

Current Farm Income Measures and Tools: Gaps and Issues

Paper prepared for the Workshop on Farm Income Measures

Ottawa

March 5 and 6, 2007

**Paul Murray, Statistics Canada
Dave Culver, Agriculture and Agri-Food Canada**

Current Farm Income Measures and Tools: Gaps and Issues

Paul Murray, Statistics Canada and Dave Culver, Agriculture and Agri-Food Canada¹

1. Introduction

In recent years, low aggregate farm income in Canada has been widely reported by the media and concerns have been expressed about the financial health of the agriculture industry and its participants. However, given the diversity of the agricultural sector and the rapid changes occurring in agriculture, a number of issues have arisen about which indicators are best to measure the performance and health of this industry in Canada. As farm operations have become more complex and more structurally diverse, there has been a particular concern about an over-reliance on some measures of aggregate farm income as the sole or major indicator of industry performance.

Statistics Canada and Agriculture and Agri-Food Canada produce a large variety of data and information that help to shed light on the issues. Farm income issues are complex and the requirements of users have changed over the years. This paper begins by briefly tracking the history of farm income and related data. It also discusses some of the structural changes that have occurred in agriculture and how these increase the complexity of farm income and other performance measures. A description follows of the aggregate and the whole farm data that exist, including conceptual issues and data quality concerns. Appendices contain more detail on comparisons, definitions, concepts and methods.

2. Background and History

2.1 Evolution of Farm Income Measures and Tools

Statistics Canada (STC) has a long history of measuring farm income and collecting information from Canadian farmers. Provincial and national estimates of annual farm income and capital value date back to 1926. Within STC, these estimates are provided to the System of National Accounts Branch to form the basis of agriculture's contribution to Gross Domestic Product. Outside of STC, the estimates have been used by analysts in the public and private sectors as a measure of the financial health of the industry.

As the structure of agricultural production and marketing began changing more rapidly in the latter part of the twentieth century and policy agendas of governments expanded, users of agriculture financial data expressed concern about the limitations of both the quantity and quality of data available. The farm income accounts developed largely in the late 1930s and early 1940s responded to the needs of the day when the vast majority of farms in the industry were of the "one farm-one family mainly dependent on that farm" structure.

A "conceptual obsolescence" began taking place as farms grew larger, more specialized, more integrated, more capital intensive and relied increasingly on purchased inputs and borrowed capital (Hamilton, 1986). Recognizing this, STC and its partners had already begun a conceptual review in 1981 with the objective of recommending changes to the existing accounts to better meet broader user needs. A masters' thesis by STC employee George Beelen entitled "An Alternative System of Financial Accounting for the Canadian Agriculture Production Sector" was published in 1983. Workshops were organized in Winnipeg under the theme "Revisions to Farm income and Financial Statistics for Canada" and later in Ottawa addressing "The Theory and Practice of Agricultural Wealth Accounts." All of these endeavors recognized the need for a broader set of accounts to measure the well-being of the sector and its participants (Beelen, 1983 and University of Manitoba, 1983 and 1986).

In addition to publishing its regular net income, capital value and debt series, in 1991 and 1992, STC introduced three of the set of six integrated financial accounts for the sector proposed in the Beelen thesis to provide a more complete picture of primary agriculture, with data beginning in 1981. These were a value added account, a cash flow statement and a balance sheet (including financial ratios).

¹ The principal authors gratefully acknowledge the following people who contributed to the writing of this paper: Cindy Heffernan, Lina Di Piéto, Daniel Michaud and Ross Vani, Statistics Canada and Tony McDougall, Katrine Nagelschmitz, Fabrice Nimpagaritse and Chris Webber, Agriculture and Agri-Food Canada.

The use of micro-level farm income data in Canada has a much shorter history dating back to the early 1980s. Although some farm financial information was collected in previous surveys and censuses, the purpose was generally to provide information for aggregate farm income estimates. The 1981 Farm Survey, conducted by the Farm Credit Corporation (now Farm Credit Canada) with the support of STC and Agriculture and Agri-Food Canada (AAFC), was the first major effort to produce national micro-level farm financial data. This survey focused on the farm balance sheet and was largely undertaken as a response to record high interest rates and the rising numbers of farm bankruptcies. The survey was repeated several times in the eighties, usually on a biennial basis.

The lack of comprehensive farm-level financial information for Canada was recognized by the Auditor General of Canada. The 1986 audit of safety net programs identified problems with the reporting on the effectiveness and impact of various programs. In the late eighties, there was also a significant increase in government expenditures in agriculture related to low grain prices and droughts. In 1991, in a follow-up audit of farm safety net programs, the Auditor General of Canada commented, "Since our last audit the Department has performed little ongoing performance and measurement or program evaluation of the programs. Consequently the management has little reliable information on the impacts of the effects of these programs." (Auditor General of Canada, 1992).

Largely in response to comments made by the Auditor General in the early nineties, AAFC was able to secure increased funding to improve farm level data in Canada. Under the Farm Income Protection Act, funding was provided for the Whole Farm Data Project (WFDP). The WFDP significantly improved farm level data in Canada. Farm tax records have been used to develop estimates by farm size and farm type by Census Agriculture Region on a national basis since 1990. Tax records have also been used to produce estimates of farm family income since 1990. This significantly improved farm level income information in Canada. The WFDP also provided funding for an expanded Farm Survey which was renamed the Farm Financial Survey (FFS). The FFS, which is currently an annual telephone survey, has been expanded to collect details on farm revenues and expenses and well as farm family income and wealth.

