farmers to help them establish the farm. However, the problem of depressed commodity prices seems to be the bigger issue as it provides little incentive for anyone currently involved in farming or thinking about entering farming.

A number of different market opportunities were identified by farmers in Lanark and Renfrew. In the beekeeping industry beekeepers are expanding their business by providing pollenation services for farmers to enhance yields for certain crops. It was noted that 'entry' opportunities still exist for small scale producers in the beekeeping industry as it is a relatively affordable sector to enter and an operator can grow to a size that suits their personal level of time commitment from 5 to 500 colonies.

Maple syrup production is a 'signature' crop in Lanark County and producers feel that the industry will have to continually enhance the existing high quality standards and production techniques to remain competitive with Quebec.

Farmers also pointed out the emerging opportunities surrounding growing consumer interest in chemical free food goods. Farmers voiced a strong commitment to maintaining high quality standards in Ontario but feel their efforts to produce these products are not being adequately compensated. Farmers believe that consumers and politicians need to be 'educated' about the quality of local produce and what is potentially at stake if local producers are lost. Farmers see the government support being offered to farmers in the United States and in Quebec and question why the same level of recognition and support is not offered here.

5.0 Review of Agriculture Related Planning Policy in Lanark and Renfrew Counties

5.1 Introduction

This section reviews the policies in place within the counties of Lanark and Renfrew that relate to farm ownership and operation. It is drawn from the Official Plans of fifteen townships within these counties. As many of the townships are in the midst of restructuring and/or revamping their official plans, this review will cover only those plans that were available at time of writing. The objective is to explain in brief terms how the townships in Lanark and Renfrew intend land zoned for agriculture to be used.

The review will provide a brief background on the context within which the townships of Lanark and Renfrew counties formulated their official plans and addressed agriculture and related issues therein. Policies related to agriculture will then be enumerated under three categories: (i) those that stipulate the types of farming permitted within lands zoned for agricultural use; (ii) the restrictions placed upon the severance of lots within agricultural land; and (iii) the other permitted uses or enterprises allowable on farm lots. A brief conclusion will follow.

5.2 Background

The official plans of townships from Lanark and Renfrew sampled in this section of the report were all approved during the past ten years. The earliest plans were approved in 1991 and the most recent plans were approved in early 2000.

One thing that is near universal to all of the official plans reviewed is that each cites a decline in the agricultural sector of the local economy, most citing the 1986 agricultural census. For example, the official plan of the Township of Admaston, of Renfrew County, notes: "[a]griculture continues to be the primary land use in the township. However, agriculture's dominance of the land base has been affected by decrease in the economics of farming and increase in rural residential development" (Township of Admaston Official Plan, Section 2.1, pp.7). This quote, with particular reference to the later half, summarizes the generally-held sentiment that the apparently waning agricultural industry places agricultural lands at risk of being lost to residential development. This also places agriculturally tenable lands at a premium. This is the context within which the official plans in Lanark and Renfrew counties were formulated.

5.3 Types of Farming Permitted

Of the fifteen townships included in this review, thirteen have significant areas of land zoned for agricultural uses. Of these, six impose no restrictions upon the type of farming permitted on their lands (see Tables 35 and 36). In all of these cases, "agricultural uses" are defined as the growing of crops, the raising of livestock and/or
fish, maintaining nurseries, market gardens, kennels and apiaries, engaging in forestry, or growing sod.

In light of the flexibility of this policy, protection of agricultural lands against any wrongful or inappropriate usage is ensured given that all the townships' official plans dictate that farming be carried out in accordance with the *Agricultural Code of Practice*. This code is meant to ensure the optimal uses of agricultural lands by stipulating what soil properties are conducive to any particular type of farming. The *Agricultural Code of Practice also* sets out the appropriate behaviour for operating a farm. It further lays out minimum distance separation provisions by which all farm owners and operators must abide. These provisions are in place to ensure that farms are laid out to accommodate proper drainage facilities, mineral waste management, and other essential amenities. The official plans explicitly state that development must comply with such provisions.

The official plans of another five townships (i.e. Alice & Fraser, Ross, Pembroke, Stafford, and Admaston) further stipulate that agricultural lands are to be used for the production of food or fibre. This is one of the first instances where the definitions of the terms used within the official plans may be considered under-defined. For the purposes of this review, the terms "food" and "fibre" were interpreted as referring to the raising of crops, livestock and fish. Market gardens were also taken into consideration as another possible interpretation of the terms "food" and "fibre."

5.4 **Restrictions on the Severance of Agricultural Lots**

In general it can be understood that the severance of agricultural lots is frowned upon. This is another means by which townships protect their agricultural lands, as any severance is seen as a possible detraction from the capacity of the land to support agriculture. Maintaining the size of the lots is important and seen as integral to its ability to support fertile and economically viable farms.

To this end, all of the official plans that have agricultural lands within their borders encourage retiring farmers to use life-long leases as a means of staying in their homes. Only upon the sale of the farm will the township consider creating a second lot to accommodate the retiring farmer's dwelling.

Within the majority of the townships, additional dwellings for the purpose of housing the farmer's children and/or full-time employees of the farm are permitted on the farm lot. These dwellings may take the form of permanent structures (houses) as well as mobile homes or trailers. In only a few cases do the official plans allow for the creation of a separate lot for these dwellings (see Tables 35 and 36). These include plans for Willberforce, Alice & Fraser, Ross, Pembroke and Stafford Townships in Renfrew County.

In general, official plans do not clearly present the appropriate channels and conditions that the farm owner must meet to sever their farm lot.

5.5 Other Permitted Uses

The official plans attempt to stipulate what uses, aside from farming, are permitted on land zoned for agricultural purposes. Categories of other permitted uses are also presented, as information pertaining to more specific use was not clear in most official plans.

Within Beckwith, Drummond & North Elmsley, Lanark Highlands, McNab, and Westmeath Townships, farm owners are permitted to engage in "Home Occupations" or "Home Industries." These terms are left generally undefined. The official plan of the Township of McNab explains that "uses that are secondary and incidental to the farm operation and uses that produce value-added products from the farm" (Township of McNab Official Plan, Section 7.0, pp.22) are permitted as non-farming uses of agricultural lands.

Ten of thirteen official plans permit "commercial" and "industrial" uses on agricultural lands (see Tables 35 and 36). Only commercial and industrial uses that require close proximity to agricultural operations are permitted. However, the terms "commercial" and "industrial" are left undefined.

5.6 Conclusion

In conclusion, a number of the official plans reviewed, six of thirteen townships that have agricultural lands within their borders, impose no restrictions on the types of farming permitted. The official plans generally frown on the severance of farm lots, although they make allowances for the severance of farm lots in cases where a retiring farmer is selling his or her farm and does not wish to relocate his or her residence. Allowances are also made to sever lots with existing dwellings that are surplus to the farm operation. In general the official plans restrict other permitted uses on agricultural lands to commercial and industrial uses that require their being in close proximity to farm operations.

The Official Plans reviewed lack clarity in the definition of terms. For example, terms such as "home occupations", "home industries", "commercial uses related to agriculture", and "industrial uses related to agriculture" appear in the text without further explanation.

Municipalities Uses	Beckwith	Bathurst, Burgess & Sherbrooke	Drummond & North Elmsley	Lanark Highlands	Carleton Place	Perth			
Farm Lands Present in County	Yes	Yes	Yes	Very little; approx. less than 10%	No	No			
Types of Farming Permitted									
Crops	\checkmark	\checkmark	\checkmark	\checkmark		•			
Livestock	\checkmark	\checkmark	\checkmark	\checkmark		•			
Fish	\checkmark	\checkmark	\checkmark	\checkmark		•			
Nurseries	√	\checkmark	\checkmark	\checkmark					
Market gardens	√	\checkmark	\checkmark	\checkmark					
Kennels	√	\checkmark		\checkmark					
Apiaries	√	\checkmark		V					
Forestry	√	\checkmark	\checkmark	V					
Sod	√	\checkmark		V					
Acceptable Conditions for Severance	e	•	•	•	•	•			
For retirement									
For retirement upon sale of farm	\checkmark	\checkmark							
For child	*								
For workers	*	*							
For existing surplus dwelling	\checkmark	\checkmark							
Other Permitted Uses	•	•	•	•	•	•			
Home occupations	√			\checkmark					
Home industries	V		\checkmark	V					
Commercial	√ **	\checkmark		V					
Industrial	√**	\checkmark		√					
Gate sales			\checkmark	√					
Agri-tourism				\checkmark					

Permitted Usages for Lanark County's Agricultural Lands.

Table 35.

