

# The Workforce Multiplier Effect of Local Farms and Food Processors in Northwestern Ontario

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**North Superior**  
Workforce Planning Board



**Northwest**  
Training and Adjustment Board



Lakehead University  
Natural Resources Management



Food Security Research Network

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**The Workforce Multiplier Effect of Local Farms and Food Processors in  
Northwestern Ontario**

**Funded and Supported by:**

**North Superior Workforce Planning Board  
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**Food security Research Network**

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**Faculty of Natural Resources Management**

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## Executive Summary

The purpose of this report is to provide a detailed examination of the role played by the food production and processing sector on workforce multiplier effect in Northwestern Ontario. The examination includes an assessment of the direct as well as indirect impacts of employment generated in the region. The report assesses the current state of food production, compares the changes in the state of food production between 2006 and 2012, explores the workforce multiplier effect of local food production throughout the economy, and provides a forecast of employment related to local food production for the next 5 years in each of three districts (Thunder Bay, Rainy River and Kenora) of Northwestern Ontario.

The primary data were collected from local farms and food processors in Northwestern Ontario by the students of Lakehead University in the Faculty of Natural Resources Management, through three focus group discussions, individual interviews and surveys in Sept. 2012. The related secondary data were adopted from Census of Statistics Canada (2006-2011) and Conference Board of Canada (2012). The survey data was compiled and compared with the secondary data obtained from Statistics Canada, and the current and projected number of jobs related to the local farms and food processors were estimated. The number of direct and indirect jobs for each district was estimated by prorating the gross domestic production (GDP) from the provincial data, obtained from Conference Board of Canada. GDP projections from 2013 to 2017 for crop and animal production in Ontario were used to predict the number of direct and indirect jobs related to local farms and food processing businesses in the region.

Northwestern Ontario experienced a decline in the economy in the last decade. Total employment declined from 104,700 jobs in year 2006 to 100,100 jobs in year 2010. Between 2006 and 2011, the population of Northwestern Ontario declined (5%) from 235,046 to 224,034 persons; the number of farms reduced (8.69%) from 656 to 599; and the land used for farming decreased (9%) from 309,628 to 280,843 acres. However, the total farm capital market value increased (11%) from \$356,114,820 in the year 2006 to \$400,821,551 in the year 2011, and the total gross farm receipts increased (1.7%) from \$50,935,730 to \$51,811,979.

The major issues that hinder food related business development in Northwestern Ontario were brought out by focus group discussions, individual interviews and surveys. The issues related to producers, suppliers and retailers of food related businesses include: i) lack of skilled labor; ii) regulations related to cattle transportation; iii) limited quota for raising poultry; iv) no markets for locally produced vegetables; and v) lack of support from government and policy makers for small farmers.

The local farms and food processing sector is an important component of the Northwestern Ontario economy. One of the notable characteristics of the food production sector is that it provides residents with a range of local food options in addition to providing both direct and indirect jobs. The development of local food systems is a growing area of interest and is viewed as a logical

strategy to improve community economic vitality. The local farms and food processors in Northwestern Ontario support and provided 1293 direct jobs and 577 indirect jobs in 2012. The food production sector in Northwestern Ontario has a workforce multiplier effect of 1.4, which means that every 1000 jobs in local farms and food processing sector in Northwestern Ontario support 400 extra jobs indirectly with suppliers and retailers. This study projects that the food production sector in Northwestern Ontario will provide 1878 direct and indirect jobs by the year 2017. The stability of the food production sector levels out the cyclical highs and lows of other natural resource activities in Northwestern Ontario.

Northwestern Ontario has higher rate of farm capital market value supporting jobs as compared to the provincial average. Northwestern Ontario, with a capital market value of local farms and food processing sector of \$669,000 per farm supports about 2.17 times more jobs compared to the provincial average, with a capital market value of \$1,649,727 per farm. The capital investment of \$144,273 in farms and food processing businesses in Northwestern Ontario will provide one job opportunity, whereas at the provincial level, it will cost \$313,276 for the same opportunity to be provided. Within Northwestern Ontario, the three districts provide different workforce multiplier effects from their local farms and food processing sector. Thunder Bay District had the highest workforce multiplier effect (1.7), followed by Rainy River District (1.3), and Kenora District (1.2). The higher workforce multiplier effect for Thunder Bay District indicates that more indirect jobs can be supported by local farms and food processors in areas that are close to bigger cities. However, both Rainy River and Kenora Districts have a high potential to develop opportunities for more indirect jobs related to the local farms and food processing sector.

Northwestern Ontario's local farms and food processing businesses are on a recovery and growth path. However, there is a need to address the current infrastructure gaps, such as regional distribution system, processing facilities and storage in order to enhance the growth of the sector in the region. There is a need to develop specialized agriculture training with a northern focus in post-secondary institutions and other training facilities to enhance northern youth engagement. We need to sustain northern place-based research facilities in order to ensure viable crops for northern conditions. There is a need for programs that encourage self-sufficiency in both cultivated and forest food sources in the First Nation communities. Our study is based on a relatively small sample size, and was conducted within a limited time frame. However, it demonstrates the importance of the food production sector in providing both direct and indirect employment in the region.

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Financial support for this study from North Superior Workforce Planning Board (NSWPB) and Northwest Training and Adjustment Board (NTAB) is greatly appreciated. We thank the students of Forest Economics class in the Faculty of Natural Resources Management at Lakehead University, Thunder Bay, Ontario for conducting the focus group discussions, individual interviews and surveys. Technical and logistics support from Food Security Research Network is thankfully acknowledged. Finally, we thank the local farmers and food processors for participating in the study and providing valuable insights of the issues related to food production in Northwestern Ontario.

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# 1. Introduction

## 1.1 Introduction

Many jobs have been lost in Ontario as a result of the economic depression since 2008 (Sebastien LaRochelle-Cote and Jason Gilmre 2009). However, food production related employment has been more or less stable as compared to other industries. In Sept. 2012, Food Credit Canada reported an annual revenue of \$50 billion in Ontario, which represents 317,000 jobs for food processing and farming business (Roberts 2012). The food processing and farming business generated the highest annual revenue of \$50 billion in Ontario, surpassing the motor vehicle manufacturing business, which generated \$43.6 billion annual revenue. The agricultural food production sector is an important industry in Northwestern Ontario. One of the notable characteristics of the agricultural food production sector is that it provides residents with a range of local food options. There has been a growing demand of locally produced food over the last decade with increasing awareness of environmental, economic, and health implications of eating local food. The development of local food systems is a growing area of interest and is viewed as a logical strategy to improve community economic vitality (Wittman et al. 2012).

As global temperatures continue to rise, growing seasons have been extended and land has become more arable, thereby allowing increased opportunity for local food production throughout Northwestern Ontario (Bootsma et al. 2005, IPCC 2007, McKenney et al. 2007, HCA 2009). As local food production increases in the region, those within the agricultural sector are not the only ones impacted. For instance, a local farm providing produce to a local restaurant will have an indirect impact on the transportation sector, food and beverage sector/retail sector, wholesale trade sector, and even the health care and social assistance sector. The implications on each sector are varied, from economic gains, social impacts to workforce growth (Steven Bill 2012). The employment generated in different sectors as a result of employment in the agriculture sector is called the workforce multiplier effect of local food production.

The purpose of this study is to provide a detailed examination of the role played by the food production and processing sector on workforce multiplier effect in Northwestern Ontario. This includes an assessment of the indirect impacts of employment generated in the region. The study assesses the current state of food production, compares the changes in the state of food production between 2006 and 2011, explores the workforce multiplier effect of local food production throughout the economy, and provides a forecast of workforce multiplier effect of local food production for the next 5 years in each of the three districts (Thunder Bay, Rainy River and Kenora) of Northwestern Ontario. The report is intended to help the broader community better understand the nature and economic significance of the food production and processing in terms of jobs. The findings are also intended to inform program and policy development work within Northwestern Ontario. Only by better understanding the important role played by food related activities can the

various participants in the agri-food economy work together to make decisions that are economically sound, environmentally sustainable and socially responsible.

The first chapter of the report introduces the scope of the research and the collaborative approach used in conducting the study. Chapter 2 of the report presents a profile of population and employment indicators in Northwestern Ontario. Chapter 3 provides information on the land base resources in the study area including agricultural soils. It also features information on the local climate and growing conditions, and the implications of climate change on future weather patterns. Chapter 4 gives an overview of some of the key local organizations and institutions that promote and support local food production and processing in the region. Chapter 5 provides a detailed picture of the agriculture sector in Northwestern Ontario including a trend analysis of production activities between 2006 and 2011. Data was drawn from the Agricultural Census (Statistics Canada 2011), to describe the farmland area, land use, number of farms, farm size, farm type, farm receipts, farm operating expenses, and characteristics of agricultural operators in the region. Chapter 6 describes the data collected by focus group surveys in the region (Northwestern Ontario). Chapter 7 estimates direct and indirect jobs provided by local farms and food processors in Northwestern Ontario, and projected jobs for the next 5 years. Chapter 8 provides the concluding remarks and some suggestions for future studies.

## **1.2 The Study Methodology**

The study focuses on jobs created by local farms and food processors (producers, suppliers and retailers) in Northwestern Ontario. The three districts in Northwestern Ontario, considered for this study include: Thunder Bay, Rainy River and Kenora. The data for this study were collected during focus group discussions, interviews and surveys conducted by Lakehead University students in the Faculty of Natural Resources Management (FNRM) as part of their Community Services Learning (CSL) experience for Forest Economics course. The CSL activity was conducted with support from Food Security Research Network (FSRN) of Lakehead University. The survey questionnaire (Appendix A) was approved by the Research Ethics Board of Lakehead University and complies with the Tri-Council Policy Statement (TCPS 2) for ethical conduct for research involving humans. Past statistical data (for the years 2006 and 2011) related to local farms and food production and processing were collected from Statistics Canada census data. The participants for research were randomly chosen in the three districts of Northwestern Ontario. The local farms and food production businesses involved in the study included: beef, chickens, elk, pigs, eggs, grains and vegetables. A total of 34 businesses participated in the focus group discussions and interviews. Follow up interviews were also conducted through telephone calls. The survey data was compiled and compared with the data obtained from Statistics Canada. The number of direct and indirect jobs for each district was estimated by prorating the gross domestic production (GDP) from the provincial data. GDP projections from 2013 to 2017 for crop and animal production in Ontario were used to predict the number of direct and indirect jobs in the economy related to local farms

and food processing businesses in Northwestern Ontario. The aggregate projected jobs for each district were further grouped into producer, supplier, and retailer related jobs.

### 1.3 The Study Area and Physical Infrastructure

Northwestern Ontario is comprised of three districts in total and has a land area of 526,417 km<sup>2</sup>, which constitutes about 57.9% of the land area of Ontario (Figure 1.1). The three westernmost districts in Ontario are Thunder Bay, Kenora and Rainy River. The population of Northwestern Ontario is 224, 034 people that constitutes about 1.7 % of the population of Ontario (Statistics Canada 2012).

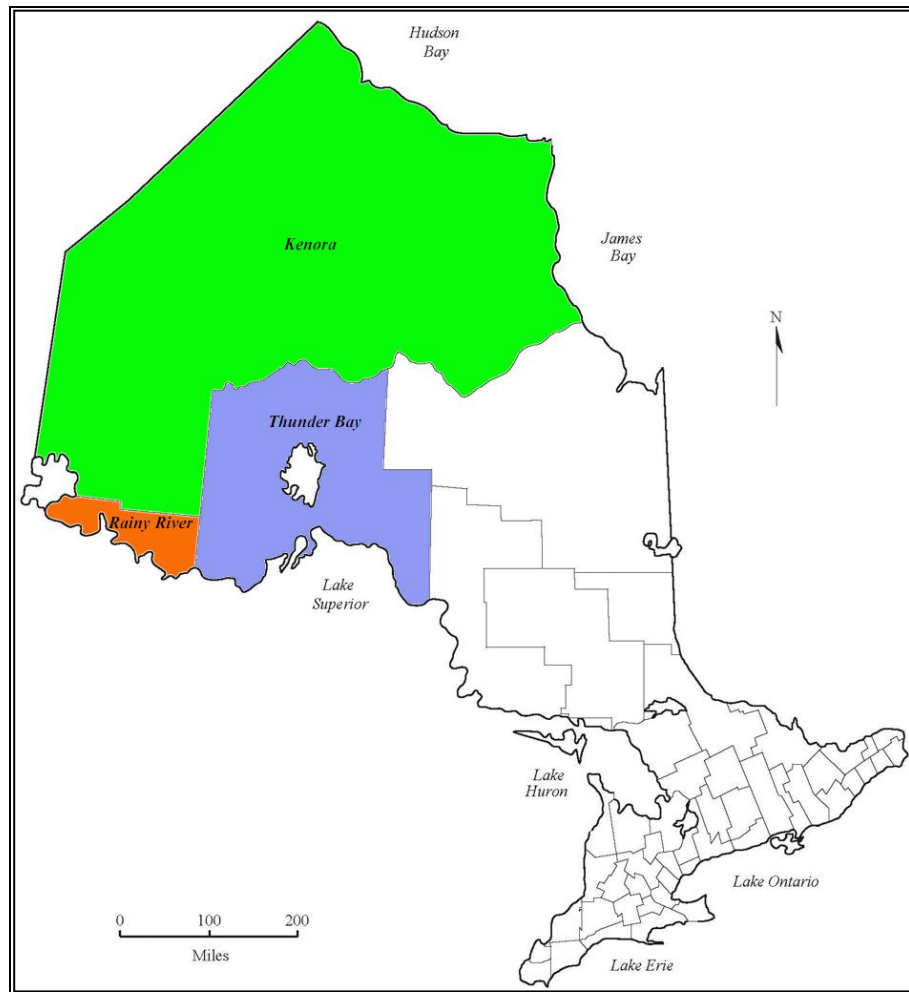


Figure 1.1: Districts of Northwestern Ontario

(Source: Modified from Brock University Map Library (Brook University 2012))

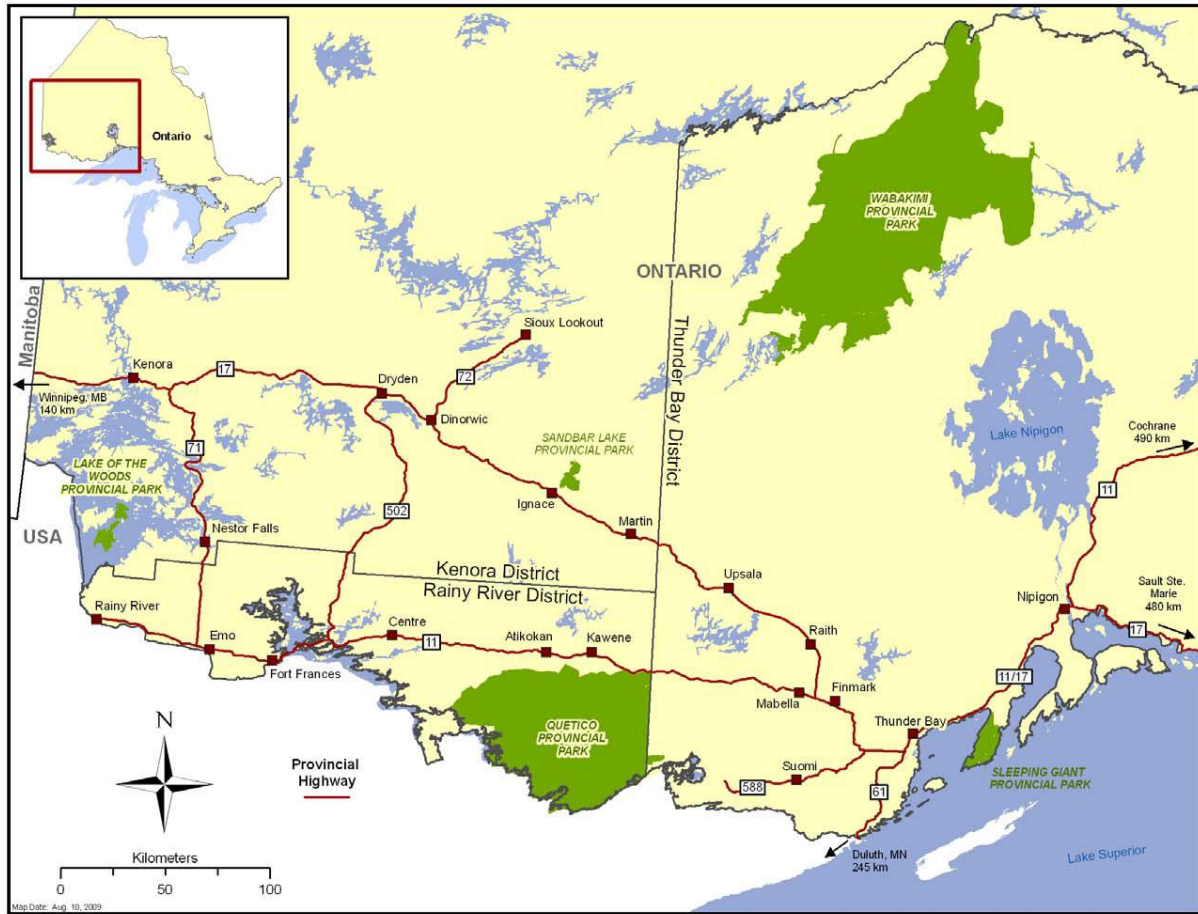


Figure 1.2: Communities and major highways in Northwestern Ontario

Figure 1.2 shows an overview of the Study Area in Northwestern Ontario including select communities and major highways. Northwestern Ontario is served by major highways including Highway 11 and 17 – both are part of the Trans-Canada Highway. Highway 11 runs east west across the southern boundary of Northwestern Ontario and links the City of Thunder Bay to the Town of Fort Frances and the Town of Rainy River. Highway 17 also runs east west and links the City of Thunder Bay to the City of Dryden and the City of Kenora. Highway 17 continues westward beyond the City of Kenora and reaches the City of Winnipeg, Manitoba. Two other principal highways in the region are Highway 71, which runs north south and links the City of Kenora to the Town of Fort Frances, and Highway 72, which links the Town of Sioux Lookout to Highway 11. Northwestern Ontario has three border crossings to the United States at Fort Frances, Rainy River, and south of Thunder Bay along Highway 61.