2.2 Evolution of Farm Structure and Farm Income Issues

While Canada has a long history of producing data on aggregate farm income, the structure of the industry has changed greatly in recent years. The evolving farm structure can be partially illustrated by examining the changing number and size of farm operations in Canada. Farm numbers fell from 430,503 in 1966 to 246,923 by 2001 (Table 1). Agriculture production, however, has become much more concentrated on larger farms. In 1966, farms with total revenues of \$250,000 or more accounted for less than 1% of the farms and 12% of total receipts. By 2001, this group represented almost 14% of the farms and 68% of the total agricultural receipts. Very small operations, however, accounted for 22% of census farms in 2001.

Table 1

Number of Farms		1966	1971	1981	1986	1991	1996	2001
under \$10,000	number of farms	168,589	124,736	102,161	80,274	67,217	71,176	54,166
\$10,000-\$249,999	number of farms	259,319	236,628	205,663	196,750	191,703	179,415	158,618
\$250,000 and over	number of farms	2,595	4,746	10,537	16,065	21,123	25,957	34,139
Total number	number of farms	430,503	366,110	318,361	293,089	280,043	276,548	246,923
Distribution of farms								
by farm size								
under \$10,000	% of total farms	39	34	32	27	24	26	22
\$10,000-\$249,999	% of total farms	60	65	65	67	68	65	64
\$250,000 and over	% of total farms	0.6	1.3	3.3	5.5	7.5	9.4	13.8
Distribution of receipts								
by farm size								
under \$10,000	% of farm receipts	6	4	2	1	1	1	1
\$10,000-\$249,999	% of farm receipts	82	76	64	59	52	43	31
\$250,000 and over	% of farm receipts	12	21	34	40	47	56	68

Note: All revenue data are in constant (2000) dollars.

Source: Statistics Canada, Census of Agriculture

As farms become larger and more complex, measuring their performance has also become more complicated and difficult. Larger farms are generally incorporated, allowing farm operators to pay themselves a salary rather than simply using the residual net income from the farm operation. Large farms, some which have revenues in the millions, often have complex ownership arrangements where the farm may be integrated into other operations within the supply chain. Large farms may also be part of an even larger operation where issues such as transfer pricing between operations can have impact on farm income. Production and marketing contracts are becoming more common in the many sectors. Custom feeding operations are also more common where the farm operator charges a fee for feeding the animals. According to the 2004 FFS, approximately 30% of hogs were produced under contract and not owned by the farm in 2003.

Some of the complexities of measuring farm performance are illustrated in Table 2. In the past 15 years, Canadian aggregate measures of farm income such as net cash or realized net income, have generally not increased in current dollars, and in fact, have fallen in real terms. However, the income of commercial-sized farms appears to be much more positive. Between 1990 and 2004, the net operating income of farms with revenues of \$250,000 or more increased from \$70,628 to \$116,599. During the same time period, farm family income (before capital cost allowance) increased from \$47,426 to \$78,252. However, farms with less than \$250,000 in revenues had a decline in their net operating income for this period.

Table 2

	Average			
	Realized net operating income	Net operating income - Farms with revenues of less than \$250,000	Net operating income - Farms with revenues of \$250,000 and over	Average total family income (before CCA)
	millions of \$	\$	\$	\$
1990	2,072	13,038	70,628	47,426
1991	1,686	13,389	67,730	49,394
1992	2,779	13,650	74,841	49,982
1993	2,346	14,252	81,412	51,440
1994	2,479	13,765	81,192	53,275
1995	2,277	14,347	93,168	56,629
1996	2,491	13,047	98,144	56,788
1997	2,536	13,420	93,434	59,195
1998	1,729	13,042	91,376	61,108
1999	1,471	11,579	91,141	62,222
2000	2,176	12,334	100,133	66,270
2001	3,748	13,417	105,894	72,974
2002	3,041	12,712	112,502	74,914
2003	327	8,249	103,006	72,791
2004	2,311	8,876	116,599	78,252

Source: Statistics Canada, Agriculture Economic Statistics and Taxation data

Another example of current farm structure is demonstrated by examining farm typology. As shown in Table 3, farms and farm families in Canada are very diverse. People operate farms for a number of reasons including lifestyle choices as well as for motivations which are solely business-focused. Farm families also rely on various sources of income. Operators of lifestyle and small- and medium-sized farms generally rely on off-farm income for the majority of their family income. Even families operating larger farms have a combination of income sources including investment income. Unlike most other occupations, a significant number of farm operators also continue to farm well past normal retirement age. These farmers generally operate smaller farms and rely on pension income as a significant income source.