Legend: $\sqrt{4}$ = Permitted. * = Dwelling is permitted without severance. ** = Severance for specified use may be permitted ? = unclear

Table 36. Permitted Usages for Renfrew Count	nty's Agricultural Lands.
--	---------------------------

Municipalities Uses	McNab	West- meath	Wilberforce	Alice & Fraser	Ross	Pembroke	Stafford	Admaston	Rolph, Buchanan, Wylie & McKay
Farm Lands Present in County	Yes	Yes, 67.6%	Yes	Yes	Yes	Yes	Yes, 75%	Yes	Non-intensive farming is permitted on all lands. Few allowances are made for intensive farming.
Types of Farming Permitted									From Official Plan section 4.2: Any
Crops	\checkmark	\checkmark	\checkmark	\checkmark	√	\checkmark	√	\checkmark	used for non-intensive agricultural
Livestock	√	√	√	√	√	√	√	\checkmark	purposes. However, intensive uses such as the raising or keeping of
Fish	\checkmark	\checkmark	\checkmark	\checkmark	√	\checkmark	√	\checkmark	livestock or other uses which may create a nuisance for neighboring
Nurseries	\checkmark	\checkmark	\checkmark						lands by virtue of noise, dust, odors,
Market gardens	\checkmark	\checkmark	\checkmark	?	?	?	?	?	be allowed on large lots capable of
Kennels	√	\checkmark	V						without adversely affecting
Apiaries	√	\checkmark	\checkmark						neighboring lands. All uses shall comply with the Agriculture Code of
Forestry	V	\checkmark	V	V	\checkmark	\checkmark	√	V	Practice.
Sod	V	\checkmark	V						
Acceptable Conditions for Severa	ance								
For retirement			?						
For retirement upon sale of farm	V	\checkmark	V	V	V	V	√	V	
For child	*	*	V	V	\checkmark	\checkmark	√		
For workers	*	*	V	V	V		*		
For existing surplus dwelling			V	V	V	V	√	V	
Other Permitted Uses									
Home occupations	V	\checkmark							
Home industries	V	\checkmark							
Commercial	V	\checkmark		V	√ **	√ **	√	V	
Industrial	√	√		√	√ **	√ **	√	√	
Gate sales	V	\checkmark							
Agri-tourism	?								

Legend: $\sqrt{4}$ = Permitted. * = Dwelling is permitted without severance.

6.0 Economic Impact Analysis: An Overview

Economic impact analysis studies are aimed at identifying "...changes in a local economy resulting from a stimulus (positive or negative) to a particular segment of the economy' (Davis, 1990, p.5). These studies are often based on one of several standard methodologies of regional analysis: economic base analysis and input-output analysis (Faas, 1980, p.4). Economic impact is generally a measure of the impact of a sector or a project on all sectors of the economy. In this study, total economic impact refers to the sum of direct, indirect, and induced impacts. Direct impacts in terms of employment and sales were measured in earlier sections of the report. The indirect and induced impacts of agriculture will be examined in the following sections of the report.

6.1 Input-Output Analysis

Input-Output (I-O) analysis is used to measure the inter-relationships between economic activities at the sectoral, national and regional levels. Linkages are expressed by estimating the sales (outputs) from a given sector to all other sectors in the economy, and by estimating the inputs from all other sectors to a specific sector. What makes the I-O model so useful is the comprehensiveness of the model which disaggregates the economy into individual sectors (Josling, 1966, p.5). Disaggregation permits analysis at the sectoral level, providing researchers with a close-up view of the economy. This analysis allows the researcher to assess where each sector purchases its inputs and sells its outputs. Such analysis is invaluable in identifying what investment will provide the greatest impact on an economy (Poole et al., 1994, p.30).

The I-O model estimates the movement of expenditures through the economy. This is traced through four different levels of expenditure: intermediate and primary suppliers, and intermediate and primary purchasers (Bendavid-Val, 1991, p.88). Suppliers - intermediate and primary - purchase inputs for processing into outputs. Purchasers - intermediate and primary - buy outputs from suppliers and either use them to manufacture a product, or sell them as a final product (Bendavid-Val, 1991, p.88).

Input-Output analysis has two main approaches. One allows the estimation of only the direct and indirect effects of a sector. The other estimates these, as well as the induced effects of a sector. The 'open' model is used to trace the flow of variables between sectors of the economy (i.e. direct and indirect expenditures). The open model does not measure induced spending in the economy; meaning expenditures by employees on food, services and other household expenses (Davis, 1990, p.59). The 'closed' model is used to measure all aspects of the economy; including the direct, indirect and induced effects. Treating the household sector as a producer that sells labour to other purchasing sectors, assesses induced effects (Davis, 1990, p.59).

There are several problems associated with the I-O model. The first is that it is time-specific. In other words, it takes a snapshot of the economy at a point in time. This model cannot account for changes in product demand or input costs, or for the introduction of new technology into the industrial sector (Davis, 1990, p.62). Thus, the I-O model does not adjust for the changing nature of the economy. A second problem of the I-O model is the cost and time needed for the construction of the tables associated with this analysis. Thirdly, input-output analysis requires accurate estimates of movements across borders. This data is typically only available at the provincial or national level. For this reason, the analysis for this study has been carried out using a survey based "input-output-like" approach.

6.2 Economic Base Approach

Economic base theory maintains that economic growth is only possible if the economy's exports grow (Bradfield, 1988, p.38). The theory is based on the belief that as exporting industries expand their sales, there will be an increasing demand for inputs locally which will consequently drive local economic growth (Bradfield , 1988, p.39). In economic base theory, the economy is classified into two sectors of basic and non-basic. The non-basic sector is economic activity with the final sales remaining inside the region (Davis, 1990, p.10). These are support industries that provide everything from industrial inputs to houses for basic sector employees (Higgins and Savoie, 1995, p.66). The exporting industries are identified as basic sectors while all other industries are classified as non-basic.

According to economic base theory, exports are the engine of the local economy. It follows then, that the export of goods supports all other aspects of the economy (Bendavid-Val, 1991, p.77). Export base theory and its supporters carry the separation of basic and non-basic sectors to the point where they attempt to predict the relative impact of the basic sector on the non-basic sector. The prediction of economic impact is assessed through two economic indicators known as the economic base ratio and economic base multiplier. Economic base theory has been refined to the point where it can be questioned: "[W]hat is the overall gain in employment or income in the region associated with each gain in export sales?" (Bendavid-Val, 1991, p.78).

The question is answered through the economic base ratio indicator and the base multiplier indicator (Bendavid-Val, 1991, p.78). The economic base ratio calculates jobs that are theoretically created from one additional job in the basic sector. The economic base ratio is the ratio between employment in the basic and non-basic sectors and is supported by the idea that the combination of basic employment and non-basic employment equals total employment (Bendavid-Val, 191, p.78). The economic base multiplier is the ratio of total employment to basic employment and indicates how many jobs in total are provided for each basic job. Thus, the economic base multiplier is the total sum of the jobs created in both sectors from one job in the basic sector (Bendavid-Val, 1991, p.78). The economic base method is used in this study to estimate jobs in the service sector related to agriculture.

6.3 Multipliers

Given the previous discussion of the input-output analysis and economic base analysis, the reader may question where the application of the two models leads. One of the best uses is that they allow the analyst to identify the impacts of economic changes or shocks to a system. Essentially, these models measure the multiplier effects that result from a change in an economic system. In short, multiplier effects are the summation of the direct, indirect and induced impacts of economic activity presented in a single number (Lewis et al., 1979, p.1). Therefore, an economic multiplier can be used to estimate the impact of change in one variable (for example, the value of agriculture production) on another variable (for example, the value of nonagriculture production). Direct employment and production in the agriculture sector will affect the rest of the economy by supporting employment in related industries as well as in the retail sector. In this way, "... a multiplication of transactions occurs in the economy by people re-spending money" Van Hoeve, 1995, p.66). The multipliers calculated for this research include a sales expenditure multiplier and an employment multiplier.

7.0 Lanark and Renfrew Study Methodology

The economic impact of agriculture in Lanark and Renfrew was measured through an accounting of the total sales and employment of agriculture and agriculture related businesses in the study area. This work involved a review of the secondary data from Statistics Canada's 1996 Population Census of Canada and 1996 Agriculture Census to estimate the direct economic impacts of agriculture on the economy of the study area. A survey-based 'input-output-like' approach was used to measure the indirect impacts. The survey was aimed at businesses that sell products to, or buy products from, the farmer. The induced economic and employment impacts of the agriculture sector were also studied using primary data derived from the Statistics Canada census data.