The City of Thunder Bay is a transportation hub for Canada with substantial rail, marine and air transport infrastructure. The Thunder Bay International Airport is one of the busiest airports in Ontario with 719,490 scheduled passengers flowing through the terminal in 2011 (RP Erichson &

Association Consultants 2011). The City of Thunder Bay has the largest outbound port on the St. Lawrence Seaway System. The port facilities handle a wide variety of cargoes and are served by Canadian National and Canadian Pacific Railways, as well as by major Canadian trucking companies. More than 400 ships visit the Thunder Bay port each year and cargoes such as grain, coal, potash, forest products, and manufactured goods are shipped throughout the world (Martin Associates of Lancaster 2011).

## 2. Socio-Economic Profile of Northwestern Ontario

Socio-economic characteristics of the community are important for the viability and resiliency of the agricultural sector. The general characteristics of the area, which surrounds a particular farming community can impact agricultural diversity and profitability. The data for building the socio-economic profile of Northwestern Ontario was drawn from the *Population Census* conducted by Statistics Canada every five years. The census data of 2006 and 2011 (the most recent census data) were compared to examine the changing trends in socio-economic profile of community, and local farms and food processing sector. Data for Northwestern Ontario were compared to that of the whole province in order to provide detailed insights into the relative importance of the Northwestern Ontario's contribution to the provincial economy.

### 2.2 Population and Population Change

Between 2006 and 2011, the population of Northwestern Ontario declined from 235,046 to 224,034. As shown in Table 2.1, Northwestern Ontario experienced a 5% decline of population, whereas the province of Ontario as a whole experienced a 6% increase in population between 2006 and 2011. Within Northwestern Ontario, the district of Kenora had 11% decline in population, the highest in the region, while the district of Thunder Bay's population only declined by 2% during the same period.

Table 2.1: Population changes from 2006 to 2011 in Northwestern Ontario

	2006	2011	Percent change (%)
Ontario	12,160,282	12,851,821	6
Northwestern Ontario	235,046	224,034	-5
Thunder Bay District	149,063	146,057	-2
Rainy River District	21,564	20,370	-6
Kenora District	64,419	57,607	-11

Source: Statistics Canada

### 2.3 Employment

Table 2.2 shows the North American Industry Classification System (NAICS) developed by the Statistical agencies of Canada, Mexico and the United States. The classification system was created against the background of the North American Free Trade Agreement and was designed to

provide common definitions of the industrial structure of the three countries and a common statistical framework to facilitate analysis of the three economies. NAICS classifies Canadian industries into 18 separate categories (Table 2.2).

Table 2. 2: Employment by North American industry classification system (NAICS) industrial sector in Northwestern Ontario

NAICS Industrial Sector (thousand)	2006	2007	2008	2009	2010
Total employment	104.7	105.8	103.2	100.8	100.1
Goods-producing sector	23.7	21.6	20.7	18.9	18.9
Agriculture	--	--	2.1	--	--
Forestry, fishing, mining, quarrying, oil and gas	5.3	3.1	3.4	3	4.9
Utilities	--	2.1	--	2.2	1.8
Construction	5.4	5.5	6.2	7	6
Manufacturing	11.1	10.4	7.6	5.5	5.5
Services-producing sector	80.9	84.3	82.5	81.9	81.2
Trade	15.9	15.9	15.9	15.3	17.1
Transportation and warehousing	7	7.2	6.4	5.3	5.3
Finance, insurance, real estate and leasing	4.1	3.6	3.3	3.9	3.6
Professional, scientific and technical services	3.5	3.1	4.3	4.5	4.9
Business, building and other support services	4	3.4	3	2.7	3.1
Educational services	9.4	9.5	9.5	9.2	8.7
Health care and social assistance	15.5	16.7	17.7	18	18
Information, culture and recreation	3.2	5	4	4.4	3.6
Accommodation and food services	6.9	7.3	7.9	6.8	6.9
Other services	4.4	4.4	4	5.3	3.5
Public administration	7	8.2	6.6	6.6	6.6

Source: Statistics Canada (Equinox), 2012

In 2010, health care and social assistance, and trade were the two leading employment sectors in Northwestern Ontario. These two sectors employed about 18,000 and 17,100 persons, respectively and collectively accounted for 35% of the total jobs in Northwestern Ontario (Table 2.2). The other top ranking sectors in Northwestern Ontario in 2010, which provided employment include educational services with 8,700 jobs (8.7%), accommodation and food services with 6,900,



jobs (6.9%), public administration with 6,600 jobs (6.6%), construction with 6,000 jobs (6%), manufacturing with 5,500 jobs (5.5%). Agriculture sector directly employed about 2,100 people in 2008, but the data for other years were not available. With respect to the change in number of jobs between 2006 and 2011, the total number of jobs in Northwestern Ontario declined slightly from 104,700 jobs in 2006 to 100,100 in 2010 (Table 2.2). The manufacturing sector experienced the highest job decline of 5,600 jobs between 2006 and 2010. However, the number of jobs increased in the health care and social assistance sector by 2,500, in utilities sector by 1,800 jobs, and in trade sector by 1,200 jobs.

## **2.4 Educational Attainment**

Approximately 20% of the population (25 to 64 years of age) in Northwestern Ontario in 2005 had a university certificate or degree, while a further 29% had a college or other non-university certificate/diploma. The highest educational attainment for 25% of the population was a high school certificate, and 20% of the population did not have a certificate/diploma/degree (Table 2.3). Overall, a sizeable proportion (20%) of the population in Northwestern Ontario has a university certificate or degree compared to the whole of Ontario (26%).

## **2.5 Household Income**

Table 2.4 shows the distribution of households by income categories for Northwestern Ontario in 2005. The distribution is organized according to 11 different income categories, ranging from less than \$10,000 to \$100,000 or more. The average household income in Northwestern Ontario was \$64,640, which is about \$13,327 lower than the provincial average. For income categories under \$20,000 and over \$100,000, Northwestern Ontario had a slightly lower percentage of households as compared to Ontario as a whole. Whereas, for income categories between \$50,000 and \$100,000, the proportion of households in Northwestern Ontario (35%) was fairly comparable with the provincial statistics (34%).

Table 2. 3: Total population by highest educational certificate (25 to 64 years of age), 2005

	Ontario		Northwestern Ontario		Thunder Bay District		Rainy River District		Kenora District	
	#	%	#	%	#	%	#	%	#	%
Total population	6638330	100	24,570	100	81,070	100.0	11000	100.0	32,500	100.0%
No certificate, diploma or degree	899530	13.6	25,355	20.4	13,670	16.9	2130	19.4	9,555	29.4
Certificate, diploma or degree	5738800	86.4	99,215	79.6	67,405	83.1	8865	80.6	22,945	70.6
High school certificate or equivalent	1660665	25.0	31,330	25.2	20,215	24.9	3230	29.4	7,885	24.3
Apprenticeship or trades certificate or diploma	581125	8.8	15,550	12.5	10,275	12.7	1430	13.0	3,845	11.8
College, CEGEP or other non-university certificate or diploma	1461630	22.0	28,925	23.2	19,860	24.5	2490	22.6	6,575	20.2
University certificate, diploma or degree	2035370	30.7	23,410	18.8	17,050	21.0	1720	15.6	4,640	14.3
University certificate or diploma below bachelor level	309945	4.7	4,175	3.4	2,670	3.3	420	3.8	1,085	3.3
University certificate or degree	1725425	26.0	19,230	15.4	14,380	17.7	1295	11.8	3,555	10.9
Bachelor's degree	1057200	15.9	11,625	9.3	8,480	10.5	850	7.7	2,295	7.1
University certificate or diploma above bachelor level	209345	3.2	3,915	3.1	3,030	3.7	225	2.0	660	2.0
Degree in medicine, dentistry, veterinary medicine or optometry	47815	0.7	495	0.4	360	0.4	45	0.4	90	0.3
Master's degree	351925	5.3	2,585	2.1	1,975	2.4	160	1.5	450	1.4
Earned doctorate	59140	0.9	595	0.5	525	0.6	15	0.1	55	0.2

Source: Statistics Canada

Table 2. 4: Private household income in Northwestern Ontario, 2005

Household income in 2005 of private households	Ontario		Northwestern Ontario		Thunder Bay District		Rainy River District		Kenora District	
	#	%	#	%	#	%	#	%	#	%
All households	4,555,025	100	93,450	100	61,840	100	8,590	100	23,020	100
under \$10,000	198,235	4	4,405	5	2,800	5	350	4	1,255	5
\$10,000 to \$19,999	398,830	9	10,440	11	6,765	11	1,205	14	2,470	11
\$20,000 to \$29,999	408,130	9	9,450	10	6,215	10	855	10	2,380	10
\$30,000 to \$39,999	447,475	10	9,695	10	6,325	10	880	10	2,490	11
\$40,000 to \$49,999	419,525	9	9,305	10	6,060	10	895	10	2,350	10
\$50,000 to \$59,999	385,555	8	7,985	9	5,345	9	710	8	1,930	8
\$60,000 to \$69,999	356,990	8	7,440	8	5,005	8	670	8	1,765	8
\$70,000 to \$79,999	324,835	7	6,560	7	4,360	7	615	7	1,585	7
\$80,000 to \$89,999	282,910	6	6,150	7	4,205	7	525	6	1,420	6
\$90,000 to \$99,999	238,720	5	4,685	5	3,055	5	435	5	1,195	5
\$100,000 and over	1,093,810	24	17,330	19	11,700	19	1,450	17	4,180	18
Median household income	\$60,455		--		\$54,893		\$51,476		\$52,750	
Average household income	\$77,967		64,640		\$65,503		\$62,023		\$63,297	

# households

Source: Statistics Canada

### **3. Land Base Resources in Northwestern Ontario**

This chapter provides an overview of different land base and agricultural community resources in Northwestern Ontario. Land base resources include soil resources and climate conditions, while community resources refer to the organizations and institutions that support the agriculture sector in the region.

#### **3.1 Physical Geography and Agricultural Soils**

The topography of Northwestern Ontario is characterized by the Canadian Shield, which underlies much of the area. The region features bedrock outcropping, large areas of poorly drained, swampy conditions and substantial accumulations of glacial-fluvial deposits. Deposits laid down by glacial streams and lakes have strongly influenced soil development in the region including the composition of present day forests, which continue to be an important element of the local economy (Baldwin et al. 2000)

The Canadian Shield also features small areas of clay deposits, which are suitable for raising crops and grazing. Under the Canadian agricultural land use classification system, Class 1 soils are of prime suitability for crop production, while Class 2 and 3 soils are considered suitable for sustained production of common field crops if specified management practices are observed. Soils of Classes 1, 2, and 3 that are free from severe constraints and can support economically viable agricultural production are referred to as 'dependable agricultural land'. Marginal lands with Class 4 soils are also used for agricultural activity including limited crop production and permanent pasture.

Northern Ontario does not possess any Class 1 soils but does feature areas with Class 2 to 4 soils. In Northwestern Ontario, these soils are located around several communities in the southern part of the region including Thunder Bay, Rainy River and Dryden. Summary descriptions of soil classes 2 to 4 are as follows (Natural Resources Canada 1969):

**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 in productivity for a fairly wide range of crops.

**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.

Maps of the soil capability for agriculture in Northwestern Ontario (including the agricultural production areas around the City of Thunder Bay, the Town of Fort Frances, the Town of Rainy River, the City of Dryden, and the City of Kenora) are presented in Appendix C.

### **3.2 Climate and Crop Heat Units**

Climate conditions coupled with soil conditions play a significant role in determining the type of agricultural activity in Northwestern Ontario. As shown in Table 3.1, during 1971-2000 the southern part of Northwestern Ontario had average summer temperatures of 18°C while average winter temperatures were about -14°C (Colombo et al. 2007). At present, the last frost in spring occurs in late June in Northern Ontario, while the first frost generally occurs in September which results in fewer than 100 frost free days (Qian et al. 2005). In the southern part of Northwestern Ontario, the average earliest planting date in the Thunder Bay District area is June 3 while the average season ending date is September 10. The Fort Frances area has a slightly longer growing season with May 23 as the average earliest planting date and September 15 as the average season ending date (Brown and Bootsma 1997). Table 3.1 shows the climate normals for several locations in the southern part of Northwestern Ontario. The Thunder Bay District area generally has cooler summers and warmer winters relative to other parts of the region due to the presence of Lake Superior which helps to moderate surrounding air temperatures in the summer and winter.

The slope and soil type in an area or site can also influence temperatures. For example, south-facing slopes receive more heat than north-facing 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 Crop Heat Unit (CHU), which is the daily minimum and maximum temperatures affecting the growth of specific crops in the region. The CHU system 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. CHUs can fluctuate from year to year depending on weather patterns and some areas can experience higher CHU zones. Latitude, elevation and distance to the Great Lakes all affect daily temperatures and have a marked influence on the accumulated CHU across Ontario. However, the change between CHU isolines is gradual. The accumulated CHU available for crops such as corn and soybeans across Ontario are shown in Figure 3.1. The Northwestern Ontario study area is

shown in the insert of Figure 3.1 in the lower right corner. CHU ratings range from approximately 1900 in Thunder Bay to 2300 in Fort Frances. These ratings allow for a variety of crop production in Northwestern Ontario including wheat, oats, barley, corn, soybeans, potatoes, alfalfa, and other hay fodder crops.

Table 3. 1: Climate normals for select areas in Northwestern Ontario (1971-2000).

Weather Station	Month or Year	Temperature				Precipitation		
		Daily Average (°C)	Standard Deviation	Daily Maximum(°C)	Daily Minimum(°C)	Rainfall (mm)	Snow fall(cm)	Total Precipitation (mm)
Thunder Bay	January	-14.8	3.1	-8.6	-21.1	2.5	41.2	31.3
	July	17.6	1.2	24.2	11	89	0	89
	Year	2.5	0.9	8.5	-3.6	559	187.6	711.6
Fort Frances	January	-16.2	3.8	-10.3	-22	0	31.6	31.6
	July	18.8	1.1	25.1	12.4	94.7	0	94.7
	Year	--	--	--	--	580.9	139.9	720.7
Kenora	January	-17.3	3.7	-12.6	-22	0.4	28	26.1
	July	19.5	1.5	24.4	14.5	95.3	0	95.3
	Year	2.7	1.1	7.4	-2	514.4	158.2	661.8
Dryden	January	-17.5	3.5	-12.4	-22.6	0.2	30.2	28.4
	July	18.8	1.4	24.2	13.2	98.8	0	98.8
	Year	2.1	1.1	7.2	-3	535.6	169.9	701.3

Thunder Bay: Latitude = 48° 22' N; Longitude = 89° 19' W; Elevation = 199 m. Fort Frances: Latitude = 48° 39' N; Longitude = 93° 26' W; Elevation = 342 m. Dryden: Latitude = 49° 50' N; Longitude = 92° 45' W; Elevation = 412 m. Kenora : Latitude = 49° 47' N; Longitude = 94° 21' W; Elevation = 410 m. (Source: Environment Canada, 2012)

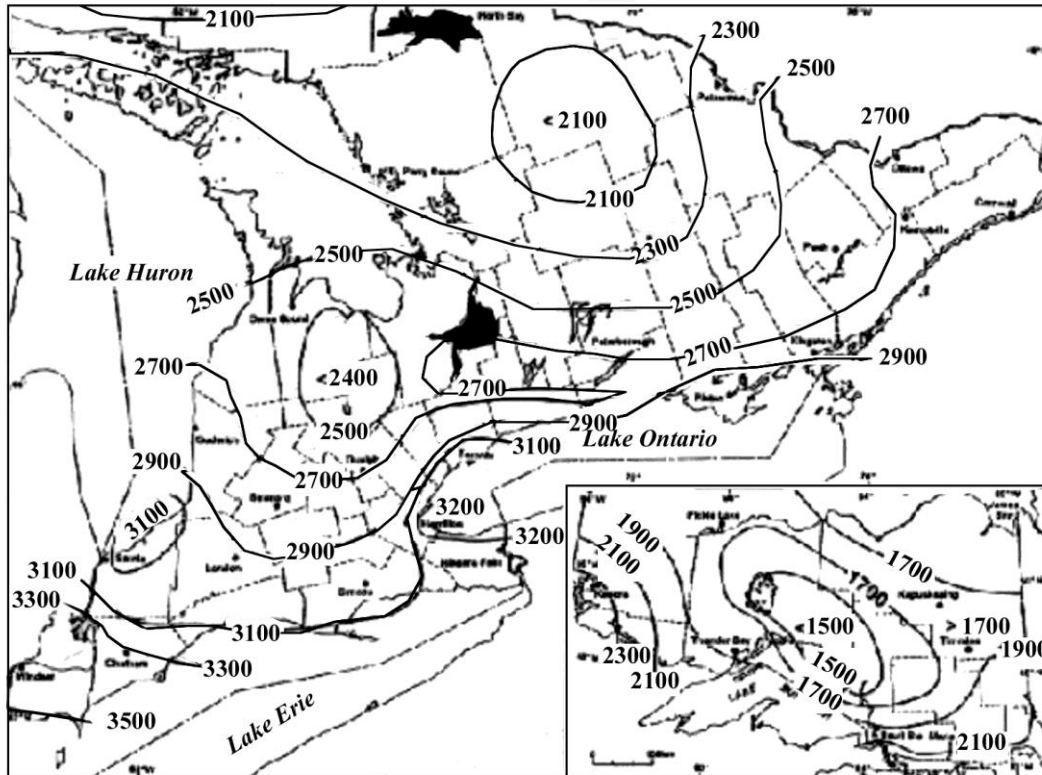


Figure 3. 1 : Average accumulated crop heat units (CHU) available for warm-season crops in Ontario.