Table 3

2004									
Revenue Class	Typology	Number of farms	Gross farm revenue**	Tot.Expenses	Family Share of Program payments***	Family Share of Farm Net Market Income***	Farm Wages and Salaries paid to the family	Off farm Income	Total family Income
\$10,000 - \$250,000	Retirement	27,002	55,531	51,842	6,616	-3,147	1,743	29,861	35,073
	Lifestyle	18,295	25,285	33,051	3,201	-10,921	823	90,456	83,559
	Low Income*	34,804	79,415	87,970	10,546	-19,072	2,051	13,493	7,018
	Small	5,462	27,710	20,265	4,259	2,945	868	37,471	45,543
	Medium	13,426	71,754	60,251	8,806	2,302	2,404	61,637	75,149
	Large	21,899	166,241	124,425	17,277	23,300	7,918	40,509	89,004
	Total	120,889	78,430	72,055	9,299	-3,237	2,845	40,121	49,027
\$250,000 and over	Retirement	2,008	571,522	490,253	41,780	35,664	18,835	29,796	126,076
	Low Income	5,420	624,087	699,955	41,219	-108,560	15,055	13,758	-38,528
	Large	16,403	346,752	262,190	26,387	52,756	18,145	32,298	129,586
	Very Large	12,208	1,156,516	934,843	51,705	137,146	46,318	24,007	259,177
	Total	36,039	675,290	568,593	38,052	56,129	27,262	26,562	148,005

* Low Income farms include those with family income of less than \$35,000 except retirement and lifestyle farming
** Gross farm revenues includes governments payments
*** Family share is based on family's percent ownership of the farm

Source: Statistics Canada, Farm Financial Survey

3. Measures and tools currently available

Understanding the current measures of farm income in Canada and their complexities is critical to the possible improvements in farm income measures. The following section presents, for each of the major STC farm income-related series and for the farm income estimates produced by AAFC, a description of the data available, the methodology used to collect/compile data and their principal uses. See Appendix 1 for a table outlining key differences among the series and see Appendix 2 for release dates in *The Daily* in 2005/06 for the series that are described in the paper. Appendix 3 contains additional detail on definitions, concepts and methods for both aggregate and farm level data.

3.1 Agriculture Economics Statistics series (AES)

3.1.1 Concepts, Methods and Uses

3.1.1.1 Concepts

The traditional aggregate net farm income measures produced by STC are now part of a broader set of economic accounts. For all of these accounts, the estimates are intended to represent all primary agricultural activity, i.e., to cover all farms as defined by the Census of Agriculture. Under the umbrella of its Agriculture Economic Statistics (AES) series, the Agency publishes a monthly Farm Product Price Index and agricultural product prices; quarterly farm cash receipts data; and integrated annual series on operating expenses and depreciation, net farm income, income in kind, value of inventory change, program payments, debt outstanding, capital values, cash flows, value added and a balance sheet.

With the exception of the latter three accounts, data from these series flow to several divisions in the Canadian System of National Accounts (SNA) Branch to form the agriculture sector's contribution to GDP. Therefore, they must conform to international standards which have long provided a solid conceptual framework for collecting and compiling aggregate agriculture economic data. While conceptually and operationally integrated, each account and measure is intended to highlight a different aspect of the industry and each is compiled accordingly. For example, all wage and interest costs associated with the farm business are considered as operating expenses in producing net farm income, but they are counted among the returns to labour and capital in the value added account and therefore are not deducted as expenses.

The aggregate approach used by STC is common to many other countries with well-developed agricultural statistical systems, and in fact, provides a much more detailed picture (due to the numerous accounts and ratios available) than is available for other industries which receive less government support. The concepts and methods used for each of the data series are well explained in the publications listed later in this section, in the metadata available on STC's Web site and in a more limited

fashion in Appendix 3. All of the AES series are compiled and disseminated at the provincial and national levels.

These international standards are reviewed on a regular basis to ensure their relevance. Examples are the revision to the United Nations' System of National Accounts in 1993 (SNA 93), and the European Union's revised methodology for the Economic Accounts for Agriculture in 1997 (EAA 97), adopted by the OECD as the basis for its data-gathering from OECD countries (Caldwell and Murray, 2005).

Canada has been a leader in the development of these standards for the United Nations, particularly since the 1950s, and is recognized as having one of the most complete integrated sets of financial data on the primary agriculture sector. As a centralized statistical agency, STC has access to many sources of data, including tax data, through the Statistics Act. This facilitates the integration, confrontation and dissemination of reliable and coherent data.

3.1.1.2 Methods

Over the roughly 80 years of producing farm income estimates, a large variety of survey and administrative data has been used to produce the revenue and expense accounts. To reduce respondent burden and cost, most of the revenue-side data have long been obtained through a wide array of administrative sources such as federal and provincial governments, marketing boards, producer organizations, and from survey data collected by other areas within and outside of government. Estimates for most of the many farm cash receipt commodities are calculated by obtaining product marketing and price data for each separate marketing channel and then aggregating them to the commodity level. As the aggregate measures are built largely from administrative data at the provincial level, they cannot be disaggregated to do micro analysis which is critical to policy development and monitoring.

In the earlier years, the Census of Agriculture (CEAG) had been an important source of basic information, but had never been comprehensive enough for income and expenditure purposes. Therefore, in the fall of 1958 and the spring of 1959, the Agency undertook the first detailed national survey of farm revenues and expenses. This information permitted a very thorough re-examination and revision of farm financial data series (Statistics Canada, 1967).

In the seventies, as governments increased their involvement in agriculture with programs such as the Western Grains Stabilization Act (WGSA), the importance of reliable and accurate farm income data increased. To improve the quality of the farm income estimates and also for program purposes, the Farm Expenditure Survey was undertaken in the Canadian Wheat Board (CWB) region. A similar survey, the Agriculture Enumerative Survey, collected data in the non-CWB region (Seko, 1990).