7.1 Direct Impact Methodology

Data were taken from the 1996 Population Census of Canada and the 1996 Agriculture Census and yielded information on the economy of the study area and the individual townships that make up Lanark and Renfrew Counties. Where appropriate, data from earlier censuses were incorporated to examine long-term trends in employment and sales in the counties. For the purposes of this study, 'direct impacts' are the jobs and sales generated 'on the farm': the farm gate sales and farm jobs.

7.2 Indirect Impact Methodology

For the purposes of this study, indirect impacts are jobs and sales generated 'off the farm' by businesses which interact with farm operations through buying and selling products and services. It should be noted that 'related to agriculture' includes only those businesses that buy from or sell to the farm business or agri-related business; sales to farm families for personal consumption are excluded from the indirect impact, but are included later in the analysis under 'induced impacts'.

The research method used to measure the indirect impacts was a survey-based 'input-output' approach. This was completed through a telephone survey conducted from early September to mid October 2000. The method and survey format was originally developed for use in a similar economic impact study conducted in Huron County in 1996 (Cummings, Morris and McLennan, 1998). Minor revisions were made to the methodology through successive agri-impact studies completed in Prescott, Russell, Stormont, Dundas and Glengarry Counties in eastern Ontario in 1998 (Cummings and Deschamps, 1999), Simcoe County in 1999 (Cummings and Associates, 2000), and Perth County in 1999 (Cummings and Associates, 2000). The method was designed to identify the value of gross sales and the jobs produced by a sample of businesses related to agriculture. From this sample, an estimate was produced for the total population of agri-related businesses in the study area. This in turn provided an estimate of the economic impact of these agri-related businesses in the study area

through indirect employment and sales.

7.2.1 Development of the Business Inventory and Survey Sample

The survey was based on a random sample of local agri-related businesses. A list of agri-related businesses was developed by collecting lists from a number of sources in the area: representatives with local Federation of Agriculture affiliates, Municipal Offices, Chambers of Commerce, Economic Development Offices, and the Yellow Pages.

The original list of businesses for the counties of Lanark and Renfrew was pared down to 786 (Lanark = 220; Renfrew = 566) by eliminating businesses that were either out of business, double listed, located outside the study area or were not likely 'related to agriculture' (health centres, public schools, cemeteries, childcare centres, police services, hair salons, etc.).

In order to attain a 95% confidence level for the 786 businesses in the inventory, a sample size of 258 was selected at random from the adjusted inventory. As 91 of the first 244 contacts did not have business ties to agriculture, it was determined that (37%) of the businesses in the adjusted inventory had no connections to agriculture. The inventory was adjusted accordingly to reach a final estimate of 496 total agri-related businesses in the study area, with a sample size of 216 required for a 95% confidence level.

In total, 230 businesses were surveyed, 229 businesses provided employment data while 222 provided sales data. Of the 230 businesses that participated in the survey, 57 were located in Lanark County and 173 were located in Renfrew County.

During the course of the telephone survey, respondents were asked to provide information regarding the total value of sales and employment figures for their business. They were also asked to estimate the percentage of sales related to the agriculture sector.

7.2.2 Total Gross Sales for the Businesses Surveyed

Total gross sales for the businesses surveyed include sales related and unrelated to the agriculture sector. The sample includes agri-related businesses that sell to and buy products from agriculture, but they may also sell to, and buy from other sectors of the economy. For the 222 businesses surveyed, a total of \$286,291,000 in gross sales were reported.

7.2.3 Agriculture-related Sales for the Businesses Surveyed

As part of the telephone survey, respondents were asked to estimate the percentage of their sales that were related to agriculture, either by providing products

and/or services to farm businesses, or by purchasing products of agricultural origin. The survey determined that \$63,787,000 or 22.3% of total gross sales from the businesses surveyed, were related to agriculture. Table 37 illustrates the agri-related sales for Lanark and Renfrew as well as the study area as a whole.

County and Study Area	# of Businesses Surveyed	Agri-related Sales	Sales Unrelated to Agriculture	Total Sales for Businesses Surveyed
Lanark	54	\$16,122,000	\$74,668,000	\$90,790,000
Renfrew	168	\$47,665,000	\$147,836,000	\$195,501,000
Study Area	222	\$63,787,000	\$222,504,000	\$286,291,000

 Table 37.
 Agriculture and Non Agri-related Sales for Businesses Surveyed.

Source: 2000 Ag-business Survey.

The businesses were asked to estimate the percentage of agriculture sales made within the study area, within Ontario (excluding Lanark and Renfrew), within Canada (excluding Ontario) and outside of Canada. As shown in Table 38, the value of agri-related 'exports' beyond the borders of the study area represent approximately 13.8% of the total agri-related sales for the surveyed businesses. Almost ten percent of all 'export' sales are with other regions of Ontario while sales to other provinces of Canada account for 3.8% of all export sales. A very small percentage of sales, less than 1%, is directed at markets outside Canada.

Table 38. Total Agriculture Sales and Location o	of Sales for the Businesses Surveyed.
--	---------------------------------------

Sales for Surveyed Agri-related Businesses (n = 222)	Agri-related Sales	Percentage
Sales in the Study Area	\$55,011,000	86.2
Sales in Other Ontario Counties	\$6,309,000	9.9
Sales inside Canada (excluding Ontario)	\$2,448,000	3.8
Sales outside Canada	\$19,000	0.03
Total	\$63,787,000	100

Source: 2000 Ag-business Survey.

7.2.4 Total Gross Sales for Study Areas' Agri-related Businesses

From the sample, we can estimate the total gross sales of all agri-related businesses in the study area. This includes sales both related and unrelated to agriculture. We have already established that there are approximately 496 agri-related businesses in the study area; a total of 222 of these provided sales data. This represents 44.7% of the total number of agri-related businesses (222/496 X 100). By dividing the total estimated number of businesses (496) by the total number of

businesses surveyed (222), a sampling multiplier of 2.23 can be used to calculate the total gross sales for all agri-related businesses in the study area. Thus, the estimate of total gross sales for all agri-related businesses in the study area is 638,428,900. Sampling multipliers have also been calculated for Lanark (140 agri-related businesses in the revised business list / 54 with sales data = 2.59) and Renfrew (356 agri-related businesses in the revised business list / 168 with sales data = 2.12). Table 39 shows the estimated total gross sales for all agri-related businesses in Lanark and Renfrew and the study area as a whole.

County and Study Area	Total Sales for Businesses Surveyed	Sampling Multiplier	Total Estimated Sales for all Agri-Related Businesses		
Lanark	\$90,790,000	2.59	\$235,146,100		
Renfrew	\$195,501,000	2.12	\$414,462,120		
Study Area	\$286,291,000	2.23	\$638,428,900		

 Table 39.
 Estimated Total Gross Sales for all Agri-related Businesses in the Study Area Using Sale Multipliers.

Source: 2000 Ag-business Survey.

It should be noted that sales data from financial institutions, such as banks and credit unions, were collected somewhat differently. Typically, these sales would be based on profits generated from loans and services provided to farm businesses. However, this information is difficult to obtain. A conservative estimate is that revenue from farm businesses would at least cover the salaries of employees providing services to farmers. Therefore, for the purposes of this study, 'sales' by financial institutions were based on the number of employees at the institution multiplied by an average salary of \$35,000, a conservative estimate.

7.2.5 Agri-related Sales for all Agri-related Businesses in the Study Area

Total agri-related sales for the study area can be derived by using estimates of the agri-related sales generated by the businesses surveyed. Using the same multipliers as presented in Table 39, estimates can be made for the agri-related sales of all agri-related businesses in both counties as well as the study area as a whole. Table 40 shows these estimates, which were derived by applying the relevant sampling multipliers to the agri-related sales of the 222 businesses which provided sales data. In total, agri-related businesses located in the study area generated an estimated \$142.2 million in agri-related sales.

County and Study Area	Total Agri-related Sales for Businesses Surveyed	Sampling Multiplier	Total Estimated Agri- related Sales for all Agri- related Businesses		
Lanark	\$16,122,000	2.59	\$41,755,980		
Renfrew	\$47,665,000	2.12	\$101,049,800		
Study Area	\$63,787,000	2.23	\$142,245,010		

Table 40.Estimated Agri-related Sales for all Agri-related Businesses in the Study Area Using
Sale Multipliers.

Source: 2000 Ag-business Survey.

7.2.6 Location of Total Agri-related Sales for all Agri-related Businesses in the Study Area

Using the study area multiplier of 2.23, we can provide an estimate of the total agri-related sales by location of the sale for all agri-related businesses. Accordingly, \$122.6 million in total agri-related sales were generated within the study area. The total agri-related sales generated outside the study area, but remaining within Ontario amounted to \$14 million. The total agri-related sales generated outside of Ontario but within Canada, amounted to \$5.4 million. Total agri-related sales outside Canada were estimated at just under \$45,000 (Table 41).