Source: Ministry of Agriculture, Food and Rural Affairs (Brown and Bootsma 1997)

### 3.3 Climate Change

Climate change including global warming is now widely recognized as a major environmental issue with economic, health and safety, security, and other dimensions (IPCC 2007). Agri-food is an economic sector which could be especially sensitive to long-term climatic change. The average summer temperatures in the southern part of Northwestern Ontario will increase by 2 to 3°C starting around 2041 and by 4 to 5°C between 2071 and 2100 (Colombo et al. 2007, McKenney et al. 2007). With respect to precipitation, starting about 2071, the western half of Northwestern Ontario (including Kenora, Dryden and Fort Frances) will receive up to 10% less warm season precipitation while the eastern half of the region (including Thunder Bay) will receive up to 10% more warm season precipitation. With respect to the cold season, the same climate change scenario noted above predicts that the average winter temperature in the southern part of Northwestern Ontario will be 5 to 6°C warmer by 2071. With respect to precipitation, starting about 2071 much of the western half of Northwestern Ontario (including Kenora, Dryden and Fort Frances) will receive up to 10% less cold season precipitation while the eastern half of the region



(including Thunder Bay) will receive up to 10% more cold season precipitation (Colombo et al. 2007).

Climate change is expected to have major implications for the length of the growing season, the variety of crops grown, as well as grain yields in northern Ontario. In examining climate change scenarios for Canada, Qian *et al.* (2005) predict that the number of frost-free days is expected to increase by 30-45 days in northern Ontario by the middle of the century. The predicted changes for the frost dates indicate an earlier ending of frosts in spring and a later starting of frosts and killing frosts in the fall. CHU ratings in Northwestern Ontario will be altered as a result of the expected climate change. For example, in the area around Fort Frances and Thunder Bay, the CHU rating will increase by almost 400 units between 2010 and 2039, and almost 800 units between 2040 and 2069 (Bootsma et al. 2005). According to Bootsma *et al.* (2005) grain corn yields could potentially increase by 0.64 tons per hectare with each increase of 100 CHU.

In conducting a regional assessment of the implications of climatic change on land resource potential for crop production in Ontario, Smit *et al.* (1989) reported that the grain corn yields would increase to such an extent that it would be feasible to obtain a high return to investment on well-drained loamy soils, and on lands that have a low drought tolerance. On lands, where artificial land drainage has lessened the limitations imposed by excessive moisture conditions, yields would be sufficient to obtain a modest return. In northern Ontario, grain corn would become an economically viable crop on about 70% of the land base that is cleared and available for agriculture.

The longer growing season and warmer temperatures in northern Ontario would create new opportunities for soybeans. Land which is well-drained would be especially well-suited for soybeans, and a modest return to investment could be expected on those lands where moisture imposes moderate limitations on crop production. In northern Ontario, where current climatic conditions prohibit the crop's production, soybeans would be a profitable crop on approximately 58% of the regional resource base. Considerable increases in barley yields could be expected throughout the region, but lands suffering from excessive moisture would continue to be economically unsuitable for the small grains. Opportunities for hay production would be considerably smaller than the effects on other field crops in northern Ontario. Although the longer growing season would permit an extra growth cycle in other parts of the province, in northern Ontario the number of cutting periods would not change under the altered climate and the production prospects for hay would not differ appreciably from the present.

## **4. Agricultural Community Resources in Northwestern Ontario**

A number of institutions and organizations work together to promote agriculture in Northwestern Ontario. This chapter provides a brief introduction to some of these organizations to provide a sense of the variety and scope of activities taking place in the region. We purposely focus on three districts (Thunder Bay, Rainy River, Kenora) of Northwestern Ontario to illustrate the range of different organizations and initiatives across the region that are advancing the overall growth and sustainability of agriculture. The regional perspective also illustrates the capacity of different areas and organizations of Northwestern Ontario to work collaboratively to pool resources and leverage funding to facilitate agricultural based research.

### **4.1 Federation of Agriculture**

The Thunder Bay Federation of Agriculture (TBFA) was established in 1988 and currently has about 100 members including primary producers and associated businesses. Some of its outreach/education activities include farm drive tours, information booths at local trade shows, and educational events. TBFA also promotes agricultural career opportunities through the annual Regional Career Fair (hosted by the Confederation College Aviation Centre of Excellence) and promotes local agricultural job opportunities through co-op programs. Additional details on TBFA activities and agriculture related news and current events can be accessed through the TBFA website: <http://www.tbfarminfo.org>

### **4.2 Soil and Crop Improvement Association**

Northwestern Ontario is represented by three Soil and Crop Improvement Associations, one for each district in the region. In general, these groups work to enhance producer education and practices, develop and deliver stewardship programs, and address consumer concerns on agricultural environmental issues. The Associations also work collectively to publish a regular newsletter, Northwest Link, which informs agri-related stakeholders about upcoming professional development and training sessions, upcoming agriculture commodity group meetings, results from crop research stations, and information from government agencies.

### **4.3 Other Agricultural Commodity Groups / Organizations**

In addition to the Thunder Bay Federation of Agriculture and the Thunder Bay District Soil and Crop Improvement Association, there are a number of other agricultural commodity groups and organizations promoting agriculture in the region including:

- Thunder Bay Cattlemen's Association

- Thunder Bay Dairy Producer Committee
- Thunder Bay Holstein Club
- Christian Farmers Association, Thunder Bay
- Lakehead Light Horse Association
- Northland Equestrian Team (NET)
- Thunder Bay Veterinary Committee
- Thunder Bay Horticultural Society
- Slate River Plowmen's Association
- Hymers Agricultural Society
- Oliver Agricultural Society
- Thunder Bay Country Market
- Thunder Bay Farmers' Market
- Slow Food Movement
- Food Action Network
- Thunder Bay Agriculture Research Station
- Ontario Ministry of Agriculture, Food and Rural Affairs

#### **4.4 Food Action Network**

The Food Action Network (FAN) is a group of agencies, organizations and individuals in Northwestern Ontario that is working to promote local food options. The purpose of the organization is to create awareness, support food projects, advocate for policies that support community food security, and act as an information centre for community food security in the district of Thunder Bay. In 2006, FAN worked to develop the Thunder Bay Food Charter, which outlines a set of principles designed to help guide decisions, policies and collaboration for food security in the community. The Charter was developed with community input and has been adopted by Thunder Bay City Council and the Thunder Bay District Social Services Board. Principles in the Charter related to promoting community economic development include:

- Prioritizing the production, preparation, storage, distribution and consumption of local food as an integral part of the Thunder Bay economy;

- Developing collaborative urban and rural food security initiatives to sustain local agriculture and rural communities; and
- Supporting a regionally-based food system to enhance food security and self- reliance.

#### **4.5 Thunder Bay District Health Unit**

In addition to being a member of the Food Action Network, the Thunder Bay District Health Unit offers a series of Eat Local Workshops to raise awareness about local food options and to help residents learn how to eat and cook with the seasons. The 2009 workshops covered a variety of topics including honey, smoked fish, bannock and berries, beef, bread making, canning, and food storage and drying. The workshops are offered free of charge in partnership with Roots to Harvest and Slow Food Superior and run from July to September every year.

#### **4.6 Research Groups**

Agricultural related research is important to making farms more profitable and making farming practices more sustainable. A number of organizations in Northwestern Ontario are undertaking a variety of research initiatives and a brief overview of some of these activities is provided below.

##### ***4.6.1 Thunder Bay Agricultural Research Station***

The Thunder Bay Agricultural Research Station (TBARS) is located in the City of Thunder Bay. As noted on the TBARS website, the research station is committed to the establishment, operation, promotion, and transfer of agricultural research for further development and diversification of the agricultural industry (TBARS, Aug. 2009. <http://www.tbars.net>)

In 2008, TBARS conducted research on a wide range of spring cereal crops including numerous wheat, barley and oat varieties. In general the research examined production from the standpoint of grain yield, grain protein content, straw yield, and total biomass yield. In the case of barley, silage yield and silage protein content was also examined. Yield performance was also examined in relation to variations in seeding dates, the application of chemical or natural fertilizers, fertilizer blends, the application of mineral nutrition, and intercropping with other crops. In 2008, TBARS also conducted research on winter cereal crops (including varieties of wheat, barley and rye) as well as soybeans, field peas, fall and spring canola, and a wide range of forage crops (e.g. grasses, corn for silage, alfalfa). TBARS also has several long term experiments underway including:

- examining the effects of periodic applications of lime and wood ash on soil pH and nutrients and resulting barley yields (initiated in 2004);

- examining the effects of solid dairy manure, wood ash and fertilizer nutrients on soil pH and nutrients and resulting barley yields (initiated in 2004);
- experimenting with 10 different potential cropping systems (crop rotation) including forage and grain legumes, other forages, and cereals spread over 10 years (initiated in 2004)

Other field/crop trials at TBARS in 2008 included a medicinal plant garden and industrial hemp variety performance. Additional details on the above research and other research activities conducted by TBARS in 2008 are presented in the TBARS Annual Research Results Summary that can be accessed at the website: <http://www.tbars.net/annual.shtml>

#### ***4.6.2. Emo Agricultural Research Station***

The Emo Agricultural Research Station (EARS) is located in the Rainy River District (Chapple Township) along Highway 11. The station is based on 133 acres of clay loam soil and includes an agronomy unit and a horticulture unit. The agronomy unit focuses on adapted crop species including spring wheat, barley and oats, canola, soybeans, and perennial forages such as alfalfa, clovers and grasses. Research areas include cultivar evaluation, crop nutrition and new species evaluation. In 2008, EARS began conducting green manure trials using a variety of cover crops (e.g. clover, hairy vetch, braco mustard, buckwheat and oilseed radish) where hard red spring wheat was introduced (Bliss, 2008). EARS is also involved in a 3 year trial to examine two types of grasses (reed canary and switch grass) that could potentially be grown, harvested and mixed in wood waste to fuel the new Resolute Forest Products biomass boiler in Fort Frances.

#### ***4.6.3. Food Security Research Network***

The Food Security Research Network (FSRN) combines Lakehead University resources (faculty, students and staff) with Northwestern Ontario partners to address food security issues (food marketing, production, distribution, and new/innovative uses of the boreal forest) through four innovative approaches: Community Shared Agriculture (CSA), Community Gardens, Learning Gardens, and AgroForestry (<http://www.foodsecurityresearch.ca>).

Some of the projects supported/promoted by FSRN include:

- Community Supported Agriculture (CSA) – In this approach to agriculture, farmers and consumers share the risks and benefits of growing food. Consumers buy into the farming process by paying for shares of production in advance of seeding.
- Lakehead University Community Campus Garden – FSRN established this 24,000 sqft garden to bring together experienced and beginner gardeners to raise awareness of sustainable gardening practices and to promote and expand the growth of local food options. FSRN also produces the Campus Garden newsletter which contains gardening information and resources.

- Roots to Harvest (2007-2010) – This project involves young people in urban and rural Thunder Bay to engage in issues about food security within a science and technology framework. The project partners with other organizations in coordinating and delivering educational outreach activities related to food production, nutrition, culture and distribution.
- Learning Garden – This study involves the implementation and evaluation of a health learning program with three First Nations communities. The garden includes the cultivated garden and natural or forest gardens as viable local food sources with no artificial boundary between the two. A diversity of local food sources is encouraged in one seamless local food system.
- Grain Mill Feasibility Study – This study examined the feasibility for establishing a local wheat milling facility. The study confirmed that there is a market for locally ground flour and a mill was constructed and is now in operation at Brule Creek Farms, Kakabeka Falls.
- Community Service Learning (CSL) – This learning and research initiative provides Lakehead University faculty and students with opportunities to engage with the community in building an environment that promotes local food systems. As described on the FSRN website, all instructors “are encouraged to create sub-themes of food security that are pertinent to a credit course that they are instructing and could provide the students with community engagement whereby the students can learn from the community and bring this knowledge back into the classroom.” One of the courses being offered, Introduction to Northern Small Scale Agriculture, involves students spending one day a week at a local farm and learning about local crops, livestock, and alternative livestock. Students are also introduced to farm-related heritage industries including felting (wool production) and woodworking.
- Marketing Study on Consumer Beef Product Preferences – FSRN assisted the Thunder Bay Cattlemen’s Association in conducting a study of end users (restaurants, institutional chefs, and managers and retailers) to determine preferences of samples of locally produced meat. The study also involved a survey of regional potential consumers to define the consumption demand trends and preferences for locally produced beef.

FSRN has also been active in a Blueberry Marketing Initiative with Aroland First Nation. This collective action project is promoting community economic opportunities through a blueberry buying depot. In just its second season, the project has achieved significant results with the buying depot purchasing nearly 6,000 litres of blueberries, resulting in approximately \$36,000 earned by the pickers.

The blueberries were made accessible to customers in Northwestern Ontario through a number of locations in the City of Thunder Bay and the surrounding area. This included a regular presence at various markets including the Thunder Bay Country Market, the Bay Street Market, the

South Gillies Market, and the Downtown Artisans and Farmer's Market. The berries were also sold at the Murillo, Hymers and Kakabeka fairs. The Roots to Harvest garden helped to build a loyal customer base and bulk sales to other vendors, and facilitated a regional market for the berries. Lowey's Produce Greenhouse & Market Gardens, Valley Fresh, Quality Market County Fair, Northern Unique Baked Goods, and Unique Alternatives aided regional distributors used the berries in value added products, such a bread, scones, and pies.

Plans for next year include continued growth through social enterprise. A large quantity of blueberries has been frozen for sale throughout the fall and winter and for use in value added products. FSRN will be applying for development funding for equipment which will greatly increase storage, distribution, and marketing capabilities. In addition, FSRN and its partners are working to develop their own label and baskets. Contests will be held in Aroland to select the logo and basket design. The project offers accessible economic development for all community members and FSRN is seeking to build new partnerships to make forest foods more accessible and profitable for northern Ontarians. Details on other FSRN research initiatives are provided on the FSRN website: <http://www.foodsecurityresearch.ca>

#### **4.7 Agri-Food Innovation**

Northwestern Ontario is a source of agri-food innovation. Since the Premier's Award for Agri- Food Innovation Excellence was established in 2006, a total of eleven businesses in Northwestern Ontario have been recognized for their innovation and contribution to the community and economy (OMAFRA 2012).

##### ***Boreal Forest Teas - Thunder Bay District (2011)***

Boreal Forest Teas was inspired by Canada's vast boreal forest and its incredible diversity of healing and nutritive plants. All teas are blended from premium quality organic cultivated herbs and locally, ethically and sustainably wild-harvested plants. All Boreal Forest Teas are highly nutritious, wholesome and bursting with northern flavor. Boreal Forest Teas contain fresh whole herbs, packaged loose rather than in teabags, to help preserve the plants' medicinal and nutritional properties. The natural Kraft paper bags are glassine-lined to preserve freshness and are completely biodegradable, recyclable and compostable.