Concern about response burden and survey costs led the Agency to look for an alternative for collecting farm expense data. The collection of expense data by farm surveys was replaced by the use of farm tax records. In the 1980s, STC began using tax records to provide farm expense data for the non-CWB region, and in the early nineties, tax data formed the basis for virtually all farm expense information.

3.1.1.3 Uses

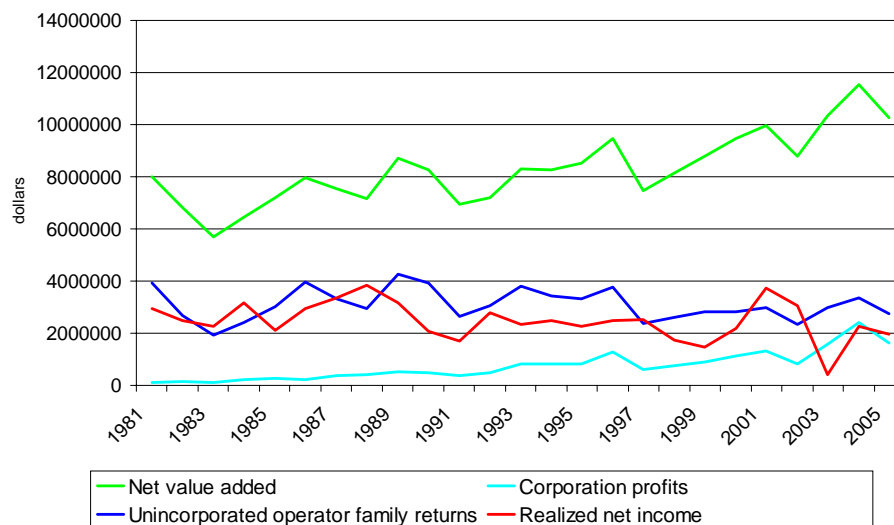
In addition to important SNA uses, the aggregate data are used in several ways for a wide variety of government programs, in federal legislation, to defend Canada's position in trade dispute resolution, for international comparisons, in court cases, by producer organizations, agribusiness, academia and many others. The value added account, cash flow statement and balance sheet data are conceptually integrated with those of the farm income, capital value and debt series to provide a broader and more complete picture of sector performance and well-being. To provide additional information with the balance sheet, several liquidity, solvency and profitability ratios are also published.

The various indicators of performance mentioned above are intended to be considered as an integrated package, and when interpreted separately, present only a partial picture. For example, the Figure 1 shows that measures of net farm income and value added can appear to be telling a different story as they describe different phenomena. While net value added and profits from incorporated farms have trended upward (in current dollars) for over 20 years, realized net income has been flat.

Figure 1

Different data: different story

Requires more than one number for perspective



Source: Statistics Canada, Agriculture Economic Statistics

Monthly farm product price indexes and annual data for the other series mentioned above are found in the following electronic publications, available free on STC's Web site on the day the data are released in *The Daily*. These publications can be accessed in either HTML or PDF format:

- 21-007-X Farm product price index
- 21-011-X Farm cash receipts - Agriculture economic statistics
- 21-012-X Farm operating expenses and depreciation charges - Agriculture economic statistics
- 21-013-X Value of farm capital - Agriculture economic statistics
- 21-014-X Farm debt outstanding - Agriculture economic statistics
- 21-015-X Direct payments to agriculture producers - Agriculture economic statistics
- 21-016-X Balance sheet of the agricultural sector - Agriculture economic statistics
- 21-017-X Agriculture value added account - Agriculture economic statistics
- 21-018-X Farm business cash flows - Agriculture economic statistics

While several aggregate financial measures and tools are available, the media and other users tend to focus most on the aggregate measures of farm income, and in particular, on realized net income. These measures are released first by STC and are perhaps the most readily understood by the majority of users. The farm income analysis accompanying the releases in STC's *The Daily* has also evolved as the industry has changed to become more focused on describing factors contributing to changes in revenues, expenditures, net income and the other series. While annual net farm income releases are considered major economic indicators and thus are allocated more space in *The Daily*, the releases of the FPPI and the three other integrated accounts also have their own specific announcements with accompanying analysis in this bulletin.

The data in the AES series are considered the timeliest data for the sector available from STC. Monthly commodity price data are generally released five weeks after the end of the reference period and the monthly FPPI is available two weeks later. Quarterly farm cash receipts data are available seven weeks after the end of the quarter, and preliminary annual farm income with its various components and other associated accounts are published within five months of the end of the reference calendar year.

3.2 Whole Farm Data

3.2.1 Concepts, Methods and Uses

3.2.1.1 Concepts

To respond to the growing demand for more disaggregated farm level data allowing comparisons by type of farm and : revenue class at subprovincial levels, STC initiated the Taxation Data Program (TDP) in the early 1980s. The TDP is now referred to as the Canadian Agricultural Income Stabilization and Taxation Data Program (CAIS/TDP). The information from personal income tax records also enabled the CAIS/TDP to produce off-farm income estimates for farm operators. In order to produce off-farm income statistics for farm families, though, the Tax Family System, which was developed by Small Area and Administrative Data Division of STC, was required.

In 1991, AAFC obtained the funding to launch the Farm Level Data Project (FLDP) and provide the data necessary for monitoring the financial position of farm businesses; assessing the impact of changing policies, programs and economic conditions on farms; and administering and evaluating agricultural programs. To meet this goal, STC and AAFC launched the Whole Farm Database (WFDB), an essential component of the FLDP. The ultimate objective of this base is to provide a set of physical and financial data at the farm level that is as complete as possible. This is achieved by integrating data from various existing surveys and administrative sources to produce disaggregated statistics by farm type, revenue class and sub-provincial geographic regions.