Table 41.Total Value of Agriculture Sales and Location of Sales for all Agri-related
Businesses in the Study Area.

Sales for All Agri-related Businesses in the Study Area	Agri-related Sales of Survey Sample	Sampling Multiplier	Agri-related Sales for all Study Area Agri- related Businesses
Sales in the Study Area	\$55,011,000	2.23	\$122,674,530
Sales in Other Ontario Counties	\$6,309,000	2.23	\$14,069,070
Sales inside Canada (excl. Ont.)	\$2,448,000	2.23	\$5,459,040
Sales outside Canada	\$19,000	2.23	\$42,370
Total	\$63,787,000		\$142,245,010

Source: 2000 Ag-business Survey.

7.2.7 Number of Full-time Equivalent Employees Working at the Businesses Surveyed

The study separated employees of the agri-related businesses into two categories. The first category being that portion of the workforce that was active in providing goods and/or services for the agriculture sector and the second being the portion that was not active in serving the agriculture sector. For example, a veterinary clinic may have four veterinarians specializing in large animals (agri-related employees)

and two veterinarians specializing in small 'companion' animals (unrelated to the agriculture sector). Data was collected on the total number of full-time, part-time and seasonal employees and hours of work at the agri-related business. These numbers were then converted to a figure representing the total number of Full Time Equivalent (FTE) jobs at that agri-related business based on a 1,875 hours per year workload (7.5 hours per day X 5 days per week X 50 weeks per year).

In total, 229 of the businesses surveyed provided employment data. The total number of employees at these businesses was 1,961 comprised of 1,530 full-time employees, 272 part-time employees, and 159 seasonal employees. Based on the hours and weeks worked over the course of a year, and using the FTE calculation as shown above, the estimate for the total number of FTE jobs at the businesses surveyed is 1,836. This total reflects all work activities (both agri-related and non agri-related) at the businesses surveyed. For the 229 businesses surveyed, 21.3%, or 391 FTE jobs were related to agriculture. Table 42 summarizes the total and agri-related FTE jobs at the businesses surveyed for both counties as well as the study area as a whole.

County and Study Area	Number of businesses with job data	Total FTE Jobs	Percentage of Agri-related Jobs	Number of Agri- related FTE Jobs
Lanark	57	500	24.8	124
Renfrew	172	1,336	20.0	267
Study Area	229	1,836	21.3	391

Table 42.	Total and Agri-related FTE Jobs at the Businesses Surveyed.
-----------	---

Source: 2000 Ag-business Survey.

7.2.8 Number of Full-time Equivalent Employees Working in Agri-related Businesses in the Study Area

The total number of FTE jobs for all agri-related businesses in the study area, as well as the portion of FTE jobs that serve the agriculture sector can be derived from the sample. The number of respondents that provided employment data (229) was divided into the estimate of the total number of agri-related businesses in the study area (496), resulting in a sampling multiplier of 2.17. Sampling multipliers have also been calculated for Lanark (140 agri-related businesses in the revised business list / 57 with sales data = 2.45) and Renfrew (356 agri-related businesses in the revised business list / 172 with sales data = 2.07). From these values, the total number of FTE jobs for all agri-related businesses in the study area can be estimated at 3,984. Of these, the number of FTE jobs serving the agriculture sector is estimated at 848 (3,984 x 21.3%). Table 43 shows the estimated total and agri-related FTE jobs using multipliers derived for each county, as well as for the study area as a whole.

County and Study Area	Sampling Multiplier (Jobs)	Total Estimated FTE Jobs	Estimated Agri-related FTE Jobs
Lanark	2.45	1,220	302
Renfrew	2.07	2,779	555
Study Area	2.17	3,984	848

Table 43.	Estimated Total and Agri-related FTE Jobs Using Job Multipliers.

Source: 2000 Ag-business Survey.

7.3 Induced Impact Methodology

An examination of the induced effects of agriculture was conducted. Induced employment refers to jobs in Education, Health and Social Services and Government Service sectors. Population Census (1996) employment data from agriculture and manufacturing sectors were compared to service sector jobs in the three sectors mentioned above to estimate the number of induced jobs for the study area. Details of the induced impacts are presented in the results section of this report.

8.0 Results

8.1 Introduction to the Study Area Results

This chapter presents the results of the study, including findings on the direct, indirect and induced impacts of agriculture and agri-related businesses on the economies of Lanark and Renfrew Counties. It includes findings of an in-depth examination of the backward and forward linkages of agri-related businesses.

This research focuses on the economic impact of the agriculture sector and, more specifically, agri-related businesses in Lanark and Renfrew Counties. Both primary and secondary data collection were undertaken; the primary research collection was an 'input-output-like' survey approach of agri-related businesses in the study area. Further calculations of the induced and direct impacts were completed, based on Population Census of Canada data and, to some extent, on multipliers from previous studies (Cummings et al., 1998). The final analysis of the data illustrates that the agriculture sector continues to be very important to the economies of Lanark and Renfrew.

The study aimed to identify the total economic impact of the agriculture sector in the two counties. While published data indicate that the agriculture sector generates substantial farm gate sales, there was no evidence to prove the actual impact of the agricultural sector. To provide a clearer picture of the indirect economic impact of the study area's agriculture sector, the input-output methodology was applied.

8.2 Direct, Indirect and Induced Impact Results

8.2.1 Estimated Direct Sales and Jobs

Direct impacts refer to the value of sales and number of jobs created by the agriculture sector in the study area. Direct sales are equivalent to the value of farm gate sales. An analysis of the direct sales and jobs associated with agriculture in Lanark and Renfrew was discussed earlier in the report. In summary, direct impacts are estimated at \$97.8 million dollars in annual farm gate sales and 3,010 on-farm jobs generated in Lanark and Renfrew counties.

8.2.2 Estimated Indirect Sales and Jobs

The indirect impacts of agriculture refer to the value of sales and the number of jobs created by agriculture-related businesses in Lanark and Renfrew. An agri-related business is defined here as any business which sells to, or buys from, the agriculture sector. The study found that the indirect impacts created by these businesses is substantial.

8.2.2.1 Location of Agri-related Businesses in the Survey

Agriculture-related businesses are located in rural areas, villages, towns and cities across the study area. Greater representation is found in and around towns such as Carleton Place, Almonte and Perth in Lanark County and in Pembroke, Renfrew and Arnprior in Renfrew County. Other important centres for agri-related businesses include communities such as Pakenham in Lanark and Cobden, Eganville and Petawawa in Renfrew. Table 44 shows the location of the businesses which participated in the survey.

Lanark County	Renfrew County		
Carleton Place = 23 businesses (40.3%)	Pembroke = 63 businesses (36.4%)		
Almonte = 15 (26.3%)	Renfrew = 37 (21.4%)		
Perth = 9 (15.8%)	Cobden = 16 (9.2%)		
Pakenham = 3 (5.2%)	Arnprior = 15 (8.7%)		
Other (5 different towns) = 7 (12.4%)	Eganville = 9 (5.2%)		
	Petawawa = 6 (3.5%)		
	Other (12 different towns) = 27 (15.6%)		
Total = 57 businesses (100%)	Total = 173 businesses (100%)		

 Table 44.
 Location of Agri-related Businesses that Participated in the Survey

Source: 2000 Ag-business Survey.

Most (67%) of the agri-related businesses surveyed in the study area have only one business location. Approximately 20% of the businesses surveyed have other 'outlets' located inside the study area. Thus, a business in this category might have its head office in Pembroke with a branch location in Petawawa. Just under 15% of the businesses surveyed have business outlets outside the study area.

8.2.2.2 Characteristics of the Businesses Surveyed

The common characteristic of all the businesses surveyed is that they deal in some way with the agriculture sector. More specifically, all of the businesses surveyed either sell products or services to, and/or buy products or services from agriculture producers. It is important to note that these agri-related businesses may also conduct trade with other sectors of the economy.

For the purposes of this study, the surveyed businesses were categorized according to their primary activity, using the Standard Industrial Classification code (SIC) as used by Statistics Canada. This classification system was described in detail in section 3.4 of this report.

During the agri-related business survey, businesses from three industrial sectors (Education, Health and Social Services, and Government Services) were deliberately omitted from the survey as their impacts are being considered under induced impacts, leaving 15 possible sectors with which the study area's agri-related businesses could form links.