##### ***Boreal Birch Syrup - Thunder Bay District (2010)***

In 2006, Boreal Birch Syrup began to make what has now become a signature product of Northwestern Ontario. Using the same process used for maple syrup, the company has developed a new niche product that taps into our collective history. They also produce birch woodcarvings, birch bark baskets, birch syrup flavored food products and shiitake mushrooms grown on birch logs out of a 65-acre birch forest that was once slated to be clear-cut. This is its sixth season of

production and Boreal Birch Syrup is doubling its operation to 1,000 taps. They are confident that there is huge potential for more producers to supply a growing international market.

***Mountain Fresh Farm - Thunder Bay District (2009)***

Mountain Fresh Farm promoted fresh sour cherries that could withstand the tough northern climate. Besides reducing the carbon footprint from all that transport, the trees will thrive in other northern areas, bringing the healthy fruit to more communities. An added benefit is that the hardy trees require almost no chemical spray.

***Rainy River District Regional Abattoir Inc.- Rainy River District (2009)***

Rainy River District Regional Abattoir Inc. is an Ontario's only not-for-profit abattoir group. It took a hands-on approach, planning and managing the construction and operation of the \$2 million facility which opened in January 2010. The abattoir can process beef, pork, sheep, elk and bison, and its handling system includes an ear tag reader that enhances food traceability. It eliminates the need for livestock to be transported up to six hours away for processing. The abattoir has been designed so that it can be easily upgraded in the future to a federal facility, which will enable broader product sales as demand increases.

***Lowey's Produce - Rainy River District (2008)***

Lowey's Produce used reduce, reuse and recycle principles to rebuild and retrofit its operation with a high efficiency greenhouse and heating system. The new heat retention and heat generation systems has improved efficiencies throughout the greenhouse process. The new clean energy boiler runs on biomass gasification. As a result, Lowey's Produce has reduced electrical energy costs by as much as 40%, and totally eliminated its natural gas costs. The innovation allows the production of more products and crops year-round, which is significant in northern Ontario.

***Gammondale Farm - Thunder Bay District (2007)***

Gammondale Farms have developed a variety of agri-tourism activities to attract families, students and tourists to their traditional produce farm. In addition to growing a wide variety of produce including strawberries, pumpkins, squash and gourds, they also offer fun and educational experiences that promote the environment, healthy lifestyles and nutrition, and agricultural awareness.

***Thunder Oak Cheese Farm - Thunder Bay District (2006)***

Thunder Oak Cheese Farm operates a Gouda cheese processing plant, which was expanded from the original dairy farm. The plant is the only Gouda cheese plant in Northern Ontario and also features an educational component where the public are invited in to watch the cheese making process. This innovative approach is providing a product and service to Northern Ontario residents and encouraging greater interest in agri-related artisan activities.



***Cornell Farms - Rainy River District (2007)***

Cornell Farms has shifted to direct marketing to better respond to consumer demand. The marketing approach includes branding, the use of a wireless visa/debit machine and a range of new beef products that incorporate other local products such as wild rice.

***Pine River Ranch - Rainy River District (2006)***

Pine River Ranch is applying careful, intensive pasture management to provide high-quality grazing for the operation's 600 beef cows. The operation has established a riparian zone along the ranch's waterways and manure is composted and runoff has been eliminated. The operation has also set aside land under the Green Cover program and fences have been reconstructed and trees planted to evaluate the potential for a shelter belt. Additionally, solar energy is being used to power remote water systems for their cattle.

***Rainy River Elk Company - Rainy River District (2006)***

In the period leading up to the mad cow disease crisis that developed in 2003, Rainy River Elk Company relied on the U.S. market for 80% of its revenues. With the closure of the border to meat products, the operators responded by developing and implementing new ways to generate local interest in their products including product differentiation and working with others to expand its reach through farmers' markets.

## 5. Census Profile of Local Farms and Food processors in Northwestern Ontario

This chapter presents a profile of local farms and food processors in Northwestern Ontario. Data for the analysis were drawn from *Census of Agriculture* of Statistics Canada, which is conducted every five years. Statistics Canada reports on agricultural data for the following census subdivision areas (district) in Northwestern Ontario: (i) Thunder Bay District; (ii) Rainy River District; and (iii) Kenora District. A descriptive analysis of the trends and changes in farmland area, farm size, farm types, farm productivity, farm receipts, net revenues, and farm capital is provided for the census years 2006 and 2011. Data for Northwestern Ontario are further compared to data at provincial and national levels to provide further insights into the relative importance of Northwestern Ontario's contribution to the regional economy.

### 5.1 Number of Farms, Farmland Area and Land Tenure

Statistics Canada defines 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 nuts, berries or grapes, vegetables or seeds); 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). In 2011, Statistics Canada reported a total of 599 farms in Northwestern Ontario that represent 1.15% of all farms in Ontario. Although Northwestern Ontario has experienced an overall decline in farm numbers since 2006 (656 farms), the percentage decline of number of farms (8.69%) was lower than the provincial (9.20%) and national (10.31%) averages (Table 5.1). Within Northwestern Ontario, the percentage change of the number of farms in Thunder Bay District was the smallest (5.16%) as compared to the other districts.

Table 5. 1: Number of farms in Northwestern Ontario, Ontario and Canada

	2006	2011	Change #	Change %
Canada	229373	205730	-23643	-10.31
Ontario	57211	51950	-5261	-9.20
Northwestern Ontario	656	599	-57	-8.69
Thunder Bay District	252	239	-13	-5.16
Rainy River District	312	278	-34	-10.90
Kenora District	92	82	-10	-10.87

Source: Statistics Canada

Northwestern Ontario had a total of 280,843 acres of workable and non-workable farmland in 2011 (Table 5.2), which represents approximately 2.21% of the total farmland in Ontario. From 2006 to 2011, the area of farmland in Northwestern Ontario declined by 28,785 acres. The average farm size in Northwestern Ontario (469 acres) is larger than the average farm size at the provincial level (244 acres), but smaller than at the national level (778 acres). Thunder Bay District has the smallest average farm size (247 acres), Rainy River District has the largest average farm size (686 acres), and Kenora District has an intermediate farm size (379 acres) in Northwestern Ontario.

Table 5: 2: Total land area by farms

	2006			2011		
	Total farms	Total acres	Average farm size	Total farms	Total acres	Average farm size
Canada	229,373	167,010,491	728	205,730	160,155,748	778
Ontario	57,211	13,310,216	233	51,950	12,668,236	244
<u>Northwestern Ontario</u>	<u>656</u>	<u>309,628</u>	<u>472</u>	<u>599</u>	<u>280,843</u>	<u>469</u>
Thunder Bay District	252	61,850	245	239	59,072	247
Rainy River District	312	211,625	678	278	190,660	686
<u>Kenora District</u>	<u>92</u>	<u>36,153</u>	<u>393</u>	<u>82</u>	<u>31,111</u>	<u>379</u>

Source: Statistics Canada

Table 5.3 shows the land tenure in the three districts of Northwestern Ontario as compared to the provincial and national averages. About 80% farmland area (45,943 acres) in Thunder Bay District and 77% farmland area in Rainy River District (143,350 acres) were self-owned. There has been an increase in the self-owned farmland area by 3% in Thunder Bay District, and a decrease by 3% in the Rainy River District from 2006 to 2011.

Table 5. 3: Land tenure in Northwestern Ontario, Ontario and Canada

	2006				2011			
	Area owned (acres)		Area rented/leased		Area owned (acres)		Area rented/leased (acres)	
	Acres	%	Acres	%	Acres	%	Acres	%
Canada	110,335,994	66	57,684,140	34	103,450,739	64	58,914,605	36
Ontario	9,613,544	71	3,882,534	29	8,952,054	70	3,853,503	30
Northwestern Ontario	240,055	78	69,573	22	209,340	×	×	×
Thunder Bay District	47,833	77	14,017	23	45,943	80	11,387	20
Rainy River District	168,379	80	43,246	20	143,350	77	42,596	23
Kenora District	23,843	66	12,310	34	20,047	×	×	×

×: suppressed to meet the confidentiality requirements of the Statistics Act. Source: Statistics.

## 5.2 Farmland Use

Table 5.4 shows the farmland use in Northwestern Ontario as compared to the provincial and national statistics. In Northwestern Ontario, the largest single use of farmland has been crop production. In 2011, 97,121 acres of the total farmland base were used for crop production in Northwestern Ontario. There has been a further increase of 243 acres of farmland under crop production between 2006 and 2011 in the region. However, most of this increase has been confined to the Thunder Bay District, as both Rainy River District and Kenora District have shown a decrease in farmland under crop production from 2006 to 2011 by 1,948 and 3,745 acres, respectively.

Table 5. 4: Farmland use in Northwestern Ontario as compared to the provincial and national statistics

Year		Total area of farms(acres)	Land in crops	Summer-fallow	Tame or seeded pasture	Natural land for pasture	All other land
2006	Canada	149,776,011	88,741,106	8,662,461	14,071,138	38,157,034	144,272
	Ontario	13,310,216	9,046,383	29,394	749,719	1,112,668	2,372,052
	Northwestern Ontario	×	102,571	×	30,745	68,466	×
	Thunder Bay District	61,850	29,420	163	3,364	8,472	20,431
	Rainy River District	211,625	59,374	1,079	24,762	54,508	71,902
	Kenora District	×	13,777	×	2,619	5,486	×
2011	Canada	147,984,122	87,352,431	5,152,632	13,671,483	36,332,724	5,474,852
	Ontario	11,055,791	8,929,948	23,450	648,758	984,808	468,827
	Northwestern Ontario	×	97,121	×	33,215	68,164	×
	Thunder Bay District	43,647	29,663	257	3,184	6,454	4,089
	Rainy River District	144,617	57,426	490	26,235	57,200	3,266
	Kenora District	×	10,032	×	3,796	4,510	×

×: suppressed to meet the confidentiality requirements of the Statistics Act.

Source: Statistics Canada

### 5.3 Farm Types

Table 5.5 shows the number of farms by farm types for Northwestern Ontario districts in comparison to Ontario and Canada. Northwestern Ontario has higher proportion (of the total number of farms) of beef cattle farms and other crops farms compared to Ontario and Canada proportions. However, the proportion of farms producing oilseed and grains is lower in Northwestern Ontario as compared to the provincial or national statistics. Within Northwestern Ontario, Thunder Bay District has more dairy farms, Rainy River District has more beef farms, and Kenora District has more number of other crops and other animals farm types.

In 2011, a total of 86 farms (36%) in Thunder Bay District were primarily engaged in producing hay/fodder crops, while 29 farms (12%) were engaged in dairy production, and 19 farms (8%) were engaged in beef cattle production (Table 5.5). Between 2006 and 2011, the number of dairy farms in Thunder Bay District declined from 46 farms to 29 farms, which represents a decrease of 36%. With respect to other livestock type farms, in 2011 the district had 7 sheep farms (down from 9 sheep farms in 2006) and 2 hog farms (up from no hog farms in 2006). The District also reported 4 poultry farms in 2011 (down from 5 farms in 2006), and a total of 41 farms involved in other farm animal production (down from 52 farms in 2006). This includes animals such as horses, bison, deer, elk, llamas, alpacas, wild boars, rabbits, bees, etc. Additional details on the inventory of farm animals/poultry in the district are provided in Section 5.5 of this report. The field crops, oilseed/grain crop farms in the district increased from 4 to 6 farms between 2006 and 2011, while other types of field crop farms (e.g. hay, fodder crops) increased from 70 to 86 farms during the same period. Additional details on the amount and type of crop production occurring in the district are provided in Section 5.6 of this report. In 2011, Thunder Bay District reported 8 farms involved in fruit production (down from 9 farms in 2006) and 12 farms involved in vegetable production (down from 13 farms in 2006). Additional details on the amount and type of fruit and vegetable production occurring in the district are provided in Section 5.7 of this report.

Rainy River District also features a variety of different farm types. In 2011, a total of 121 farms (43%) in the district were primarily engaged in beef cattle production, 110 farms (39%) were engaged in producing hay/fodder crops, 10 farms (4%) were engaged in dairy production, and 24 farms (9%) were engaged in other animal production (e.g. horses, bison, deer, elk, llamas, goats, rabbits, etc.). Between 2006 and 2011, the number of beef cattle farms in the district declined by 32% from 178 to 121. During the same period the province of Ontario and Canada as a whole experienced 18% and 16% decreases, respectively in beef cattle farms. The number of dairy farms in the district declined from 13 farms to 10 farms, which represents a decline of 23%. During the same period the province of Ontario and Canada as a whole experienced 18% and 16% decline, respectively in dairy farms. The District also reported a total of 24 farms involved in other farm animal production in 2011 (down from 36 farms in 2006). This includes animals such as horses, bison, deer, elk, llamas, alpacas, wild boars, goats, rabbits, bees, etc. Additional details on the

inventory of farm animals/poultry in the district are provided in Section 5.5 of this report. The number of oilseed/grain crop farms in the district increased from 2 to 3 farms between 2006 and 2011, while other field crop farms (e.g. hay, fodder crops) increased from 68 to 110 farms. Additional details on the amount and type of crop production occurring in the district are provided in Section 5.6 of this report.

Kenora District has 13 farms (16%) primarily engaged in beef cattle production , 17 farms (21%) engaged in raising other types of animals (e.g. horses, goats, rabbits, etc.), and only one farm engaged in dairy production. A total of 36 (44%) farms in the district were primarily engaged in producing hay/fodder crops. Between 2006 and 2011, the number of beef cattle farms in the district declined slightly from 14 to 13 farms, and the number of farms in poultry/egg production declined from 3 to 2. During the same period, the province of Ontario and Canada as a whole experienced 36% and 39% decline, respectively in beef cattle farms.

Table 5. 5: Number of farms by farm type for Northwestern Ontario, Ontario and Canada

Year		Total farms	Dairy cattle	Beef cattle	Hog and pig	Poultry and egg	Sheep and goat	Other animal production	Oilseed and grain	Fruit	Greenhouse nursery, floriculture	Other crops	Vegetable
2006	Canada	229,373	14,651	60,947	6,040	4,578	3,815	26,779	61,667	8,329	8,754	28,574	5,239
	Ontario	57,211	4,937	11,052	2,222	1,700	1,365	7,573	13,056	1,892	2,822	8,823	1,769
	Northwestern Ontario	656	6	218	2	9	9	107	8	1	57	176	13
	Thunder Bay District	252	2	26	0	5	9	52	4	9	35	70	10
	Rainy River District	312	3	178	2	1	0	36	2	1	9	68	2
	Kenora District	92	1	14	0	3	0	19	2	1	13	38	1
2011	Canada	205,730	2,207	37,406	3,470	4,484	3,924	24,124	61,692	8,253	7,946	37,402	4,822
	Ontario	51,950	4,036	7,105	1,235	1,619	1,446	6,966	15,818	1,548	2,372	8,274	1,531
	Northwestern Ontario	599	40	153	2	6	8	82	11	9	37	232	19
	Thunder Bay District	239	29	19	2	4	7	41	6	8	25	86	12
	Rainy River District	278	10	121	0	0	1	24	3	1	3	110	5
	Kenora District	82	1	13	0	2	0	17	2	0	9	36	2

Source : Statistics Canada



## **5.4 Livestock and Animals**

During the period 2006 to 2011, there has been a decrease in the number of farm related animals in Northwestern Ontario (Table 5.6 and 5.7). Compared to 2006, number of farms of hens and chickens decreased from 91 to 86, dairy cows farms from 58 to 50, beef cows farms from 317 to 278, goats farms from 29 to 22, horses and ponies farms from 163 to 144, bison farms from 7 to 4, deer and elk farms from 4 to 3, and colonies of bees from 28 to 20, in 2011. However, sheep and lamb farms increased from 38 to 40, llamas and alpacas farms from 10 to 13, while number of pig farms remained unchanged during the same period.

In 2011, farms in Thunder Bay District reported a decrease of 913 beef cows, 2,235 dairy cows, 450 horses/ponies, 243 goats, and 720 sheep and an increase of 461 pigs, as compared to 2006. Farms in Rainy River District in 2011 reported a total of 9,150 beef cows, 672 dairy cows, 199 pigs, 247 horses/ponies, 46 goats, and 176 sheep. The Rainy River District also reported 1,919 hens/chickens and 81 bee colonies in 2011 (Table 5.6 and 5.7). Between 2006 and 2011, the total number of all these animals in Rainy River District declined. Kenora District reported a decrease of hens and chickens (412), sheep and lamb (149), horses and ponies (213), and deer and elk (26) while the total number of goats increased from 15 to 32 from the year 2006 to 2011.