Two of the major data sources currently offered in the WFDB, which produce data annually at the farm level, are the CAIS/TDP and the Farm Financial Survey (FFS). A brief description follows about the major data series. Additional details are available in the Whole Farm Database Reference Manual, Cat. No. 21F0005GIE. Note that the WFDB is primarily structured to provide data for farms with reported annual revenues of \$10,000 and more.

3.2.1.2 Methods

Canadian Agricultural Income Stabilization and Taxation Data Program

The CAIS/TDP samples produce annual farm income estimates for unincorporated and incorporated farms by farm type and size by Census Agricultural Region. The estimates are based on detailed revenue and expense data submitted for tax purposes or to the CAIS administration. The farm type classification is based on the percentage of the sales of the major commodity or commodity group. For example, to be classified as a hog and pig farming operation, 50% or more of the farm's agricultural sales must come from the sale of hogs. Farm income estimates are based on a sample of well over 150,000 CAIS/TDP records. Off-farm income estimates are produced for operators of unincorporated and incorporated farms and for families of unincorporated agricultural operations.

Farm Financial Survey

The main objective of the FFS is to measure the following capital investments and sales, assets and liabilities, long-term capital borrowed, revenue and expenses, government program payments and off-farm income. Survey content is reviewed annually to address new data needs. Survey data can be used to measure the financial impact of a new government program, a natural disaster or the impact of raising input cost. The FFS permits detailed and targeted questions and offers the flexibility to drill down for more targeted analysis by farm type and size.

3.2.1.3 Uses

Whole farm data are used for policy analysis, industry performance and structure and program development and evaluation. This has included developing farm typologies which have been used to illustrate the diversity of farms and farm families in Canada. Whole farm data also monitor industry performance by farm type, farm size and by region. Detailed program detailed on the FFS has been used to evaluate different farm programs such as crop insurance.

3.3 Other Farm Income Measures

3.3.1 Census of Agriculture (CEAG)

The CEAG has provided a detailed snapshot of the industry for Canada every 10 years from 1871 to 1951 and every five years since 1951. Because of the rapid expansion of agriculture in the Prairie

provinces starting at the turn of the twentieth century, a CEAG has been conducted in these three provinces quinquennially since 1906 (Oliveira et al, 1995). Although the definition of a farm has evolved marginally over the years, the current definition of a census farm as “an operation producing agricultural products intended for sale” is all-inclusive.

Data from the CEAG are a cornerstone of the Canadian agriculture statistics program at STC. Canada’s CEAG is relied upon for benchmarking intercensal commodity and financial estimates, as a sample frame for intercensal surveys, and as the authoritative source of small area data. In addition, as a “census” it allows for drilling down for more targeted analysis by farm type and size, and off-farm income. It also allows for longitudinal analysis, a powerful tool for policy development and monitoring.

Considerable detail has been available for financial variables for a number of census occasions: value of owned and rented land and buildings, numbers and values of machinery and equipment, several expense items and total operating expenses and the sales of agricultural products and forest products. Agriculture variables from the CEAG have traditionally been published exactly one year after the census reference day.

As part of the census program, information from the CEAG has been combined with that of the Census of Population since 1971 (except for the 1976 censuses) to create the Census of Agriculture-Population Linkage Database, a wealth of information on the agricultural, social and economic characteristics of the farm population (Jackson, 1994). This permits the full set of Census of Population income variables to be tabulated for farm operators and their families. The linked file is released two and a half years after the reference year (Agriculture and Agri-Food Canada and Statistics Canada, 2000).

3.3.2 System of National Accounts (SNA)

The national accounts are the principal tools used in macro-economic analysis to assess the performance of the economy. Agriculture’s contribution to the economy is measured separately in three areas within the national accounts. Virtually all of the data entered into the agricultural components of the national accounts are sourced from the Agriculture Economic Statistics series of the Agriculture Division of STC.

- **Income and expenditure accounts** present value of gross domestic product measured in current dollars at market prices. Preliminary quarterly estimates are released 60 days after the reference quarter at the national level. Preliminary estimates at the provincial level are released annually in October following the end of the reference year. The agriculture contribution, termed “accrued net farm income of farm operators from farm production,” is calculated as the total net farm income minus the profits of incorporated farms (which are included elsewhere in the accounts) and other specific adjustments.
- **Gross domestic product by industry**, available as seasonally adjusted monthly estimates of the national value of gross domestic product by industry are released about 60 days after the end of the reference month showing agriculture as an industry with three components: crop production, livestock production and services incidental to agriculture such as veterinary services. An annual series by province is released in the second quarter after the end of the reference year with crops and livestock are combined.
- **Input–output accounts** measure the contribution of each industry to gross domestic product by means of a table showing the structural detail by industry (both inputs and outputs), and balanced commodity flows. These accounts provide an annual benchmark for gross domestic product and a means of auditing source data for consistency and compatibility. They are released a little over two years after the end of the reference year. Agriculture Division breaks down its farm income series into crops, horticulture and livestock sectors for this purpose. With funding provided by AAFC, a project was initiated in 2004 to develop a 12-industry agriculture input-output model using 2001 Agriculture Division base data, and updated with 2003 data in 2006.