As illustrated in Figure 12, the study surveyed businesses in ten different industrial sectors. This suggests that the agriculture sector has links with most sectors of the study area economy. Connections were found with the following sectors: Retail Trade, Wholesale Trade, Construction, Other Services, Manufacturing, Real Estate and Insurance, Business Services, and Finance. Linkages were also found among businesses classified as Agriculture and Related Service Industries.

The survey did not include businesses from several sectors including Fishing and Trapping Industries, Mining, Accommodation, Food and Beverage Industries, and Communication Industries. This does not mean that these industries do not exist in the study area; they may not be linked to agriculture, or may not have had enough local representation to be picked up by the survey sample.



Figure 12. Business Response Rate by Industrial Sector.

Some of the industries analyzed in the study appear to have stronger linkages with the agriculture sector. Industries with a high degree of representation in the survey included Wholesale Trade (64 of the businesses surveyed) and Retail Trade (60). Extensive business linkages were also detected with Real estate/insurance (27), Business service industries (24) and Construction (20). Linkages with Manufacturing,

Source: 2000 Ag-business Survey.

Finance and Agriculture and Related Services were also notable. Characteristics of the businesses surveyed in various industrial sectors of the study area economy are discussed below.

i) Agriculture and Related Service Industries

The study found that strong linkages exist between businesses within the agriculture sector. Most often, backward linkages are in the form of services provided to farms such as veterinary services and custom farming and crop consulting services. In total, nine businesses were interviewed from the Agriculture and Related Services Sector. Two examples include Farm Air Service (crop dusting) in Renfrew County and Almonte Veterinary Services in Lanark County.

ii) Manufacturing Industries

A variety of products linked to the agriculture sector are manufactured by businesses in the study area. In total, 11 businesses from the sector were interviewed. Backward linkages to agriculture exist through the sale of such products as concrete and farm equipment. A significant forward linkage involves the processing of food products from agricultural goods. Two examples of manufacturing industries include Independent Farm Equipment in Lanark County which manufactures wagons and livestock feeders and Uncle Jim's Meat Market in Renfrew County which offers custom meat processing.

iii) Construction Industries

Twenty businesses from the construction sector were surveyed. These businesses have backward linkages to agriculture through electrical contracting, plumbing and heating contracting, well drilling and excavating. B.J. Hass Plumbing and Heating, and R.G. Electric are two examples from Renfrew County.

iv) Transportation Industries

Two businesses from the transportation sector were included in the survey. These businesses provide trucking services for general freight. Typically, these would involve the transportation of livestock, feed and fertilizer.

v) Wholesale Trade Industries

A number of wholesale dealers have established backward linkages with the agriculture sector through the sales of building materials, lumber, farm machinery, milk equipment, ventilation equipment, feed and crop inputs. Forward linkages are also present, primarily through the purchase of grain and seed for resale. A total of 64 businesses from the wholesale trade sector were surveyed. Examples from this industrial sector include McKay Sheet Metal and Roofing in Lanark County and Millar Feed and Seed in Renfrew County.

vi) Retail Trade Industries

Businesses included in the retail trade sector are primarily engaged in buying products for resale to the general public for personal or household consumption, and in

providing related services such as installation and repair. The businesses also sell products to farmers for farm use but are classified as retail since their main activity is selling products for personal use such as appliances, hardware stores and auto parts. The strongest backward linkages to the agriculture sector are automotive sales and service type businesses. These businesses sell and/or service farm vehicles and often carry a short line of farm equipment parts (tires, alternators, batteries, oil filters, air filters etc.). In total, 60 of the businesses surveyed were from the retail trade sector. Examples from this industrial sector include Carleton Auto Parts in Lanark County and Robinson's Auto Service in Renfrew County.

vii) Finance Industries

A total of 9 financial service businesses were included in the survey. These businesses include banks, credit unions and other institutions which have backward linkages to agriculture through the provision of loans and banking services. In many instances, local branches have a separate department or specific agri-representative responsible for handling agriculture accounts. Representatives of several of major chartered banks were interviewed for the survey (Royal Bank of Canada, Bank of Montreal, Canadian Imperial Bank of Commerce, Toronto Dominion, Scotiabank) as well as representatives of a local credit union (Northern Credit Union Ltd).

viii) Real Estate and Insurance Industries

Real estate and insurance agencies have strong backward linkages to the agriculture sector. The main service provided to agriculture is the selling of agricultural property. These businesses are also involved in land appraisals and leasing farm properties. Insurance agencies offer an important agricultural input. The survey included 27 businesses from this industrial sector. Examples from this industrial sector include Frank M. McLean Insurance in Lanark County and Barron Realty and Insurance in Renfrew.

ix) Business Service Industries

Business service industries include accountants and lawyers that provide, respectively, financial accounting services such as general bookkeeping and tax preparation, and legal services particularly in relation to real estate transactions. In total, there were 24 businesses from this sector in the survey. Examples from this industrial sector include Wheeler and Abbott Barristers and Solicitors in Lanark County and Shane Lloyd, CGA in Renfrew County.

x) Other Service Industries

According to Statistics Canada, 'other service industries' consist of four major business activity groups. These are: Amusement and Recreational service industries such as theatres, sporting events, casinos, and amusement parks; Personal and Household service industries such as hair salons, laundry facilities and funeral services; Membership Organization industries such as religious organizations, business organizations and professional membership organizations; and Other Service Industries, which are most relevant to agriculture as they include machinery and equipment rental and leasing, welding shops that repair farm machinery and equipment, and auctioneers. Four businesses from this sector were included in the survey.

8.2.2.3 Importance of the Agriculture-related Business Survey

This study measures the importance of a business through its total gross sales per year and through the number of full-time equivalent (FTE) employees at the business. This provides an assessment of all the economic activities of the business, both related and unrelated to agriculture. For example if a plumbing and heating business serves both residential and agri-producing (ie, farm business) customers, the total gross sales of this business would include both agri-related and unrelated sales.

a) Sales for the Agri-related Businesses Surveyed

All of the businesses surveyed had some portion of their sales related to the agriculture sector. During the survey, the owner (or manager) was asked to estimate the total gross sales for their business as well as the percentage of those sales that could be attributed to the agriculture sector. For example, if a plumbing and heating business has \$500,000 in total gross sales per year, and the owner estimates that 50 percent of these sales are agri-related, then the total agri-related sales for that business would be \$250,000 (\$500,000 X 50%).

Almost all of the businesses surveyed provided sales data (222 of 230). Statistics Canada classifies an industry with less than \$5 million in annual sales as a small business. A medium size business has sales between \$5 million and \$25 million per year. Businesses with sales above \$25 million are considered large.

By this classification, businesses related to agriculture in the study area are generally small. Ninety-four percent of the businesses surveyed (209 of 222) had sales under \$5 million. This study found that agri-related businesses have a wide range of sales. Sales from the sample ranged from \$13 thousand to \$15 million. The average total gross sales for the businesses that provided sales data was \$1,289,600. This number is somewhat lower than the average gross sales of \$4,240,865 recorded for 154 businesses surveyed in Huron County in 1996 (Cummings et al., 1998) and \$2,366,082 recorded for 246 businesses surveyed in Simcoe County in 1999 (Cummings and Associates, 1999). However, it does approach figures that were obtained in other parts of eastern Ontario. Average gross sales for 295 businesses in the combined Counties of Prescott, Russell, Stormont, Dundas and Glengarry amounted to \$1,605,329 (Cummings and Deschamps, 1999) while average sales for 241 businesses in the combined counties of Frontenac, Lennox & Addington, and Leeds & Grenville amounted to \$1,446,000 (Cummings et al., 2000). The estimated average sales for 228 businesses in Ottawa-Carleton amounted to \$1,227,500 (Cummings and Associates, 2000).

On average, the businesses in the study area attributed 22.3% of their sales to

the agriculture sector. The total agri-related sales for these businesses was \$63,787,000. The average agri-related sales for the 222 businesses that provided sales data was \$287,328. There were a number of businesses with large agri-related sales figures. Approximately seven percent of the businesses (15 of 222) had agri-related sales in excess of \$1 million. Just over 60% of the businesses surveyed had agri-related sales below \$100,000.

Figure 13 shows the percentage of agri-related sales according to industrial sector. Please note that many of the percentages reported in Figure 13 are not statistically valid because of the low number of certain business types represented in the survey. Transportation is an example of an industry that had low representation in the survey.