Table 5. 6: Inventory of selected farm related animals for Northwestern Ontario, Ontario and Canada

Year		Hens and chickens		Dairy cows		Beef cows		Pigs		Sheep and lambs		Goats	
		#farms	#birds	#farms	#cows	#farms	#cows	#farms	#pigs	#farms	#sheep	#farms	#goats
2006	Canada	22,712	125,314,793	17,515	996,024	83,000	5,081,596	11,497	15,043,132	11,031	1,142,877	6,725	177,698
	Ontario	7,397	44,101,552	6,092	329,737	15,017	377,354	4,070	3,950,592	3,408	311,162	2,169	76,114
	Northwestern Ontario	91	38,336	58	×	317	×	34	2,498	38	×	29	365
	Thunder Bay District	39	33,901	35	2,534	63	1,067	17	206	20	753	16	273
	Rainy River District	38	3,695	21	686	215	11,180	12	2,190	13	×	10	77
	Kenora District	14	740	2	×	39	×	5	102	5	192	3	15
2011	Canada	20,645	133,025,153	14,883	961,726	61,425	3,849,368	7,371	12,679,104	10,111	1,108,574	5,949	225,461
	Ontario	7,263	46,902,316	5,131	318,158	11,567	282,062	2,556	3,088,646	3,569	352,807	2,152	116,260
	Northwestern Ontario	86	×	50	×	278	×	34	×	40	1,045	22	321
	Thunder Bay District	43	×	31	2,235	63	913	21	461	24	720	12	243
	Rainy River District	31	1,919	18	672	181	9,150	10	199	12	176	5	46
	Kenora District	12	412	1	×	34	×	3	×	4	149	5	32

×: suppressed to meet the confidentiality requirements of the Statistics Act. Source: Statistics

Table 5. 7: Inventory of selected farm related animals for Northwestern Ontario, Ontario and Canada (cont.)

Year	Horses and ponies		Bison		Deer and elk(excluding wild deer/elk)		Llamas and alpacas		Colonies of bees		
	#farms	#horses	#farms	#bison	#farms	#deer	#farms	#llama	#farms	#colonies	
2006	Canada	54,169	453,965	1,898	195,728	620	46,748	4,302	31,708	3,167	553,594
	Ontario	12,333	97,285	71	4,106	158	8,031	696	4,332	981	64,591
	Northwestern Ontario	163	1,223	7	×	4	×	10	×	28	409
	Thunder Bay District	61	526	0	0	0	0	5	28	17	168
	Rainy River District	73	428	3	×	1	×	2	×	8	221
	Kenora District	29	269	4	265	3	55	3	24	3	20
2011	Canada	47,454	392,340	1,211	125,142	380	20,939	4,107	31,499	3,272	561,297
	Ontario	11,170	86,642	60	2,320	103	3,022	798	6,283	1,068	67,563
	Northwestern Ontario	144	910	4	×	3	26	13	×	30	×
	Thunder Bay District	61	450	0	0	0	0	11	75	20	167
	Rainy River District	55	247	1	×	0	0	1	×	7	81
	Kenora District	28	213	3	×	3	26	1	×	3	×

Source : Statistics Canada

## 5.5 Field Crops

Northwestern Ontario produces a variety of field crops including wheat, oats, barley, grains, corn, alfalfa, canola soybeans, potatoes and hay crops. As compared to 2006, the acreage of oats and barley in Northwestern Ontario increased from 3,189 acres and 4,799 acres to 3,345 acres and 5,464 acres, respectively, but the acreage of alfalfa and hay declined from 36,376 acres and 47,186 acres to 34,646 acres and 46,911 acres, respectively (Table 5.8 and 5.9).

The main field crops in Thunder Bay District include barley, wheat, oats, corn, soybeans, potatoes and hay crops. In 2011, the largest grain crops grown in the district in terms of total acreage was barley (4,478 acres), wheat (804 acres), oats (444 acres), and corn for grain (245 acres). The District also produced 680 acres of soybeans and 414 acres of potatoes in 2011. With respect to forage and hay crops, the district produced 8,647 acres of alfalfa/alfalfa mixtures, 11,647 acres of other hay crops, and 1031 acres of corn for silage in 2011 (Table 5.8 and 5.9). Between 2006 and 2011, the total acreage of alfalfa and tame hay and potatoes declined in the district while the total acreage of wheat, oats, barley, soybeans increased.

Rainy River District produces a variety of field crops including barley, wheat, oats, corn, soybeans, potatoes and hay crops. In 2011, the largest grain crops grown in the district in terms of total acreage was oats (2,529 acres), with mixed grains (620 acres), barley (844 acres), and wheat (240 acres). The District also produced 211 acres of soybeans, 85 acres of grain corn, and 31 acres of potatoes in 2011. With respect to forage and hay crops, the district produced 25,126 acres of alfalfa/alfalfa mixtures, 26,934 acres of other hay crops, and 211 acres corn for silage in 2011 (Table 5.8 and 5.9). Between 2006 and 2011, the total acreage of oats, barley, tame hay and potatoes declined in the district while the total acreage of wheat, mixed grain, alfalfa/alfalfa mixtures increased.

Kenora District also produces a variety of field crops including barley, oats, potatoes and hay crops with a relatively smaller acreage than the other two districts. In 2011, the largest grain crops grown in the district in terms of total acreage were oats (372 acres) and barley (142 acres). With respect to forage and hay crops, the district produced 873 acres of alfalfa/alfalfa mixtures, 8,330 acres of other hay crops in 2011 (Table 5.8 and 5.9). Between 2006 and 2011, the total acreage of barley and alfalfa declined in the district, while the total acreage of oats and tame hay increased.

Table 5. 8: Total reported acreage of selected field crops for Northwestern Ontario, Ontario and Canada

Year	Wheat		Oats		Barley		Mixed grains		Corn for grain		Corn for Silage		
	#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres	
2006	Canada	60,743	24,266,011	41,577	5,099,298	43,411	9,118,090	10,350	831,322	21,494	2,752,716	15,531	687,238
	Ontario	14,682	1,235,390	4,362	131,952	5,139	221,029	5,400	173,454	14,304	1,577,862	8,404	320,759
	Northwestern Ontario	20	1,520	91	3,186	63	4,799	22	928	4	×	26	×
	Thunder Bay District	9	593	18	434	48	3,886	4	161	3	×	21	×
	Rainy River District	5	406	63	2,450	11	615	18	767	1	×	5	×
	Kenora District	6	521	10	302	4	298	0	0	0	0	0	0
2011	Canada	51,974	22,876,574	28,994	3,761,367	29,943	6,888,693	7,061	480,455	23,472	3,296,587	13,184	675,037
	Ontario	13,713	1,217,328	2,542	71,040	3,223	126,881	3,750	106,162	16,184	2,032,356	6,746	271,701
	Northwestern Ontario	23	×	95	3,345	81	5,464	15	×	8	×	27	1,242
	Thunder Bay District	16	804	19	444	58	4,478	4	×	4	245	20	1,031
	Rainy River District	6	240	66	2,529	18	844	10	620	3	85	7	211
	Kenora District	1	×	10	372	5	142	1	×	1	×	0	0

Source : Statistics Canada

Table 5. 9: Total reported acreage of selected field crops for Northwestern Ontario, Ontario and Canada

	Alfalfa/Alfalfa Mixtures		Other Tame Hay/Fodder Crops		Forage Seed for Seed		Canola		Soybeans		Potatoes	
	#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres
2006 Canada	88,042	12,541,983	59,362	7,150,363	3,069	661,923	31,435	12,423,579	23,263	2,970,449	3,667	401,583
Ontario	24,427	1,662,370	13,010	900,267	312	12,323	205	18,575	17,171	2,155,884	904	38,155
Northwestern Ontario	242	36,376	339	47,186	2	×	1	×	10	×	23	×
Thunder Bay District	76	8,887	117	12,693	0	0	0	0	7	296	18	421
Rainy River District	158	26,294	174	26,903	1	×	0	0	2	×	4	20
Kenora District	8	1,195	48	7,590	1	×	1	×	1	×	1	×
2011 Canada	75,660	11,230,105	49,084	5,713,474	1,833	326,526	35,073	19,368,997	27,215	3,957,772	3,272	362,265
Ontario	20,641	1,346,210	10,877	731,701	214	7,536	624	88,279	18,773	2,464,870	811	37,384
Northwestern Ontario	228	34,646	311	46,911	5	×	6	×	17	×	20	×
Thunder Bay District	80	8,647	107	11,647	1	×	4	×	12	680	11	414
Rainy River District	139	25,126	157	26,934	3	243	2	×	4	211	6	31
Kenora District	9	873	47	8,330	1	×	0	0	1	×	3	×

Source : Statistics Canada

## **5.6 Fruit, Berry and Vegetable Production**

Data from the 2011 Agriculture Census indicate that fruit and berry production in Northwestern Ontario is very limited. In 2011, the fruit farms in Northwestern Ontario included: apples (13 farms), strawberries (11 farms), raspberries (10 farms), blueberries (2 farms), plums (1 farm) and pears (1 farm) (Table 5.10). However, from 2006 to 2011, the number of the farms related to fruit production has increased, with an increase of 7 apple farms, 3 raspberry farms, 1 plum farm, and 1 blueberry farm (Table 5.10).

Northwestern Ontario farmers produced a large variety of vegetables in 2011 including sweet corn, tomatoes, cucumbers, cabbage, cauliflower, broccoli, carrots, beets and pumpkins/squash. It is difficult to comment on the acreage of vegetable production due to the small number of farms and the policy of Statistics Canada to suppress data where there are too few farms to ensure confidentiality. The available details related to vegetable farms are provided in Table 5.11. There has been a change in the number of farms related to selected vegetables production between 2006 and 2011. It featured an increases of green peas (3 farms), cucumbers (2 farms), rutabagas (6 farms), beets (4 farms), dry onions (3 farms) and pumpkins (3 farms), and decreases of tomatoes (6 farms), broccoli (6 farms), cauliflower (4 farms), sweet corn (2 farms), green beans (1 farm), peppers (4 farms), asparagus (4 farms), squash (3 farms), carrots (2 farms) and lettuce (2 farms).

Table 5. 10: Number of farms and acreage of selected fruit and berry production

Year		Apples		Pears		Plums and Prunes		Strawberries		Raspberries		Blueberries	
		#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres
2006	Canada	4,190	54,612	1,327	3,671	1,238	1,855	2,479	12,861	2,559	8,982	2,826	126,775
	Ontario	1,223	20,169	542	2,546	376	1,231	801	4,243	613	1,153	161	732
	Northwestern Ontario	6	12	1	×	0	0	11	×	7	9	1	×
	Thunder Bay District	6	12	1	×	0	0	9	69	7	9	0	0
	Rainy River District	0	0	0	0	0	0	2	×	0	0	0	0
	Kenora District	0	0	0	0	0	0	0	0	0	0	1	×
2011	Canada	3,920	45,079	1,308	2,333	1,318	1,690	2,204	11,086	2,555	7,407	3,772	175,078
	Ontario	1,079	15,830	473	1,383	351	1,075	663	3,283	613	902	196	792
	Northwestern Ontario	13	×	1	×	1	×	11	×	10	×	2	×
	Thunder Bay District	10	9	1	×	0	0	7	28	8	6	2	×
	Rainy River District	2	×	0	0	0	0	3	2	1	×	0	0
	Kenora District	1	×	0	0	1	×	1	×	1	×	0	0

Source : Statistics Canada



Table 5. 11: Number of farms and acreage of selected vegetable production

Year		Sweet corn		Tomatoes		Cucumbers		Green Peas		Green beans		cabbage		Cauliflower		Broccoli	
		#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres	#farms	#acres
2006	Canada	3383	74698	3026	22265	2447	7173	1972	41590	2437	27176	1507	10702	959	5298	1163	11094
	Ontario	1399	38617	1429	20195	964	4146	763	21482	852	11879	442	3707	327	2025	346	3712
	Northwestern Ontario	17	×	21	×	20	×	15	5	19	7	12	×	10	×	11	×
	Thunder Bay District	11	23	14	2	12	4	12	5	14	6	5	1	6	1	7	1
	Rainy River District	4	8	2		2	×	0	0	0	0	2	×	2	×	2	×
	Kenora District	2	×	5	1	6	1	3	0	5	1	5	1	2	×	2	×
2011	Canada	2997	57262	3204	18344	2427	5781	2006	29565	2599	20996	1583	10269	971	4520	1265	10266
	Ontario	1,146	25,540	1,422	16,558	921	3,484	772	15,121	935	9,186	496	3,354	329	1,649	400	4,506
	Northwestern Ontario	15	×	15	×	22	13	18	×	18	7	8	×	5	×	5	×
	Thunder Bay District	7	24	10	3	12	7	12	5	10	2	3	0	1	×	1	×
	Rainy River District	7	11	3	1	7	5	4	1	5	4	4	2	3	2	3	2
	Kenora District	1	×	2	×	3	1	2	×	3	1	1	×	1	×	1	×

Source : Statistics Canada

Table 5. 12: Number of farms and acreage of selected vegetable production (Cont.)

Year	Carrots		Rutabagas		Beets		Dry Onions		Lettuce		Peppers		Pumpkins		Squash and zucchini		Asparagus		
	#	#acres	#	#acres	#	#acres	#	#acres	#	#acres	#	#acres	#	#acres	#	#acres	#	#acres	
2006	Canada	2303	24356	881	4714	1924	3042	1743	14389	1484	9665	1581	6075	2317	9304	2413	7173	729	4361
	Ontario	648	9993	204	1814	607	1088	648	6930	429	955	795	4015	1130	5430	1030	3867	391	3245
	Northwestern Ontario	23	×	7	×	20	×	9	1	12	3	10	1	14	×	20	×	5	×
	Thunder Bay District	15	6	3	1	13	5	6	1	9	3	7	1	8	22	16	10	3	0
	Rainy River District	2	×	1	×	1	×	0	0	0	0	0	0	1	×	1	×	0	0
	Kenora Distric	6	1	3	1	6	1	3	0	3	0	3	0	5	1	3	0	2	×
2011	Canada	2486	23426	992	4470	2294	3844	1871	14647	1753	8358	1650	5824	2239	8503	2806	7154	772	3883
	Ontario	724	9,855	270	1,534	773	1,371	687	6,456	542	617	780	3,892	1,016	4,658	1,082	3,590	389	2,744
	Northwestern Ontario	21	6	13	×	24	6	12	×	10	×	6	×	17	×	17	×	1	×
	Thunder Bay District	11	3	8	11	14	3	7	1	6	3	3	×	11	32	10	9	1	×
	Rainy River District	7	2	4	2	7	2	3	1	2	×	2	×	5	2	5	1	0	0
	Kenora Distric	3	1	1	×	3	1	2	×	2	×	1	×	1	×	2	×	0	0

#:Numbers of farms

Source : Statistics Canada

Table 5. 13: Number of farms and production area associated with greenhouse production

Year		Total area of greenhouse in use in May		Total area under glass, plastic or other protection		Greenhouse flowers		Greenhouse vegetables		Other greenhouse products		Mushrooms	
		#farms	#square feet	#farms	#square feet	#farms	#square feet	#farms	#square feet	#farms	#square feet	#farms	#square feet
2006	Canada	5613	236410534	5614	239263035	3578	99870247	2338	113820183	--	--	194	6793520
	Ontario	1898	125141329	1898	126589790	1274	49414104	654	69808871	--	--	85	3447739
	Northwestern Ontario	50	1,055,298	50	1,100,808	38	407,386	21	48,900	--	×	1	×
	Thunder Bay District	31	725618	31	767544	24	272408	11	32368	--	--	0	0
	Rainy River District	9	77460	9	80544	9	72108	5	5352	--	--	0	0
	Kenora District	10	252220	10	252720	5	62870	5	11180	--	--	1	×
2011	Canada	4974	245243045	4976	249295428	3016	92503592	2330	135062457	854	17676996	189	7468743
	Ontario	1590	133520541	1592	135076388	1004	42594525	669	86209724	214	4716292	86	3461842
	Northwestern Ontario	40	×	40	×	29	×	26	×	6	×	0	0
	Thunder Bay District	26	496298	26	498428	21	×	17	×	3	×	0	0
	Rainy River District	2	×	2	×	2	×	2	×	0	0	0	0
	Kenora District	12	165794	12	180784	6	69900	7	×	3	×	0	0

Source : Statistics Canada

Table 5. 14: Number of farms and production area associated with nursery products

Year		Nursery Products		Sod Grown for Sale		Taps on Maple Trees		Christmas Trees	
		#farms	#acres	#farms	#acres	#farms	#taps	#farms	#acres
2006	Canada	3,825	61,659	404	69,090	9,731	38,075,953	2,461	75,688
	Ontario	1,209	27,079	120	32,196	2,240	1,311,599	725	15,795
	Northwestern Ontario	17	×	3	×	1	×	9	×
	Thunder Bay District	11	413	2	×	1	×	6	359
	Rainy River District	2	×	0	0	0	0	2	×
	Kenora District	4	7	1	×	0	0	1	×
2011	Canada	3,438	59,666	375	63,467	10,847	44,440,024	2,381	69,968
	Ontario	1,004	25,270	122	28,414	2,673	1,508,651	647	14,715
	Northwestern Ontario	6	×	3	×	3	×	7	×
	Thunder Bay District	5	127	2	×	1	×	6	697
	Rainy River District	0	0	1	×	1	×	1	×
	Kenora District	1	×	0	0	1	×	0	0