3.3.3 Longitudinal Administrative Data

STC’s Longitudinal Administrative Databank (LAD) is another source of income data on farmers and their families. This database was started in 1982 by the Small Area and Administrative Data Division (SAADD) and provides detailed longitudinal income information on Canadian taxfilers and their families. This methodology does not identify operators of incorporated farms. Once an individual is picked up in the

sample, the person remains in the LAD as long as they file a tax form. They are identified as farmers if they report gross farm income. The LAD identifies as a farmer those individuals who report gross farm income from crop sharing even if they are usually not considered to be farmers since they are not actively farming.

3.3.4 Farm Income Forecast

In collaboration with STC and the provincial governments, AAFC normally produces provincial farm income forecasts in January and September each year. The forecast relies heavily on STC historical data as the Agency provides the Farm Income and Program Analysis (FIPA) Section with its most recent historical estimates of production, commodity marketings, farm cash receipts, expenses, and revisions to its estimates for the previous two to three years. FIPA analysts prepare the quantity and price assumptions for the forecast period using the STC data as a base to forecast forward. The forecast horizon is normally two years and estimates are mainly derived from the expert input of commodity analysts, provincial government representatives and STC analysts. The forecast is well-covered by the media.

3.3.5 Micro Simulation Model

AAFC is in the process of developing a dynamic micro-simulation model of the Canadian agricultural sector. The name of the model is CADMS (Canadian Agriculture Dynamic Micro-Simulation model). One objective of the model is to provide forecasted micro-level data.

The basic unit of analysis in the model is the farm, and there are over 200,000 farms represented. The key variables recorded for each farm are total farm sales, sales by commodity category, total operating expenses, government payments and off-farm income. This set allows calculation of various measures of farm income including net market income, net farm income and total income of the family farm. The intention is to eventually introduce assets and liabilities for each farm, allowing for the calculation of net worth. Each farm has historical information on a yearly basis covering a period of approximately 10 years. The main source of information is the FFS, supplemented by information from the CAIS/NISA dataset. Forecasting equations are fitted to the historical data for each key variable. The model is still under development and results have not been publicly released.

3.3.6 Benchmark Farms

AAFC has developed a number of benchmark farm models which represent typical farms in a region for a given farm type and farm size. The benchmark models use tax data and information from the farm income forecast to provide a short term farm income forecast for selected benchmark farms. The benchmark farms have also been used to examine the impact of various programs on farms.

4. Data Quality Concerns and Conceptual Issues

4.1.1 General Data Quality Concerns

Data quality concerns will be discussed in this section in light of on STC's Quality Assurance Framework (relevance, accuracy, timeliness, accessibility, interpretability and coherence). To some extent, each data series has different concepts, target populations and quality issues. In addition, the rapidly changing structure of the industry has increased the challenges of data collection and estimation for all estimates – sourced by administrative data and surveys – that feed the aggregate and the disaggregated series.

The increase in complex legal and operational structures makes data collection and analysis more difficult. The growing importance of vertically-integrated operations blurs sectoral boundaries making it more challenging to measure conceptually desirable indicators. Increased contractual arrangements add to this complexity. More and varied marketing opportunities such as direct marketing/dual markets/numerous payment options mean that many administrative data sources (e.g., the Ontario Wheat Producers' Marketing Board) no longer completely cover their market segments. The continual introduction of new, complex payment options from institutions such as the CWB makes it challenging to track cash-based producer payments. The current uncertainty surrounding the future of the CWB and Canadian supply management create additional questions for statistical collection as these organizations generally provide a wealth of administrative data that while not collected for statistical purposes, are extremely useful and of

high quality. Diverse value-added production, additional niche market sales, and the effects of World Trade Organization disputes have increased demand for more detailed data at lower levels of disaggregation.

4.1.2 General Conceptual Issues

As previously noted, small farms are important in numbers but contribute very little to overall agricultural production. In producing the AES series, expenses for all Canadian farms which produce any gross farm revenue are included in the calculation in order to cover the entire sector. In the 2001 CEAG, 39% or 96,305 of the Canadian farms had total farm revenues of less than \$25,000. Although these farms contribute very little to total agricultural production, they are important in the economic statistics series and the calculation of net farm income. The majority of these farms can be described as rural residence or lifestyle farms whose owners are generally operating a small farm for a variety of reasons. This includes provisions under the Income Tax Act to write-off farm losses against other income and to deduct certain household expenses and other charges such as family labour and farm interest expense associated with the farm business. Most (56%) have chronic negative net farm income and tend to have high fixed costs (Nagelschmitz and Abraham, 2006). Farms with under \$25,000 in total revenue have reported substantial net cash losses in the last four censuses: -\$498 million, -\$316 million, -\$603 million and -\$596 million in 1985, 1990, 1995 and 2000, respectively. While small farms are treated no differently than any other self-employed sector of the economy, agriculture has a relatively large number of lifestyle/hobby operations whose counterparts are generally less important in other industries. The impact and methodology issues around hobby/lifestyle farms and aggregate farm income needs more study.