Additional details for some of the industrial sectors that had greater representation in the survey are discussed below.

i) Agriculture and Related Service Industries

The combined gross sales for the nine agriculture and related businesses amounted to just over \$6 million with 35% or \$2.1 million being agri-related.

ii) Manufacturing Industries

The combined gross sales for the eleven manufacturing businesses amounted to \$6.3 million with 55.3% or \$3.5 million being agri-related.

iii) Construction Industries

The combined gross sales for the 20 construction businesses amounted to \$7 million with 17% or \$1.2 million being agri-related.

iv) Wholesale Trade Industries

The combined gross sales for the 64 wholesale businesses amounted to \$106.7 million with 37% or \$39.8 million being agri-related.

v) Retail Trade Industries

Retail stores typically sell products for personal or household use. However, many also sell products to the agriculture sector. The combined gross sales for the 60 retail businesses amounted to \$99.8 million with 11.2% or \$11.1 million being agri-related.

vi) Business Service Industries

The business service industry includes legal and accounting firms. The combined gross sales for the 24 businesses in this category amounted to \$21.6 million with 5.2% or \$1.1 million being agri-related.



Figure 13. Percentage of Agri-related Sales by Industrial Sector for the Businesses Surveyed.

Source: 2000 Ag-business Survey.

b) Employment for the Agriculture-Related Businesses Surveyed

The number of employees in a business is another indicator of the importance of that business in the economy. An assumption of this study is that the percentage of sales related to agriculture is equivalent to the percentage of employees serving the agriculture sector for their business. If we refer to the example given earlier of a plumbing business with 50% agri-related sales, we would assume that half the employees working for the business are supported by sales directed toward the agriculture sector.

According to Statistics Canada, a small business employs one to fifty people; a medium business employs 51 to 250 people and a large business employs over 250 people. By this standard, over 99% of the agri-related businesses in the study area are small, only one business employs more than 50 people. The average number of employees (calculated as full-time equivalent jobs) for the businesses surveyed is eight (1,838 FTE jobs / 229 businesses). Approximately 51% of the businesses have 5 employees or less (116 of 229) while 25% of the businesses have between 6 and 10 employees (58 of 229). Figure 14 shows the average number of employees per business by industrial sector for the businesses surveyed.

All of the businesses in the survey exchange goods and/or services with the agriculture sector. As such, it can be assumed that each of these businesses must have employees dedicating some or all of their work-time activities to serving these exchanges. The average number of employees working on activities related to serving

the agriculture sector for the businesses surveyed was two. Twenty-six percent of the businesses had at least two employees working strictly on agri-related activities.





Source: 2000 Ag-business Survey.

8.2.2.4 Exports of the Agri-related Businesses Surveyed

According to the 222 businesses that provided sales data for the study, 86.2% of agri-related sales are within the study area. The remaining 13.8% of their sales are exports to other locations in Ontario (9.9%) and exports to provinces other than Ontario (3.8%). Less than one-half of one percent of agri-related sales are derived from international exports.

As shown in Figure 15, Agriculture and related service businesses lead the other industries in terms of the proportion of total sales as exports. Sales outside of the study area accounted for approximately 47% of all sales. Two of the nine businesses in this category accounted for all of the export sales activity.

Manufacturing was the next leading industrial sector in terms of export sales as a percentage of total sales. Close to 22% of manufacturing sales were export related. Within the share of export trade, a small amount (<0.5%) was directed at international markets.

Wholesale trade was the only other industry with exports sales accounting for more than ten percent of total sales. In terms of actual dollars, the Wholesale trade industry had the largest value of export sales among the ten industrial sectors represented in the survey. Export sales from the eleven businesses in this category amounted to \$4.68 million or 16% of all manufacturing sales.

The remaining industries, Transportation, Construction, Retail, Finance, Real Estate/Insurance, Business and other services, all derived 95% or more of their sales from within the study area.



Figure 15. Location of Agri-related Sales by Industrial Sector for the Businesses Surveyed.

8.2.2.5 Summary: Agriculture-related Businesses in Lanark and Renfrew

The analysis shows that businesses in Lanark and Renfrew that buy from or sell to the agriculture sector, generate a substantial amount of money and jobs in the area. Furthermore, these businesses generate flows of income and expenditure outside the study area. An estimated \$145 million in agri-related sales are generated by businesses located in the study area, of which \$14 million is related to sales to other parts of Ontario and \$5 million is related to sales outside of Ontario. The total sales of agri-related businesses in the study area (sales related and unrelated to agriculture) is estimated at just over \$638 million.

Indirect employment is a further impact of the agriculture sector. The total number of full-time equivalent jobs created by businesses with agricultural linkages in Lanark and Renfrew is estimated at 3,984. Of this total, close to 850 jobs are associated with serving the needs of the agriculture sector.

Source: 2000 Ag-business Survey.

8.2.3 Estimated Induced Jobs

Induced agricultural impacts are impacts on businesses that benefit from the expenditure of wages and salaries of workers in the agriculture and agriculture-related sectors. For the purposes of the current study we have not calculated induced sales although this would clearly add a significant figure to the overall agri-related sales total of agri-related businesses in Lanark and Renfrew through the salaries of employees in the Health and Social Services, Education and Government Services sectors.

Induced employment refers to employment generated by the wages of workers in an area. We refer to wages spent in the services sector on private or public services. The economy can be divided into two general 'production' components: goods producing (primary production including agriculture, manufacturing, and construction) and service producing. The service component consists of public sector services (health and social services, education and government) and private sector services (wholesale and retail trade, accommodation and restaurant, and finance and insurance related services). Induced effects are initiated through the spending of wages earned from agriculture and manufacturing, on public services; public service employees and agricultural workers purchase goods from retail stores; retail store workers require health services etc. This pattern of progressive spending reflects the chain of multipliers *induced* by the initial wage in the agriculture or manufacturing sector. The methodology we used to estimate the size of this multiplier is outlined below.

To make estimates of the induced jobs in the study area, a combination of four administrative areas were utilized; Beckwith and Ramsay townships from Lanark County and McNab and Westmeath townships from Renfrew County were selected to represent the study area as they had the greatest direct agriculture employment numbers in 1996. The total direct employment figure for the two primary production industries in Lanark and Renfrew, Agriculture and Manufacturing (1,000 and 1,735 respectively for a total of 2,735 jobs), was divided into the total number of jobs in the Health and Social Services, Education and Government sectors (720, 585, and 930 respectively for a total of 2,235 jobs).⁶ This calculation indicates that for every job created in the two primary production industries, 0.8 induced jobs were supported in the three public service sectors.

When this number is applied to the total number of direct and indirect jobs related to agriculture for the study area as a whole (3,010 direct and 848 indirect jobs for a total of 3,858 jobs X 0.8), it indicates that 3,163 induced jobs are supported by the agriculture sector.

⁶ For our estimates we have excluded the 'private sector services' from induced employment because some of these jobs were already covered in the agriculture-related business survey. This helps in avoiding a double count of some jobs.

8.2.4 Total Direct, Indirect and Induced Impacts

As shown in Table 45, there are 3,010 direct, 848 indirect and 3,163 induced jobs created as a result of the agriculture sector in the study area. Thus, farm operations, businesses they buy from and sell to, and services that support farmers and farm businesses, are estimated to support approximately 7,021 jobs.

When this total employment figure is divided by the total number of direct agriculture jobs, a multiplier of 2.3 is the result. This calculation allows us to estimate that for every job in the agriculture sector, an additional 1.3 jobs related to agriculture are supported.

	Sales	Jobs
Direct	\$97,768,260	3,010
Indirect	\$142,245,010	848
Induced		3,163
Total	\$240,013,270	7,021

Table 45.	Total Sales and	l Employment Re	lated to Agriculture	in Lanark and Renfrew
-----------	-----------------	-----------------	----------------------	-----------------------

Source: 2000 Ag-business Survey.

In terms of dollars, agriculture makes a substantial contribution to the local economy. There are \$97.7 million in direct sales and \$142.2 million in indirect sales associated with agriculture in Lanark and Renfrew. In total, approximately \$240 million in agri-related sales are generated in the study area. In order to estimate the sales expenditure multiplier in the study area, the total amount of agri-related sales for the area was divided by the total amount of direct sales. This produces a sales expenditure multiplier of 2.45 In short, we can use this calculation to estimate that for every dollar generated by direct agricultural sales (farm gate sales), an additional \$1.45 in sales related to agriculture is also produced. Please note, these are gross agriculture-related sales and no attempt has been made to identify the "net value-added" component.

8.3 Comparison to Previous Studies

A number of other agri-related business surveys have been conducted in various regions of Ontario using the same methodology applied here. Research has been completed for: Huron County (1998), Simcoe County (1999), Perth County (2000), Lambton County (2000) the combined counties of Prescott, Russell, Stormont, Dundas and Glengarry (1999), the combined counties of Frontenac, Lennox & Addington, Leeds and Grenville (2000), the combined counties of Elgin, Middlesex and Oxford (2000), and the new City of Ottawa (2000). Tables 46 and 47 compare sales and employment data from research collected in other areas of Ontario with the results from the Lanark and Renfrew research.