Source : Statistics Canada

Table 5. 15: Total gross farm receipts (excluding sales of forest products from farms)

	2006		2011	
	#farms	Total gross farm receipts	#farms	#Total gross farm receipts
Canada	229,373	42,191,981,171	205,730	51,061,935,759
Ontario	57,211	10,342,031,229	51950	11,890,835,395
Northwestern Ontario	656	50,935,730	599	51,811,979
Thunder Bay District	252	32,305,551	239	32,396,811
Rainy River District	312	13,152,226	278	15,930,340
Kenora District	92	5,477,953	82	3,484,828

Source : Statistics Canada

Table 5. 16: Total gross farm receipts (excluding sales of forest products from farms)

Year		Gross Farm Receipt Category															
		Under \$10,000		\$10,000 to \$24,999		\$25,000 to \$49,999		\$50,000 to \$99,999		\$100,000 to \$249,999		\$250,000 to \$499,999		\$500,000 to \$999,999		>\$1,000,000	
		#farms	%	#farms	%	#farms	%	#farms	%	#farms	%	#farms	%	#farms	%	#farms	%
2006	Canada	50,138	22	38,254	17	30,608	13	31,422	14	39,971	17	22,837	10	10,241	4	5,902	3
	Ontario	14,500	25	10,828	19	7,397	13	6,521	11	7,965	14	5,589	10	2,745	5	1,666	3
	Northwestern Ontario	239	36	141	21	107	16	70	11	41	6	33	5	20	3	5	1
	Thunder Bay District	106	42	39	15	36	14	17	7	11	4	21	8	17	7	5	2
	Rainy River District	95	30	80	26	58	19	46	15	25	8	8	3	0	0	0	0
	Kenora District	38	41	22	24	13	14	7	8	5	5	4	4	3	3	0	0
2011	Canada	43,954	21	32,853	16	25,764	13	25,455	12	31,670	15	22,455	11	13,977	7	9,602	5
	Ontario	12,263	24	9,098	18	6,720	13	6,189	12	6,985	13	5,086	10	3,248	6	2,361	5
	Northwestern Ontario	220	37	141	24	83	14	58	10	40	7	33	6	19	3	5	1
	Thunder Bay District	105	44	52	22	25	10	11	5	9	4	15	6	17	7	5	2
	Rainy River District	79	28	67	24	51	18	39	14	25	9	15	5	2	1	0	0
	Kenora District	36	44	22	27	7	9	8	10	6	7	3		0	0	0	0

Source : Statistics Canada

Table 5. 17: Wages and salaries paid to farm workers

Year		Total wages and salaries		Wages and salaries paid to family members		Wages and salaries paid to all other persons	
		#farms	Total wages and salaries	#farms	Wages and salaries paid to family members	#farms	Wages and salaries paid to all other persons
2006	Canada	89,608	3,860,457,569	60,342	1,550,101,189	55,588	2,310,356,380
	Ontario	20,837	1,269,812,144	13,224	430,830,749	13,914	838,981,395
	Northwestern Ontario	188	7,360,953	128	2,837,764	126	4,523,189
	Thunder Bay District	99	5,559,578	67	2,065,925	77	3,493,653
	Rainy River District	68	978,359	47	513,648	36	464,711
	Kenora District	21	823,016	14	258,191	13	564,825
2011	Canada	70,008	4,367,017,556	48,148	1,675,509,944	42,103	2,691,507,612
	Ontario	16,126	1,371,398,192	10,733	450,024,050	10,100	921,374,142
	Northwestern Ontario	135	6,635,413	91	2,860,166	86	3,775,247
	Thunder Bay District	70	5,214,684	46	2,184,769	54	3,029,915
	Rainy River District	48	809,380	35	434,802	23	374,578
	Kenora District	17	611,349	10	240,595	9	370,754

Source : Statistics Canada

Table 5. 18: Number of employees in farms, 2011

	Paid work on a year-round basis (full-time or part-time)			Paid work on a seasonal or temporary basis			Total number of employees	
	farms reporting	number of employees	number of weeks for all employees	farms reporting	number of employees	number of weeks for all employees	farms reporting	Total number of employees
Canada	36,890	112,059	4,679,769	47,796	185,624	2,459,248	69,964	297,683
Ontario	8,759	33,271	1,405,252	10,601	51,607	812,057	16,118	84,878
Northwestern Ontario	70	173	6,148	94	453	4,809	135	626
Thunder Bay District	40	121	4,750	49	323	3,336	70	444
Rainy River District	23	35	995	30	56	793	48	91
Kenora District	7	17	403	15	74	680	17	91

Source : Statistics Canada



Table 5. 19: Farm operating expenses and total wages and salaries

Year		#farms	Total wages and salaries	#farms	Total farm business operating expenses
2006	Canada	89,608	3,860,457,569	229,373	36,436,363,959
	Ontario	20,837	1,269,812,144	57,211	8,843,882,426
	Northwestern Ontario	188	7,360,953	656	41,929,944
	Thunder Bay District	99	5,559,578	252	24,575,742
	Rainy River District	68	978,359	312	12,701,240
	Kenora District	21	823,016	92	4,652,962
	2011	Canada	70,008	4,367,017,556	205,730
Ontario		16,126	1,371,398,192	51,950	9,965,905,445
Northwestern Ontario		135	6,635,413	599	43,118,284
Thunder Bay District		70	5,214,684	239	25,062,443
Rainy River District		48	809,380	278	14,186,580
Kenora District		17	611,349	82	3,869,261

Source : Statistics Canada

Table 5. 20: Total net farm revenue and net revenue per farm

Year		#farms	Total farm business operating expenses	Total gross farm receipts	Total net farm revenue	Net revenue per farm
2006	Canada	229,373	36,436,363,959	42,191,981,171	5,755,617,212	25,093
	Ontario	57,211	8,843,882,426	10,342,031,229	1,498,148,803	26,186
	Northwestern Ontario	656	41,929,944	50,935,730	9,005,786	13,728
	Thunder Bay District	252	24,575,742	32,305,551	7,729,809	30,674
	Rainy River District	312	12,701,240	13,152,226	450,986	1,445
	Kenora District	92	4,652,962	5,477,953	824,991	8,967
2011	Canada	205,730	42,191,084,542	51,061,935,759	8,870,851,217	43,119
	Ontario	51,950	9,965,905,445	11,890,835,395	1,924,929,950	37,054
	Northwestern Ontario	599	43,118,284	51,811,979	8,693,695	14,514
	Thunder Bay District	239	25,062,443	32,396,811	7,334,368	30,688
	Rainy River District	278	14,186,580	15,930,340	1,743,760	6,273
	Kenora District	82	3,869,261	3,484,828	-384,433	-4,688

Source : Statistics Canada

## **5.7 Greenhouse Production**

Between 2006 and 2011, the total number of farms involved in greenhouse production in Northwestern Ontario decreased from 50 farms to 40 farms, however, greenhouses related to vegetable production and other products that are not specified in Statistics Canada list increased ( 5 farms for vegetable production and 6 farms for other products) (Table 5.13). Although Northwestern Ontario accounts for only about 2.5% of the total greenhouse production area in Ontario, there is a potential for greenhouse businesses to flourish with warmer climates due to continuing climate change trends.

## **5.8 Nursery Products, Sod and Forest Related Products**

Between 2006 and 2011, the total number of farms in Northwestern Ontario involved in nursery production decreased from 17 to 6 farms. There was a decrease in the number of Christmas tree farms from 9 to 7 farms, while taps on maple trees increased from 1 to 3 farms, and the in sod grown remained unchanged during the comparison period (Table 5.14). It is difficult to comment on the acreage/amount of production in Northwestern Ontario due to the small number of farms and the policy of Statistics Canada to suppress data where there are too few farms to ensure confidentiality.

## **5.9 Farm Productivity, Farm Receipts, Expenses and Net Revenue**

Northwestern Ontario reported \$51.8 million in total gross farm receipts in 2011 compared to \$50.9 million in 2006 (Table 5.15). The total gross farm receipts for Northwestern Ontario in 2011 represent 4.4% of the total gross farm receipts for the province of Ontario. In Northwestern Ontario, the numbers of farms with total gross receipts less than \$10,000 were 220 farms (36.7%), followed by 141 farms (23.5%) with receipts between \$10,000-\$24,999, and 83 farms (13.9%) with receipts between \$25,000-\$50,000. The region also had 5 farms (0.8%) with receipts above 1 million (Table 5.16).

Northwestern Ontario reported \$6.6 million in total wages and salaries paid to farm workers in 2011 compared to \$7.36 million in 2006 (Table 5.17). In 2011, Northwestern Ontario's total farm wages and salaries were paid to 626 employees, averaging \$10,599 per employee (Table 5.17 and 5.18). The average wages and salaries paid per employee in Northwestern Ontario were lower than the provincial level (\$16,157 per employee). Within Northwestern Ontario, farms in Thunder Bay District had the highest average wages paid to employees at \$11,744 per employee, followed by Rainy River District at \$8,894, while farms in Kenora District reported the lowest average of \$ 6,718.

Northwestern Ontario reported \$43.1 million in total farm operating expenses in 2011 compared to \$41.9 million in 2006 (Table 5.19). Northwestern Ontario's total farm expenses for 2011 represent 0.4% of the total for the province of Ontario. Total expenses per farm in Northwestern Ontario were lower than the provincial average. Farms in Northwestern Ontario averaged \$71,983 in farm expenses in 2011, compared to \$ 191,836 per farm in Ontario. Within Northwestern Ontario, farms in Thunder Bay District had the highest average farm expenses per farm (\$104,863), followed by Rainy River District (\$51,030) and Kenora District (\$47,186).

Average farm net revenue for 2006 and 2011 are presented in Table 5.20. Net revenue per farm in Northwestern Ontario was lower than the provincial average. Farms in Northwestern Ontario averaged \$14,514 in net revenue in 2011, compared to \$37,054 per farm in Ontario. Within Northwestern Ontario, farms in Thunder Bay District had the highest average net revenue per farm (\$30,688), while farms in Kenora District reported a net loss of \$4,688 per farm (Table 5.20).

### **5.10 Farm Capital**

In 2011, Northwestern Ontario reported \$400 million in total farm capital, which represents about 0.47% of the total farm capital of the province of Ontario (Table 5.21). Within Northwestern Ontario, in 2011 Rainy River District reported the highest total farm capital (\$214 million), followed by Thunder Bay District (\$140 million) and Kenora District (\$45 million).

The average farm capital value for farms in Northwestern Ontario in 2011 was \$669,000, which were about \$980,576 less than the provincial average of \$1,649,727. On a per farm basis within Northwestern Ontario, Rainy River District was the top ranking with an average farm capital value of \$772,235 followed by \$588,801 for Thunder Bay District and \$553,865 for Kenora District.

### **5.11 Average Ages of Farm operators**

Average ages of farm operators in Northwestern Ontario were 53.2 years in 2011, which increased by 1.39 years from 2006 statistics. Within Northwestern Ontario, Rainy River District's operators had oldest average ages (54 years), followed 52.8 years for Kenora District, and 52.5 years for Thunder Bay District. It is worth noting that Kenora District average farm operators' age declined from 53.6 years in 2006 to 52.8 years in 2011, which indicated that young people were joining the farming businesses.

Table 5. 21: Total farm capital for Northwestern Ontario, Ontario and Canada

Year		Total farms	Total farm capital- market value	Farm capital per farm	Under \$100,000	\$100,000 to \$199,999	\$200,000 to \$349,999	\$350,000 to \$499,999	\$500,000 to \$999,999	\$1,000,000 to \$1,499,999	\$1,500,000 to \$1,999,999	\$2,000,000 to \$3,499,999	\$3,500,000 and over
2006	Canada	229,373	248,317,591,506	1,082,593	7,583	19,289	38,307	32,327	63,081	27,609	13,623	16,682	10,872
	Ontario	57,211	65,336,796,501	1,142,032	945	3,281	9,736	9,122	16,803	6,767	3,303	4,196	3,058
	Northwestern Ontario	656	356,114,820	542,858	37	109	175	112	139	51	14	14	5
	Thunder Bay District	252	132,999,547	527,776	15	44	70	46	42	22	6	6	1
	Rainy River District	312	178,344,662	571,618	16	50	80	47	79	23	7	6	4
	Kenora District	92	44,770,611	486,637	6	15	25	19	18	6	1	2	0
2011	Canada	205,730	330,751,085,312	1,607,695	4,963	11,096	23,933	24,350	55,704	28,067	15,387	22,174	20,056
	Ontario	51,950	85,703,337,499	1,649,727	696	1,866	5,914	7,080	15,276	7,012	3,632	5,234	5,240
	Northwestern Ontario	599	400,821,551	669,151	37	84	162	89	142	34	17	25	9
	Thunder Bay District	239	140,723,410	588,801	18	29	78	31	50	12	8	11	2
	Rainy River District	278	214,681,222	772,235	12	41	67	41	74	19	7	11	6
	Kenora District	82	45,416,919	553,865	7	14	17	17	18	3	2	3	1

Source : Statistics Canada

Table 5. 22: Average ages of farm operators

	2006				2011			
	Northwestern Ontario	Thunder Bay District	Rainy River District	Kenora District	Northwestern Ontario	Thunder Bay District	Rainy River District	Kenora District
under 35 years	85	35	45	5	90	35	45	10
35 to 54 years	475	205	205	65	360	155	140	65
55 years and over	380	135	180	65	405	170	190	45
Total # of operators	925	375	420	130	860	360	380	120
Average on farms with one operator	54.11	53.6	54.6	54.2	57.23	56	58	58.5
Average on farms with two or more operators	50.05	49.4	49.4	53.2	50.12	50.6	50	48.8
Average of all operator	51.82	51	52	53.6	53.2	52.5	54	52.8

Source : Statistics Canada

## 6. Focus Group Discussions and Surveys of Local Farms and Food Processors

### 6.1 Focus Group Discussion and Surveys

Three focus groups discussions were held with randomly chosen local farmers and food related business operators in Northwestern Ontario. The focus group discussions were conducted by Third year undergraduate students of Lakehead University, who were taking Forest Economics courses in the Faculty of Natural Resources Management. The focus group discussions were followed by individual interviews and surveys about creation of direct and indirect employment by local farms and food processors in Northwestern Ontario, to assess the workforce multiplier effect. A copy of the survey questionnaire approved by the Research Ethics Board of Lakehead University is attached as Appendix A. Three groups of students went to the city of Thunder Bay, the town of Fort Frances and the town of Dryden to conduct these focus group discussions and carry out individual interviews and surveys (group members are listed in Appendix B). The individual interviews and surveys were also followed by some phone interviews. Table 6.1 shows a summary of the number of focus group discussions, individual business interviews and surveys, and farms visited by the students. Focus group discussions allowed food producers, processors, suppliers and retailers to share a brief history of their work, specific challenges related to their businesses, and details of their suppliers and target markets. The discussion continued with individual interviews and survey about the number of jobs provided by their businesses or farm operations. The questions related to the jobs were limited to the creation of jobs in Northwestern Ontario only. Since the study was focussed on creation of jobs in Northwestern Ontario only, if the participant reported a supplier or a market outside of Northwestern Ontario, the jobs for those suppliers or target markets were not recorded in the surveys.

Table 6. 1: Summary of focus group discussions, interviews and surveys

Surveys	Thunder Bay District	Rainy River District	Kenora District	Total
Focus Group Discussions	4	7	7	18
Business Interviewed	4	11	8	23
Farms Visited	1	1	1	3
Phone Interviews	5	3	8	16
Total Surveys	9	10	15	34

## **6.2 Issues that Hinder Food Related Business Development in Northwestern Ontario**

The focus group discussions and individual interviews brought forward some of the issues that affect local farmers and hinder the promotion of food related businesses in Northwestern Ontario. Some of the important issues related to producers, suppliers and retailers of food related businesses, highlighted by the participants of focus group discussions, individual interviews and surveys include:

- Lack of skilled labor due to high opportunity costs compared to other industries, such as mining. Most of the young adults are not interested in the farming business and look for better paying jobs in other industries. They leave the smaller communities in search of employment in bigger industries.
- Cattle transportation limited to farmers themselves and not allowed to cross the provincial borders. Cattle sold out of province must be taken to a stockyard and hauled by licensed haulers, regardless of the stockyard location in relation to the farm. Some of the cattle farms that are close to the Manitoba border have to transport cattle in opposite direction for long distances because of the location of stockyards of licensed haulers, in case they want to sell their cattle across the province.
- Poultry producers must obtain a permit to raise more than 299 chickens. They can sell their product as live chicken, but cannot advertise their product for sale and consumption. They mostly raise chickens for their own consumption.
- Vegetables produced locally can only be sold on roadside stands, local farmers markets, and limited vegetable markets. The local vegetables do not have access to chain stores. For example, local Wal-Marts are under contract to purchase their vegetable produce or meat from certain companies, even if it means shipping it across the province.
- The farming business is not expanding due to lack of labour. Farmers cannot afford to pay more than minimum wages due to very low profits.
- Local farmers feel that the provincial government of Ontario does not want to provide any help to the farmers and expects them to disappear, and let the big corporations take over.
- Small farms feel that nobody is taking their problems to the government and policy makers. Most of the small farmers tend to change from “Official Farming” to “Hobby Farming”, as they cannot afford big commercial prices for transportation and licensing along with inspections.