Table 3
Average Net Operating Income, before Capital Cost Allowance, by
Revenue class, Canada, 2005

	Average net Operating Income 2003	Average net Operating Income 2004	Average Net Operating Income 2005*
Revenues Class	-Dollars-		
\$10,000-\$24,999	(1,215)	(1,304)	(68)
\$25,000-\$99,999	13,672	9,416	10,213
\$100,000-\$249,000	27,932	29,249	28,060
\$250,000-\$499,999	62,590	64,278	64,601
\$500,000 and over	161,090	187,605	172,060
All farms	25,167	28,784	29,314

* 2005 are preliminary estimates

Source: Statistics Canada Taxation data

Farm income estimates from both the tax data and FFS are based on farms with total farm revenues of \$10,000 and above. Farms with revenues of \$10,000 to \$250,000 account for 92% of the farms in the tax database. In 2005, the average net operating income was \$29,314 (Table 3). However, this ranged from a loss of \$68 for farms in the lowest sales class to a positive \$172,060 for those with revenues of at least \$500,000. In general, households associated with farms in the lower sales categories partially or fully live on income from off farm sources. Small- and medium-sized farms have a major impact on average farm income.

4.2 Agriculture Economic Statistics Series

4.2.1 Data Quality Concerns

The AES series is heavily dependant on administrative data, and as sources such as the WGSA, Gross

Revenue Insurance Plan (GRIP) and the Farm Input Price Index (FIPI) ceased to exist or were cut back substantially, data research costs and quality are affected.

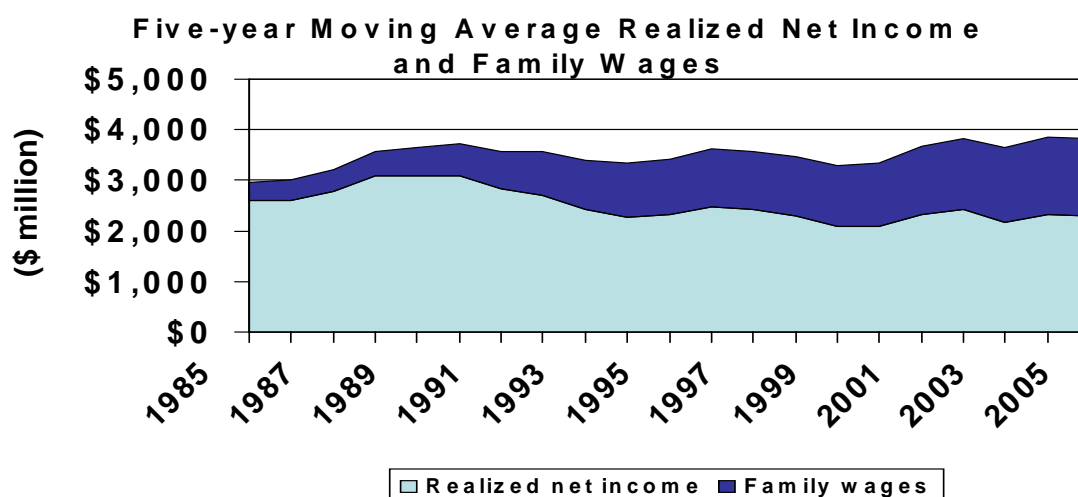
Another concern is that the current formula for calculating economic depreciation used in the farm income accounts is based on splits of capital value from the CEAG (but the land and building split is based on data from more than 20 years ago). The factors should be reviewed. As some researchers have hypothesized that the determining role for the increasing size of farms is the substitution of capital for the rising price of labour (Bollman et al., 1995), the growing proportion of capital over the years has made any quality issues with the estimation of depreciation more important. In addition, it is difficult for users to distinguish between the concepts and calculations used for economic depreciation that are different than the approach used for capital cost allowance/tax depreciation.

Data quality concerns are particularly important when discussing residually-calculated net farm income measures, whether from an aggregate or a whole farm source. The magnitude of any of measure of net farm income is relatively small compared to that of cash receipts and expenses. Consequently, a relatively small change in either cash receipts or expenses can produce a proportionately large change in net income estimates. This is important to remember when assessing the impact of revisions or forecasts.

4.2.2 Conceptual Issues

A significant conceptual issue relates to the treatment of family wages, which have become more important during the last two decades. Should they be subtracted as a business expense or should they be considered as income to the family? Wage expenses are split on the CEAG into those paid to family members and those paid to all others. Agriculture Division currently subtracts all wages as a business operating expense in its income and expense account. In its value added account, family and non-family wages are shown separately as returns to labour. The issue has become more significant in recent years as the amount of family wages has increased substantially (Figure 2). In 2005, \$1.6 billion was reported in wages paid to family members. While there is no effect on SNA accounting, corporate profitability is affected and the data can be improperly skewed if some payment of wages is simply a form of income splitting. The question may relate to treatment of income and expenditures for the “farm business” vs. “farm family income”.