While sales and job figures are not directly comparable because of differences in size and characteristics of the study areas, the multipliers associated with these figures provides some insights into the importance of the linkages between agriculture-related business and farm enterprises (Table 46). The sales multiplier estimated for Lanark and Renfrew (2.4) is similar to that of Perth (2.5), Lambton (2.6), and the combined Counties of Elgin, Middlesex and Oxford (2.3). The shaded rows refer to those counties in the Eastern Ontario Agricultural Region.

With respect to employment (direct, indirect and induced), the Lanark and Renfrew employment multiplier (2.3) is similar to that of Lambton (2.3) and Perth (2.3).

Comparing the number of on-farm jobs to jobs in agri-related businesses, we find that the study area has a 3:1 ratio. While there are a number of other areas in the province with similar ratios, Lanark and Renfrew is quite distant from Huron County, the largest agricultural county in the province in terms of farm gate sales. The ratio estimated for Huron is 1:3 or one on-farm for every three jobs in agri-related business.

Research Area	Direct Sales (Farm gate sales)	Indirect Sales (Agri-related businesses)	Total Sales	Sales Expenditure Multiplier
Lambton	\$301	\$472	\$773	2.6
Elgin, Middlesex, Oxford	\$1,131	\$1,490	\$2,621	2.3
Huron ⁷	\$512	\$1,489	\$2,001	3.9
Perth	\$430	\$653	\$1,083	2.5
Simcoe	\$265	\$518	\$783	3
Frontenac, Lennox & Addington, Leeds & Grenville	\$183	\$351	\$534	2.9
Lanark & Renfrew	\$98	\$142	\$240	2.4
Prescott, Russell, Stormont, Dundas & Glengarry	\$363	\$756	\$1,119	3.1
City of Ottawa	\$137	\$265	\$402	2.9

 Table 46.
 Total Agri-related Sales for Selected Areas of Ontario (in \$ million).

Source: Cummings et al., 1998, 1999 & 2000.

⁷ Huron County was the first study of this type to be carried out. The methodology has been continuously refined for the succeeding studies. The higher numbers associated with Huron County's Indirect Sales may reflect these refinements.

Research Area	Direct Agr. Jobs	Indirect Jobs ⁸ (Agri-related businesses)	Induced Jobs	Total Jobs	Employment Multiplier
Lambton	3,920	1,624	3,382	8,926	2.3
Elgin, Middlesex, Oxford	16,515	6,856	9,348	32,720	2.0
Huron	5,025	14,186	3,528	22,739	4.5
Perth	4,935	3,133	3,066	11,131	2.3
Simcoe	4,770	2,237	7,414	14,421	3.0
Frontenac, Lennox & Addington, Leeds & Grenville	4,325	1,935	5,321	11,581	2.7
Lanark & Renfrew	3,010	848	3,163	7,021	2.3
Prescott, Russell, Stormont, Dundas & Glengarry	5,955	4,516	7,007	17,478	2.9
City of Ottawa	3,510	1,045	5,466	10,021	2.8

 Table 47.
 Total Agri-related Jobs for Selected Areas of Ontario.

Source: Cummings et al., 1998, 1999 & 2000.

In comparison to other regions of the province, agri-related businesses in Lanark and Renfrew Counties are deriving a smaller share of their sales from exports. The one exception is the combined counties of Prescott, Russell, Stormont, Dundas, and Glengarry where agri-related sales made up only 8.5% of the total sales activity.

⁸ Indirect jobs are presented as full time equivalents.

	Location of Sales (%)				
Research Area	Sales within the Study Area	Sales outside Study Area but within Ontario	Sales to other Provinces	Sales outside Canada	Total Sales outside the Study Area
Lambton	83.6	15.6	0.3	0.5	16.4
Elgin, Middlesex, Oxford	66.8	24.7	8.5		33.2
Huron	42.9	34.5	22.6		57.1
Perth	65.5	33	1.2	0.3	34.5
Simcoe	43.6	41.5	3.5	11.4	56.4
Frontenac, Lennox & Addington, Leeds & Grenville	76.4	20.5	0.7	2.4	23.6
Lanark & Renfrew	86.2	9.9	3.8	0.1	13.8
Prescott, Russell, Stormont, Dundas & Glengarry	91.5	5.8	1.5	1.2	8.5
City of Ottawa	63.7	36.2	0.1		36.3

Table 48. Location of Agri-related Business Sales for Selected Areas of Ontario.

Source: Cummings et al., 1998, 1999 & 2000.

8.4 **Results Conclusion**

Agriculture remains an important component in the economies of Lanark and Renfrew Counties, providing approximately 9.3% of employment in the two counties and generating over \$240 million in annual sales. The sector touches an estimated 496 businesses dealing directly with farm operations as well as the vital public service sector.

Estimated expenditures of \$240 million are generated by agriculture producers and agriculture-related businesses within Lanark and Renfrew counties. This is the estimated flow of sales and expenditures generated by farm operations as well as sales related to the agriculture sector. While previous estimates indicated that 3,010 jobs existed in the agriculture sector in 1996 (Statistics Canada, 1996 census), the study shows that a further 848 jobs were tied indirectly to the agriculture sector in Lanark and Renfrew through agriculture-related businesses, and an additional 3,163 jobs were supported by agriculture in education, government and health and social service. Clearly, this has a significant impact on the economy of Lanark and Renfrew counties, where the total estimated number of jobs is 75,165. Multipliers associated with the sales and employment data suggest 1.3 jobs off the farm for every 1 on the farm, and \$1.40 off the farm sales for every \$1 generated by farm gate sales.

The potential for agriculture is limited by the lack of quality soils in the region; less than 15% of the soils are classified as class 1, 2 and 3 and judged to be capable of sustained agricultural production. This is low when compared with our recent work in the new City of Ottawa where just over 51% of soils are class 1, 2 and 3, or the 87% present in Elgin, Middlesex and Oxford counties (Cummings et al., 2000). It is important to agriculture that this limited resource be provided adequate protection in Lanark and Renfrew counties

The agriculture sector supports and is supported by businesses across and outside the region. Dominant in the lists of businesses linked to agriculture were wholesale, retail and real estate and insurance businesses. While there has been a steady erosion of jobs on the farm in this region, the core agricultural activity has remained as vitally important for each of the counties. This is attested to by the increase in the number of farms over the past ten years.

The \$97.8 million in farm gate sales is linked to over \$90 million in expenditures, most of it in the region. This multi-million dollar industry must be handled with care by local and provincial planners and policy makers. Its long term role is something we can depend on. Let us make sure it is sustained and sustainable.

Bibliography

- Bendavid-Val, Avrom. 1991. <u>Regional and Local Analysis for Practitioners, 4th ed.</u> Westport, Connecticut: Praeger.
- Bradfield, Michael. 1988. <u>Regional Economics: An Analysis and Policies in Canada.</u> Toronto: McGraw-Hill Ryerson Limited.
- Brown, D.M. and A. Bootsma. 1993. <u>Crop Heat Units for Corn and Other Warm-</u> <u>Season</u> <u>Crops in Ontario</u>. Ontario Ministry of Agriculture and Food Factsheet Number 93-119. 4 pages.
- Butterfield, David and Atif A. Kubursi. 1993. "Regional Economic Effects of Recycling in Ontario". <u>Canadian Journal of Regional Science</u>. Vol. 16, (3) pp. 413-431.
- Cloutier, Sylvain. 1996. "Employment in Agriculture and Closely Related Industries in Rural Areas: Structure and Changes, 1981-1991." Paper presented at the International Symposium: Perspectives on Rural Employment held October 11 to 14, 1995, in Coaticook, Quebec.
- Cummings and Associates. 2000. <u>The Economic Impacts of Agriculture on the</u> <u>Economy of Frontenac, Lennox & Addington and the United Counties of Leeds</u> <u>& Grenville.</u> HCA Report. Guelph, Ontario.
- Cummings and Associates. 2000. <u>The Economic Impacts of Agriculture on the</u> <u>Economy of Perth County.</u> HCA Report. Guelph, Ontario. 69 pages.
- Cummings and Associates. 2000. <u>Elgin, Middlesex and Oxford County Area</u> <u>Agricultural Sector Assessment Study.</u> HCA Report. Guelph, Ontario. 74 pages.
- Cummings and Associates. 2000. <u>The Economic Impacts of Agriculture on the</u> <u>Economy of Lambton County.</u> HCA Report. Guelph, Ontario. 52 pages.
- Cummings, Harry and Vince Deschamps. 1999. <u>Economic Impact of Agriculture on</u> <u>the Economy of Prescott, Russell, Stormont, Dundas and Glengarry Counties.</u> University School of Rural Planning and Development unpublished report. University of Guelph. Guelph, Ontario.
- Cummings, Harry, Karen Morris and Dan McLennan. 1998. <u>Economic Impact of</u> <u>Agriculture on the Economy of Huron County.</u> University School of Rural Planning and Development unpublished report. University of Guelph. Guelph, Ontario.