## **7. Estimating Jobs Related to Food Production in Northwestern Ontario**

The number of jobs related to food production, supplier and retail businesses in Northwestern Ontario were estimated by compiling and analyzing the data from sample surveys and census data of Statistics Canada, 2011. Based on the number of jobs created by food producers, processors, suppliers and retailers, a workforce multiplier was calculated that estimated the number of indirect jobs created against each direct job in the food sector. The estimated jobs for 2011 were compared with the number of jobs in the food sector in 2006 in Northwestern Ontario. We also estimated future jobs (2013 to 2017) in local farms and food processing businesses in Northwestern Ontario, based on GDP projections of crop and animal production in Ontario. The total jobs were separated into categories of aggregate, producer, supplier and retailer related jobs in local farms and food processing sector. Part time and seasonal jobs were converted to full time equivalent (FTE) using factors from past studies. Using a very conservative estimate, a part time job was considered equivalent to 0.4 FTE, and a seasonal job was considered equivalent to 0.2 FTE.

### **7.1 Jobs related to food production**

Table 7.1 shows full time, part time and seasonal jobs related to food production, based on annual sales in Northwestern Ontario. Table 7.2-7.4 show full time, part time and seasonal jobs related to food production by producers, suppliers, and retailers respectively. Total jobs related to food production in Northwestern Ontario were estimated as 1620 jobs. A total of 1293 jobs were related to producers, 379 jobs to supplier, and 198 jobs to retailer in the local farms and food processing sector in Northwestern Ontario. Table 7.5 shows full time, part time and seasonal jobs related to food production by product categories in Northwestern Ontario. Beef business provided the most jobs (678 jobs) followed by vegetables (418 jobs) in Northwestern Ontario. Other significant local farms and food related businesses providing jobs include chicken farming (275 jobs) and pig farming (109 jobs). The total jobs in Northwestern Ontario have reduced from 1733 in 2006 to 1579 in 2011. There is only one exception in business, the bee keeping business, where the number of jobs has increased from 62 to 66 in the same period.

Table 7.6-7.20 show full time, part time and seasonal jobs related to food production by producers, suppliers, retailers and products for the three districts of Thunder Bay, Rainy River and Kenora in Northwestern Ontario. Thunder Bay and Rainy River districts had almost the same number of jobs in local farms and food processing sector among the three districts. In Thunder Bay District, the total jobs related to food production were estimated as 717 jobs, while producers, suppliers and retailers provided 473 jobs, 292 jobs, and 65 jobs, respectively. In Rainy River District, the total jobs related to food production were estimated as 720 jobs, while producers, suppliers and retailers provided 649 jobs, 76 jobs, and 113 jobs, respectively. In Kenora District, the total jobs related to food production were estimated as 181 jobs, while producers, suppliers and retailers provided 172 jobs, 11 jobs, and 20 jobs, respectively.

Table 7. 1: Jobs related to food production in Northwestern Ontario

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	239	127	0	366	220	117	0	337
10-25,000	141	85	0	226	141	85	0	226
25-50,000	161	71	43	275	125	55	33	213
50-100,000	140	65	28	233	116	54	23	193
100-250,000	137	41	16	194	133	40	16	189
250-500,000	132	46	26	204	132	46	27	205
500-1,000,000	100	64	40	204	95	61	38	194
>1,000,000	29	20	14	63	29	20	14	63
<b>Total</b>	<b>1079</b>	<b>519</b>	<b>167</b>	<b>1765</b>	<b>991</b>	<b>478</b>	<b>151</b>	<b>1620</b>

Table 7. 2: Jobs related to food production by producers in Northwestern Ontario

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	239	127	0	366	220	117	0	337
10-25,000	141	85	0	226	141	85	0	226
25-50,000	161	64	43	268	125	50	33	208
50-100,000	210	84	28	322	174	70	23	267
100-250,000	137	33	16	186	133	32	16	181
250-500,000	0	0	0	0	0	0	0	0
500-1,000,000	0	0	0	0	0	0	0	0
>1,000,000	40	20	14	74	40	20	14	74
<b>Total</b>	<b>928</b>	<b>413</b>	<b>101</b>	<b>1442</b>	<b>833</b>	<b>374</b>	<b>86</b>	<b>1293</b>

Table 7. 3: Jobs related to food production by suppliers in Northwestern Ontario

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10000	0	0	0	0	0	0	0	0
10-25,000	0	0	0	0	0	0	0	0
25-50,000	0	0	0	0	0	0	0	0
50-100,000	0	0	0	0	0	0	0	0
100-250,000	0	0	0	0	0	0	0	0
250-500,000	83	26	13	122	83	26	13	122
500-1,000,000	100	64	40	204	95	61	38	194
>1,000,000	29	20	14	63	29	20	14	63
Total	212	110	67	389	207	107	65	379

Table 7. 4: Jobs related to food production by retailers in Northwestern Ontario

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	0	0	0	0	0	0	0	0
10-25,000	0	0	0	0	0	0	0	0
25-50,000	107	0	0	107	83	0	0	83
50-100,000	0	0	0	0	0	0	0	0
100-250,000	41	16	0	57	40	16	0	56
250-500,000	33	26	0	59	33	26	0	59
500-1,000,000	0	0	0	0	0	0	0	0
>1,000,000	0	0	0	0	0	0	0	0
Total	181	42	0	223	156	42	0	198

Table 7. 5: Jobs related to food production by products in Northwestern Ontario

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
Beef	507	139	127	773	445	122	111	678
Elk	12	3	2	17	9	2	1	12
Chicken	182	73	36	291	172	69	34	275
Pigs	68	27	14	109	68	27	14	109
Eggs	18	8	5	31	12	5	4	21
Bees	28	22	11	61	30	24	12	66
Vegetables	245	108	98	451	227	100	91	418
Total	1060	380	293	1733	963	349	267	1579

Table 7. 6: Jobs related to food production in Thunder Bay District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	106	56	0	162	105	56	0	161
10-25,000	39	23	0	62	52	31	0	83
25-50,000	54	24	14	92	38	17	10	65
50-100,000	34	16	7	57	22	10	4	36
100-250,000	37	11	4	52	30	9	4	43
250-500,000	84	29	17	130	60	21	12	93
500-1,000,000	85	54	34	173	85	54	34	173
>1,000,000	29	20	14	63	29	20	14	63
Total	468	233	90	791	421	218	78	717

Table 7. 7: Jobs related to food production in Rainy River District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	95	51	0	146	79	42	0	121
10-25,000	80	48	0	128	67	40	0	107
25-50,000	87	39	23	149	77	34	20	131
50-100,000	92	43	18	153	78	36	16	130
100-250,000	83	25	10	118	83	25	10	118
250-500,000	32	11	6	49	60	21	12	93
500-1,000,000	0	0	0	0	10	6	4	20
>1,000,000	0	0	0	0	0	0	0	0
Total	469	217	57	743	454	204	62	720

Table 7. 8: Jobs related to food production in Kenora District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	38	20	0	58	36	19	0	55
10-25,000	22	13	0	35	22	13	0	35
25-50,000	20	9	5	34	11	5	3	19
50-100,000	14	7	3	24	16	7	3	26
100-250,000	17	5	2	24	20	6	2	28
250-500,000	16	6	3	25	12	4	2	18
500-1,000,000	15	10	6	31	0	0	0	0
>1,000,000	0	0	0	0	0	0	0	0
Total	142	70	19	231	117	54	10	181

Table 7. 9: Jobs related to food production by producers in Thunder Bay District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	106	56	0	162	105	56	0	161
10-25,000	39	23	0	62	52	31	0	83
25-50,000	54	22	14	90	38	15	10	63
50-100,000	51	20	7	78	33	13	5	51
100-250,000	37	9	4	50	30	7	4	41
250-500,000	0	0	0	0	0	0	0	0
500-1,000,000	0	0	0	0	0	0	0	0
>1,000,000	40	20	14	74	40	20	14	74
Total	327	150	39	516	298	142	33	473

Table 7. 10: Jobs related to food production by producers in Rainy River District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	95	51	0	146	79	42	0	121
10-25,000	80	48	0	128	67	40	0	107
25-50,000	87	35	23	145	77	31	20	128
50-100,000	138	55	18	211	117	47	16	180
100-250,000	83	20	10	113	83	20	10	113
250-500,000	0	0	0	0	0	0	0	0
500-1,000,000	0	0	0	0	0	0	0	0
>1,000,000	0	0	0	0	0	0	0	0
Total	483	209	51	743	423	180	46	649

Table 7. 11: Jobs related to food production by producers in Kenora District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	38	20	0	58	36	19	0	55
10-25,000	22	13	0	35	22	13	0	35
25-50,000	20	8	5	33	11	4	3	18
50-100,000	21	8	3	32	24	10	3	37
100-250,000	17	4	2	23	20	5	2	27
250-500,000	0	0	0	0	0	0	0	0
500-1,000,000	0	0	0	0	0	0	0	0
>1,000,000	0	0	0	0	0	0	0	0
Total	118	53	10	181	113	51	8	172

Table 7. 12: Jobs related to food production by suppliers in Thunder Bay District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	0	0	0	0	0	0	0	0
10-25,000	0	0	0	0	0	0	0	0
25-50,000	0	0	0	0	0	0	0	0
50-100,000	0	0	0	0	0	0	0	0
100-250,000	0	0	0	0	0	0	0	0
250-500,000	53	17	8	78	38	12	6	56
500-1,000,000	85	54	34	173	85	54	34	173
>1,000,000	29	20	14	63	29	20	14	63
Total	167	91	56	314	152	86	54	292

Table 7. 13: Jobs related to food production by suppliers in Rainy River District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10000	0	0	0	0	0	0	0	0
10-25,000	0	0	0	0	0	0	0	0
25-50,000	0	0	0	0	0	0	0	0
50-100,000	0	0	0	0	0	0	0	0
100-250,000	0	0	0	0	0	0	0	0
250-500,000	20	6	3	29	38	12	6	56
500-1,000,000	0	0	0	0	10	6	4	20
>1,000,000	0	0	0	0	0	0	0	0
Total	20	6	3	29	48	18	10	76

Table 7. 14: Jobs related to food production by suppliers in Kenora District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	0	0	0	0	0	0	0	0
10-25,000	0	0	0	0	0	0	0	0
25-50,000	0	0	0	0	0	0	0	0
50-100,000	0	0	0	0	0	0	0	0
100-250,000	0	0	0	0	0	0	0	0
250-500,000	10	3	2	15	8	2	1	11
500-1,000,000	15	10	6	31	0	0	0	0
>1,000,000	0	0	0	0	0	0	0	0
Total	25	13	8	46	8	2	1	11



Table 7. 15: Jobs related to food production by retailers in Thunder Bay District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	0	0	0	0	0	0	0	0
10-25,000	0	0	0	0	0	0	0	0
25-50,000	36	0	0	36	25	0	0	25
50-100,000	0	0	0	0	0	0	0	0
100-250,000	11	4	0	15	9	4	0	13
250-500,000	21	17	0	38	15	12	0	27
500-1,000,000	0	0	0	0	0	0	0	0
>1,000,000	0	0	0	0	0	0	0	0
Total	68	21	0	89	49	16	0	65

Table 7. 16: Jobs related to food production by retailers in Rainy River District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	0	0	0	0	0	0	0	0
10-25,000	0	0	0	0	0	0	0	0
25-50,000	58	0	0	58	51	0	0	51
50-100,000	0	0	0	0	0	0	0	0
100-250,000	25	10	0	35	25	10	0	35
250-500,000	8	6	0	14	15	12	0	27
500-1,000,000	0	0	0	0	0	0	0	0
>1,000,000	0	0	0	0	0	0	0	0
Total	91	16	0	107	91	22	0	113

Table 7. 17: Jobs related to food production by retailers in Kenora District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
<10,000	0	0	0	0	0	0	0	0
10-25,000	0	0	0	0	0	0	0	0
25-50,000	13	0	0	13	7	0	0	7
50-100,000	0	0	0	0	0	0	0	0
100-250,000	5	2	0	7	6	2	0	8
250-500,000	4	3	0	7	3	2	0	5
500-1,000,000	0	0	0	0	0	0	0	0
>1,000,000	0	0	0	0	0	0	0	0
Total	22	5	0	27	16	4	0	20

Table 7. 18: Jobs related to food production by products Thunder Bay District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
Beef	101	28	25	154	101	28	25	154
Elk	0	0	0	0	0	0	0	0
Chicken	78	31	16	125	86	34	17	137
Pigs	34	14	7	55	42	17	8	67
Eggs	10	4	3	17	8	4	2	14
Bees	17	14	7	38	20	16	8	44
Vegetable	161	71	64	296	127	56	51	234
Total	401	162	122	685	384	155	111	650

Table 7. 19: Jobs related to food production by products Rainy River District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
Beef	344	95	86	525	290	80	72	442
Elk	3	1	0	4	0	0	0	0
Chicken	76	30	15	121	62	25	12	99
Pigs	24	10	5	39	20	8	4	32
Eggs	2	1	1	4	0	0	0	0
Bees	8	6	3	17	7	6	3	16
Vegetable	20	9	8	37	71	31	28	130
Total	477	152	118	747	450	150	119	719

Table 7. 20: Jobs related to food production by products Kenora District

Annual Sales	2006				2011			
	FT	PT	Seasonal	Total	FT	PT	Seasonal	Total
Beef	62	17	16	95	54	15	14	83
Elk	9	2	1	12	9	2	1	12
Chicken	28	11	6	45	24	10	5	39
Pigs	10	4	2	16	6	2	1	9
Eggs	6	3	2	11	4	2	1	7
Bees	3	2	1	7	3	2	1	6
Vegetable	64	28	26	118	29	13	12	54
Total	182	68	53	303	129	46	35	210

## 7.2 Workforce Multiplier effect

The workforce multiplier effect is calculated by dividing the total number of jobs (direct jobs provided by producers, and indirect jobs provided by suppliers and retailers) by the direct jobs in Northwestern Ontario (Table 7.21). We found that the workforce multiplier effect of Northwestern Ontario for the year 2011 was 1.4, which means that every 1000 jobs in local farms and food processing sector in Northwestern Ontario support 400 extra jobs indirectly with suppliers and retailers. Within Northwestern Ontario, Thunder Bay District had the largest (1.7) workforce multiplier effect, followed by Rainy River District (1.3), and Kenora District (1.2). The larger workforce multiplier effect for Thunder Bay District indicates that more indirect jobs can be supported by local farms and food processors in areas that are close to bigger cities. However, both Rainy River and Kenora Districts have a high potential to develop opportunities for more indirect jobs related to the local farms and food processing sector.

Table 7. 21: Workforce multiplier effect of local food production (2011)

	Direct		Indirect		Total	Workforce multiplier effect
	Producers	Suppliers	Retailers			
Thunder Bay District	473	292	65		830	1.7
Rainy River District	648	76	113		837	1.3
Kenora District	172	11	20		203	1.2
Northwestern Ontario	1293	379	198		1870	1.4

## 7.3 Future Employment Potential in Food Production Sector

The future employment potential in food production sector was estimated based on the present (2006-2011) and projected (2012-2017) Gross Domestic Product (GDP) for crop and animal production in Ontario (Conference Board of Canada 2012). Figure 7.1 shows the present and projected GDP for crop and animal production in Ontario. As the projected GDP shows an increase, we estimated an increasing future (2012 to 2017) employment potential in food production sector in Northwestern Ontario as shown in Table 7.22. It is estimated that the number of jobs related to food production in Northwestern Ontario will increase from the present 1620 jobs (2011) to 1878 jobs (2017). This includes full time, part time and seasonal jobs in the food production sector. Within Northwestern Ontario, Rainy River District will provide the highest (836) number of jobs, followed by Thunder Bay District (831) and Kenora District (211).