- Cummings, Harry, Karen Morris and Don Murray. 1999. <u>Economic Impact of</u> <u>Agriculture on the Regional Economy: Case Studies from Ontario.</u> University School of Rural Planning and Development unpublished report. University of Guelph. Guelph, Ontario.
- Davis, H. Craig. 1990. <u>Regional Economic Impact Analysis and Project Evaluation</u>. Vancouver: University of British Columbia Press.
- Dahms, Fred. 1982. "The Changing Functions of Rural Settlements in Huron and Southern Bruce Counties: Historical Background and Major Trends 1951-1981." University School of Rural Planning and Development Publication 110. University of Guelph. Guelph, Ontario.
- Damus, Sylvester. 1993. "On Input-Output Analysis with Incomplete Data." <u>Canadian</u> <u>Journal of Regional Science.</u> Vol. 16 (1), 115-122.
- Drugge, Sten E. 1988. "A Theoretical Critique of Shift Share Analysis: A General Equilibrium Approach". <u>Canadian Journal of Regional Science.</u> Vol. 11 (2), 303-311.
- Environment Canada. 1980. <u>Agriculture Capability by Province-Census Division</u> <u>Breakdown, Quebec/Ontario.</u> Canada Land Data Systems Division, Land Data and Evaluation Branch, Land Directorate. Ottawa. 133 pages.
- Faas, Ronald C. 1980. "Coping with Growth: What Does the Impact Statement Say About Economic Impacts." Corvallis, Oregon: Western Rural Development Centre.
- Higgins, Benjamin and Donald J. Savoie. 1995. <u>Regional Development Theories and</u> <u>Their Application</u>. New Brunswick, New Jersey: Transaction Publishers.
- Hoffman, D.W. and H.F. Noble. 1975. <u>Acreage of Soil Capability Classes for</u> <u>Agriculture in Ontario.</u> Ontario Ministry of Agriculture and Food, Rural Development Branch and Department of Regional Economic Expansion, Canada. 71 pages.
- Huron County Planning and Development Department. 1991. <u>Huron County Study -</u> <u>The Background Report.</u> Goderich, Ontario.
- Josling, L.T. 1996. <u>An Empirical Study of the Interdependence Among Agriculture and</u> <u>Other Sectors of the Canadian Economy - An Input-Output Model.</u> Agriculture Economics Research Council of Canada.

- Kulshreshtha, Surendra N. 1988. "Estimation of Contributions of a Resource Sector to Provincial Economy: The Case of Saskatchewan Potash." <u>Canadian Journal of</u> <u>Regional Science</u>. Vol. 11 (3), pp. 431-444.
- Lee, Chinook. 1991. "Recent Developments in Construction of Input-Output Tables with Use and Make Matrices: An Application to U.S. Agriculture." <u>Canadian</u> <u>Journal of Agriculture Economics.</u> Vol. 39, 795-803.
- Lewis, Eugene, Russell Youmans, George Goldman and Garnet Premer. 1979. <u>Economic Multipliers: Can a Rural Community Use Them?</u> Corvallis, Oregon: Western Rural Development Centre.
- Ontario Maple Syrup Producers Association, 2000. http://www.ontariomaple.com
- Ontario Maple Syrup Producers Association, 2000.<u>Ontario Maple Syrup</u>. http://tdg.ca/ontag/omspa/
- Ontario Ministry of Agriculture, Food and Rural Affairs, 2000. <u>Number of Sheep,</u> <u>Ontario by County, 1999</u>. http://www.gov.on.ca/OMAFRA/english/stats/livestock/ctysheep99.html
- Ontario Ministry of Agriculture, Food and Rural Affairs, 2000. <u>The Maple Syrup Industry</u> in Ontario. http://www.gov.on.ca/OMAFRA/english/crops/facts/maple
- Ontario Ministry of Agriculture Food and Rural Affairs. 1995. <u>Publication 20. 1994</u> <u>Agriculture Statistics for Ontario.</u> Statistical Services Unit, Policy Analysis Branch. Queen's Park. Toronto, Ontario.
- Otto, C.M. and T.G. Johnson. 1993. <u>Microcomputer-Based Input-Output Modelling:</u> <u>Applications to Economic Development.</u> Boulder, Colorado: Westview Press.
- Poole, Erik, Ronald Rioux and Claude Simard. 1994. "The Input-Output Model and Economic Policy". <u>Policy Options.</u> Vol. 15 (10), 28-31.
- Rioux, J.J.M. and J.A. Schofield. 1990. "Economic Impact of a Military Base on its Surrounding Economy: The Case of CFB Esquimalt, Victoria, British Columbia". <u>Canadian Journal of Regional Science.</u> Vol. 13 (1), 47-61.

The Rural Voice. "The Bang of the Bucks." August 1996.

Semple, Hugh and R.G. Ironside. 1992. "The Impacts of New Resource Industry on Recipient and Adjacent Municipalities". <u>Canadian Journal of Regional Science</u>. Vol. 15 (1), 59-80.

- Schaffer, William A. 1979. "Testing Regional Input Analysis in Nova Scotia". <u>Canadian</u> <u>Journal of Regional Science.</u> Vol. 2 (1), 1-10.
- Schaffer, William A. 1978. "Constructing the Nova Scotia Input-Output System". Canadian Journal of Regional Science. Vol. 1 (1), 1-12.
- Stabler, Jack C. 1988. "Saskatchewan Steel: A Regional Industrial Impact Analysis". <u>Canadian Journal of Regional Science.</u> Vol. 11 (1), 133-145.
- Statistics Canada. 1971. <u>Population Profile of Canada.</u> Supply Services. Ottawa, Ontario.
- Statistics Canada. 1981. <u>Population Profile of Canada.</u> Supply Services. Ottawa, Ontario.
- Statistics Canada. 1986a. <u>Population Profile of Canada Part A.</u> Supply Services. Ottawa, Ontario.
- Statistics Canada. 1986b. <u>Population Profile of Canada Part B.</u> Supply Services. Ottawa, Ontario.
- Statistics Canada. 1991a. <u>Population Profile of Canada Part A.</u> Supply Services. Ottawa, Ontario.
- Statistics Canada. 1991b. <u>Population Profile of Canada Part B.</u> Supply Services. Ottawa, Ontario.
- Statistics Canada. 1996a. <u>Population Profile of Canada Part A.</u> Supply Services. Ottawa, Ontario.
- Statistics Canada. 1996b. <u>Population Profile of Canada Part B.</u> Supply Services. Ottawa, Ontario.
- Town of Carleton Place. 1993. <u>The Official Plan of The Town of Carleton Place</u>. March 24 and 26, 1993.
- Township of Admaston. 1992. Township of Admaston Official Plan.

Township of Alice & Fraser. 1991. Township of Alice & Fraser Official Plan.

- Township of Beckwith. 1993. <u>Township of Beckwith Official Plan.</u> December 23rd, 1999.
- Township of Drummond. 2000. Official Plan of the Township of Drummond, Office Consolidation

Township of Drummond/North Elmsley. 1999. <u>Draft Official Plan of the Township of</u> <u>Drummond/North Elmsley.</u> June, 1999.

Township of McNab. 1998. Township of McNab Official Plan.

Township of Pembroke. 1991. Township of Pembroke Official Plan.

- Township of Rolph, Buchanan, Wylie & McKay. 1999. <u>Township of Rolph, Buchanan,</u> Wylie & McKay Official Plan.
- Troughton, Michael. 1992. "The Restructuring of Agriculture: The Canadian Example." Bowler, I.R., C.R. Bryant and M.D. Nellis (Eds.). <u>Contemporary Rural Systems in</u> <u>Transition: Volume 1, Agriculture and Environment.</u> Wallingford, UK: CAB International, pp. 29-42.
- Van Hoeve, Frank, P.S. 1995. "The Eastern Ontario Dairy Industry: Regional and Provincial Economic Impacts and Linkages." Unpublished M.Sc. Thesis, University School of Rural Planning and Development, University of Guelph. Guelph, Ontario.