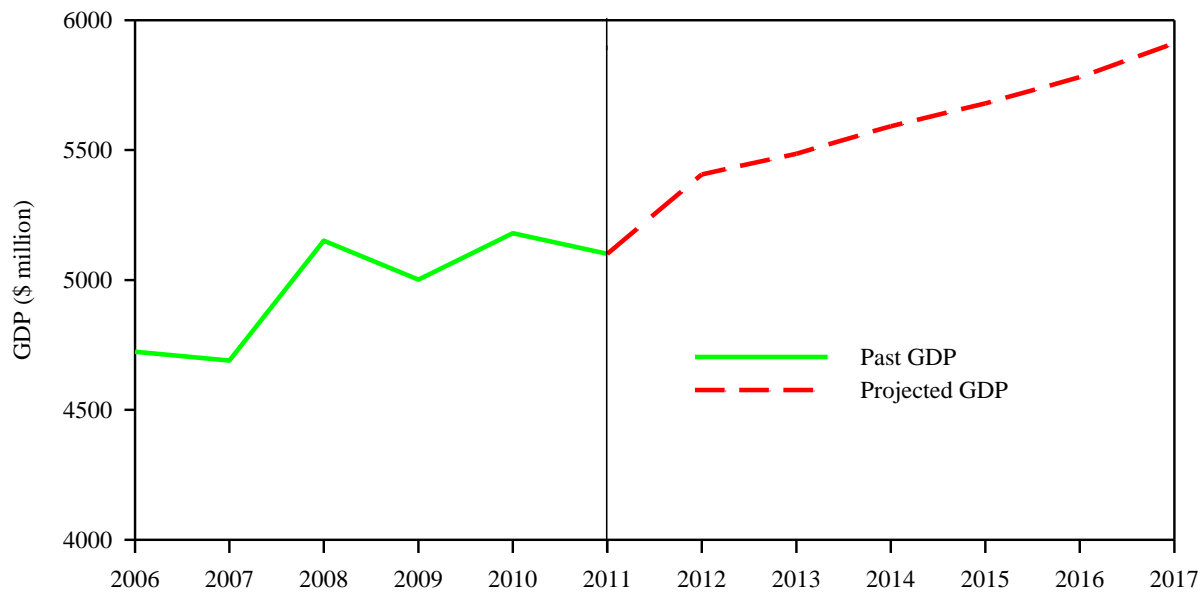


Figure 7. 1: GDP in Crop and Animal Production in Ontario

(Source: Conference Board of Canada, 2012)

Table 7. 22: Projected jobs (2013 to 2017) of food production sector in Northwestern Ontario

	2011	2012	2013	2014	2015	2016	2017
Thunder Bay District	717	760	771	786	798	813	831
Rainy River District	721	764	775	790	803	817	836
Kenora District	182	193	196	200	203	206	211
Northwestern Ontario	1,620	1,717	1,742	1,776	1,804	1,836	1,878

## 8. Conclusions

The study, which was conducted as a community services learning experience for third year students of Forest Economics class in the Faculty of Natural Resources Management at Lakehead University, was done to assess the current state of food production in each of the three districts of Northwestern Ontario, to compare the changes in the state of food production between 2006 and 2011, to explore the workforce multiplier effect of local food production, and to provide a forecast for the number of jobs that the food production sector can sustain over the next 5 years. We found that the food production sector in Northwestern Ontario provides 1293 direct jobs and 577 indirect jobs. The capital market value of local farms and food processing sector in Northwestern Ontario is about \$400 million, which represents 0.47% of the provincial total, but has an average capital market value of \$669,000 per farm, which is 40.5% of the Ontario's average. The farm capital value in Northwestern Ontario supports about 2.17 times higher jobs as compared to the provincial average. The food production sector in Northwestern Ontario lost about 10.3% jobs from 2006 to 2011, whereas in the same period other industrial sectors (forestry and manufacturing) lost substantial number of jobs, because of the economic recession and related issues. This means that the stability of the food production sector levels out the cyclical highs and lows of other natural resource activities in Northwestern Ontario.

Our study demonstrates that the local farms and food processing sector can have a significant impact on the economy and provide both direct and indirect jobs through suppliers and retail market channels. We found an overall employment multiplier effect of 1.4 of food production sector in Northwestern Ontario, with the highest employment multiplier effect of 1.7 in Thunder Bay District. This means that every 1000 jobs in the food production sector support 400 indirect jobs in Northwestern Ontario, and 700 indirect jobs in Thunder Bay District. The study estimated that the present 1620 jobs (2011) related to food production in Northwestern Ontario will increase to 1878 jobs by the year of 2017. However, there are certain recommendations that we would like to highlight for the growth and promotion of food production sector in the region.

Addressing current infrastructure gaps, such as regional distribution system, processing facilities and storage can enhance the speed and volume of local farms and food processing sector growth in Northwestern Ontario. There is a need to develop specialized agriculture training with a northern focus in post-secondary institutions and other training facilities to enhance northern youth engagement. We need to sustain northern place-based research facilities such as TBARS (Thunder Bay Agriculture Research Station) in order to ensure viable crops for northern conditions. There is a need for programs that encourage self-sufficiency in both cultivated and forest food sources in the First Nation communities. Our study is based on a relatively small sample size, and was conducted within a limited time frame. However, it demonstrates the importance of the food production sector in providing both direct and indirect employment in the region.

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## Appendices

### Appendix A: Survey Questionnaire

 <p><b>Food Security Research Network</b> <i>in and for the North</i></p> <p>Email: <a href="mailto:fsrn@lakeheadu.ca">fsrn@lakeheadu.ca</a> URL: <a href="http://www.foodsecurityresearch.ca">www.foodsecurityresearch.ca</a></p>	 <p><b>North Superior</b> Workforce Planning Board</p> <p>URL: <a href="http://www.nswpb.ca">www.nswpb.ca</a></p>	 <p><b>Northwest Training and Adjustment Board</b></p> <p>URL: <a href="http://www.ntab.on.ca">www.ntab.on.ca</a></p>
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**Workforce Multiplier Effect Study of Local Food Producers**

The Food Security Research Network is conducting a study for assessment of jobs created by local food producers and processors. We need your help. Please fill out the below survey and tell us how you have contributed in creating jobs in Northwestern Ontario. Please fill in the survey right now and give it to the team leader.

1. Location
  - Thunder Bay District
  - Rainy River District
  - Kenora District
  
2. Occupation
  - Supplier                       Producer
  - Processor                       Retailer
  - Producer and Processor
  
3. Producer
  - Dairy                               Vegetables
  - Beef                                 Eggs
  - Goat                                Fruits \_\_\_\_\_
  - Elk                                  Bees
  - Boar                                Wild rice
  - Chicken                          Grains
  - Pork
  - Other, please specify \_\_\_\_\_
  
4. If you are a Processor – What do you process/make?  
\_\_\_\_\_
  
5. Number of Employees
 

	<u>Number</u>
<input type="checkbox"/> Full Time	_____
<input type="checkbox"/> Part Time (Casual)	_____
<input type="checkbox"/> Seasonal	_____

6. Annual Sales Revenue

<input type="checkbox"/> <10,000	<input type="checkbox"/> 10,000-25,000
<input type="checkbox"/> 25,000-50,000	<input type="checkbox"/> 50,000-100,000
<input type="checkbox"/> 100,000-250,000	<input type="checkbox"/> 250,000-500,000
<input type="checkbox"/> 500,000-1,000,000	<input type="checkbox"/> >1,000,000

7. Who are your suppliers and what percentage of your supplies comes from them?

<u>Name</u>	<u>Percentage</u>
_____	_____
_____	_____
_____	_____
_____	_____

8. Do you supply your produce to some processors and what percentage of your produce is taken by them?

<u>Name</u>	<u>Percentage</u>
_____	_____
_____	_____
_____	_____
_____	_____

9. What are your target markets and what percentage of your produce is taken by them?

<u>Name</u>	<u>Percentage</u>
<input type="checkbox"/> Farm Gate	_____
<input type="checkbox"/> Farmer's Market	_____
<input type="checkbox"/> Retail Stores	_____
<input type="checkbox"/> Online	_____
<input type="checkbox"/> Others _____	_____

*Thank you for your participation!*

## Appendix B: Focus Group Members



Thunder Bay Focus Group Members:

From left: Madelaine Kennedy, Abram Seargeant, Patrick Penner, Andreeanne Cossette,  
Sarah Poulin



Rainy River Focus Group Members:

From left: Even Dutka, Christine Mahlmann, Justin Galbrith, Melissa Schumacher, Caleb Allen



Kenora Focus Group Members:

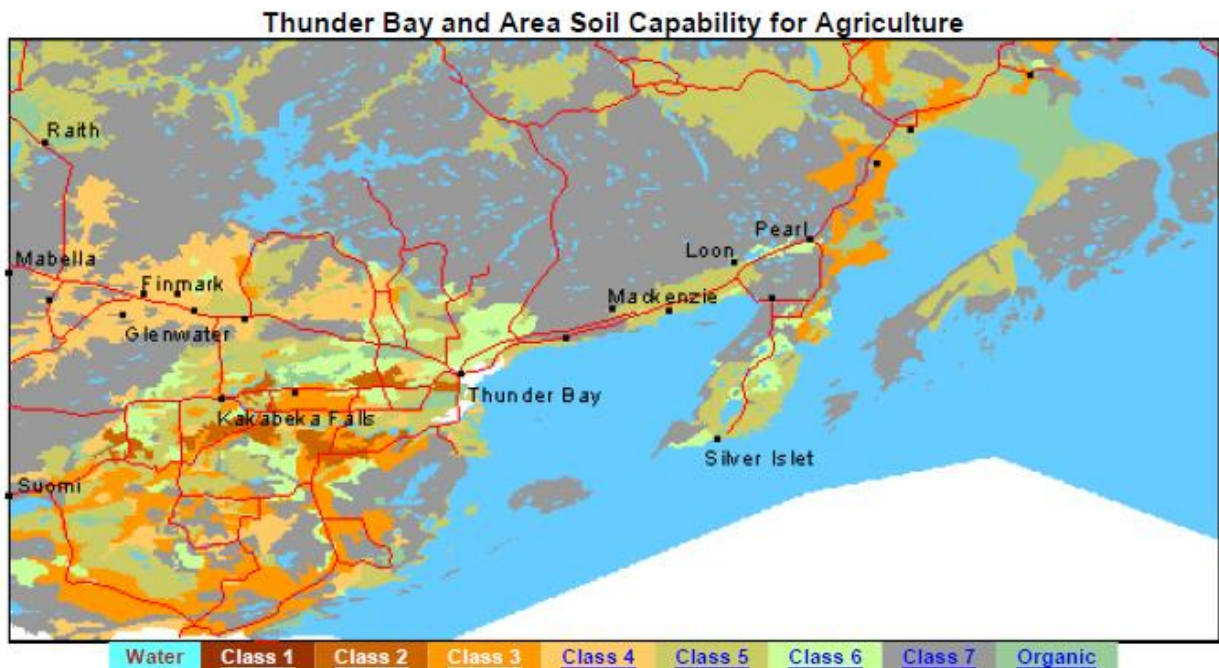
From left: Ryan McGuire, Samuel Hawken, Jesse Crosson, Johnathan O'Dwyer, Loren Smyrski



## Appendix C: Soil Capability for Agriculture in Northwestern Ontario

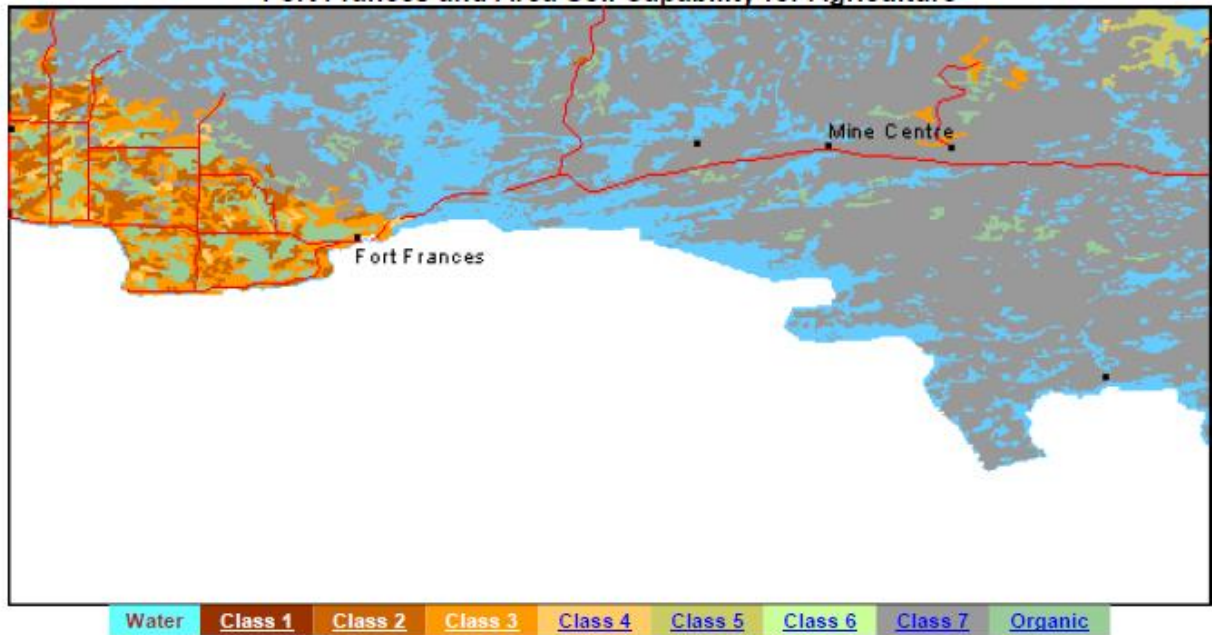
The following land capability classes indicate the degree of limitation imposed by the soil in its use for mechanized agriculture.

Class	Description
1	Soils in this class have no significant limitations in use for crops.
2	Soils in this class have moderate limitations that restrict the range of crops or require moderate conservation practices.
3	Soils in this class have moderately severe limitations that restrict the range of crops or require special conservation practices.
4	Soils in this class have severe limitations that restrict the range of crops or require special conservation practices.
5	Soils in this class have very severe limitations that restrict their capability in producing perennial forage crops, and improvement practices are feasible.
6	Soils in this class are capable only of producing perennial forage crops, and improvement practices are not feasible.
7	Soils in this class have no capacity for arable culture or permanent pasture.
8	Organic Soils (not placed in capability classes).



Source: Canada Land Inventory. Environment Canada.  
<http://geogratis.cgdi.gc.ca/CLI/frames.html>

### Fort Frances and Area Soil Capability for Agriculture



Source: Canada Land Inventory. Environment Canada.  
<http://geogratis.cgdi.gc.ca/CLI/frames.html>

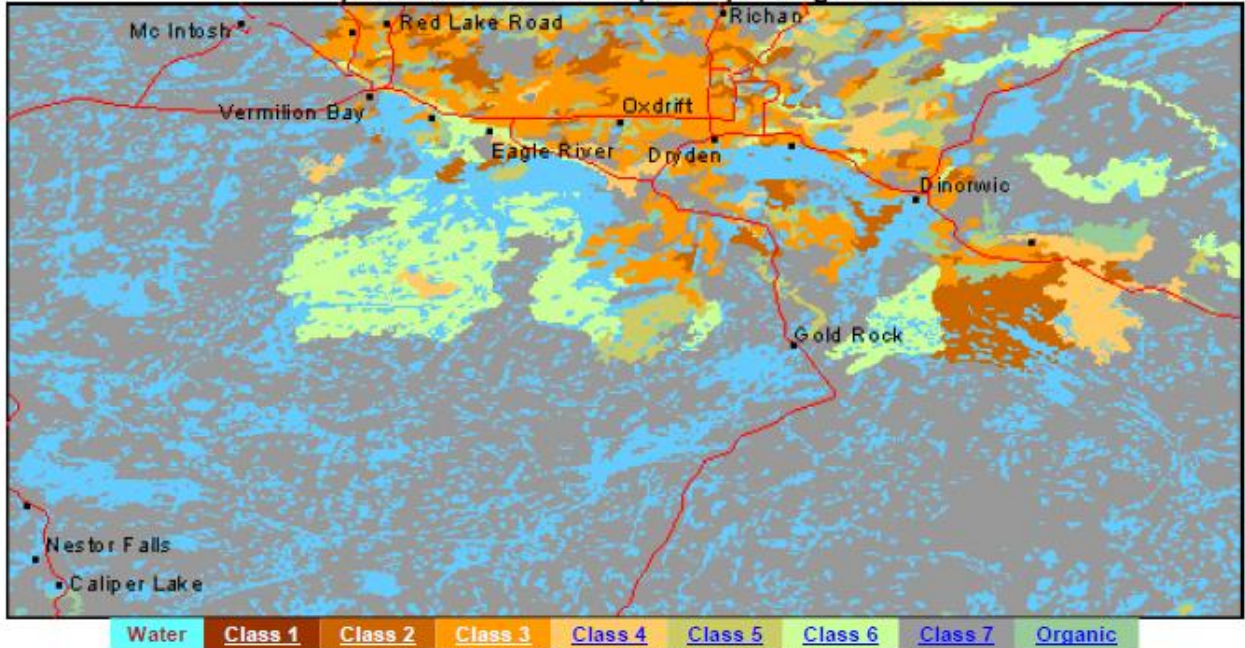
### Rainy River and Area Soil Capability for Agriculture



Source: Canada Land Inventory. Environment Canada.  
<http://geogratis.cgdi.gc.ca/CLI/frames.html>



### Dryden and Area Soil Capability for Agriculture



Source: Canada Land Inventory. Environment Canada.  
<http://geogratis.cgdi.gc.ca/CLI/frames.html>

### Kenora and Area Soil Capability for Agriculture



Source: Canada Land Inventory. Environment Canada.  
<http://geogratis.cgdi.gc.ca/CLI/frames.html>