Figure 2



Source: Agriculture and Agri-Food Canada, using Statistics Canada data

4.3 Whole Farm Data

4.3.1 Data Quality Concerns

As in the case of aggregate farm income measures, there are specific quality and operational issues related to micro-level farm financial information as described below:

- All of the estimates produced by the WFDB are derived from samples, making them subject to sampling errors. Such errors occur when observations are based only on a sample and not on the population as a whole and are measured by the coefficient of variation.
- Non-sampling errors can occur whether a sample is used or a complete census of the population is taken, and can be introduced at various stages of data processing and include errors introduced inadvertently by respondents. Such errors are reduced through extensive edits and data analysis.
- Adding to data quality issues with taxation data in more recent years is the increase in electronic reporting, leading to taxfilers or their accountants providing significantly less detailed revenue and expenditure data, thereby increasing the need for imputation of missing values.
- The quality of the CAIS/TDP estimates for certain items is affected by the fact that the information is not collected from a standard questionnaire but from different types of income and expense statements submitted by taxfilers. The breakdown provided on these statements does not always make it possible to assign the appropriate item code.
- The largest obstacle facing the FFS is the burden imposed on respondents. It is a long survey asking farmers to provide sensitive financial information about their business. Farm operators resist participating in the survey and object to providing detailed information about their farm and off-farm income. There is an increasing need to justify the importance of the survey and to explain the benefits of participating to respondents. Despite the increasing resistance from farmers, the survey has managed to obtain an 83% response rate over the years.
- The FFS faces rising collection costs. Options to reduce the cost are constantly investigated and methodologists review the sampling plan to consider options to reduce the sample size while maintaining the data quality.

4.2.3 Conceptual and Operational Issues

Additional issues related to farm income estimates at the farm level are shown below:

- Timing – The farm income estimates published by both the tax data and the FFS are historical estimates. In the case of farm data, STC Canada publishes estimates of farm level farm income some 11 months from the tax-filing deadline. While this delay is considered more than reasonable for other Statistics Canada business data, AES data are available with only a five-month lag. In the case of farm family data, Statistics Canada publishes estimates approximately two years from the tax-filing deadline. The data therefore have generally received only limited coverage in the general press, which focuses on the current situation of farm income.
- Coherence – Comparability of CAIS/TDP data with FFS data, and both of these sources with other STC data such as those from the CEAG and the AES series, are affected by differences in concepts, methods and coverage. The combined effect of these differences may result in substantial discrepancies in level estimates and in trends. For example, the CAIS/TDP estimates on operating revenues and expenses are not directly comparable with other sources. As a result of the residual method used to derive net income, relatively small differences in either operating revenues or expenses can result in relatively large differences in net income level and its yearly change. The WFDP produces farm and farm family income estimates from both taxation data and the FFS. There are significant differences in the estimates of net operating income and farm family income produced between these two sources. Some of these differences appear to be the under-reporting of off farm income in the FFS. Investment data also appear to be underreported on the FFS. Several tables shown in Appendix 4 highlight some of the differences between CAIS/TDP and FFS data in recent years.

5.0 Summary and Conclusions

Canada is fortunate in that it has some of the most detailed information on agricultural income and financial performance in the world. STC has a long history of producing quality unbiased information on the performance of the agricultural sector using various data sources. Significant improvements have been made over the years on farm income measures to meet evolving user needs and changing industry structure. These improvements include adding additional aggregate accounts such as the value added account as well as the significant expansion of micro level farm financial data. However, the agricultural industry along with farm families is changing rapidly and these changes impact measures of farm income and performance. This paper has focused on the current information on farm income and some of the

issues with the measures currently used to measure farm income and performance. The challenge going forward is how to use the rich source of information we currently have to provide the industry, policy makers and the general public with farm income and performance measures which accurately reflect changes in the industry and financial performance.

6.0 References

- Agriculture and Agri-Food Canada and Statistics Canada. 2000. Understanding Measurements of Farm Income. Publication No. 2060/B, Catalogue No. 21-525-XPB.
- Auditor General of Canada. 1992. Report of the Auditor General of Canada.
- Beelen, G. W. 1983. An Alternative System of Financial Accounting for the Canadian Agricultural Production Sector. M.Sc. Thesis, University of Manitoba. October 1983.
- Bollman, R.D., L. A. Whitener and F. L. Tung. 1995. Trends and Patterns of Agricultural Structural Change: A Canada – U.S. Comparison. *Canadian Journal of Agricultural Economics* Special Issue: 15-28.
- Caldwell, J. and P. Murray. 2005. Profitability in Farming: Rates of Return and Comparison to Other Industries. Paper presented at Statistics Canada's Economic Conference, Ottawa, May 9-10.
- Hamilton, E. F. 1986. Measuring the Economic Welfare of Farmers: A Theoretical Approach. Proceedings of the Seminar on the Theory and Practice of Agricultural Wealth Accounts. Department of Agricultural Economics and Farm Management, University of Manitoba, Occasional Series No. 16. 105-106.
- Jackson, J. 1994. The History of the Census of Agriculture Canadian Agriculture at a Glance, Catalogue No. 95-301 Statistics Canada: 13-15.
- Nagelschmitz, K and C. Abraham. 2006. How Persistent is Low Income among Canadian Farm Families? A Longitudinal Analysis, 1983 to 2003. Agriculture and Agri-Food Canada presentation.
- Oliveira, V. J., L. A. Whitener, and R. D. Bollman. 1995. Farm structure data: A Canada – U.S. comparative review. *Canadian Journal of Agricultural Economics* Special Issue: 29-45.
- Seko, C. 1990. Western Grain Stabilization Act: Revised Expense Allocation Methodology. Unpublished Statistics Canada methodology report.
- Statistics Canada. 1967. Handbook of Agricultural Statistics: Part II Farm Income 1926-65, Catalogue No. 21-511.
- Statistics Canada. Various current Agriculture Division publications.
- University of Manitoba. 1983. Proceedings of the Seminar on Revisions Farm Income and Financial Statistics for Canada. Department of Agricultural Economics and Farm Management, The University of Manitoba, Occasional Series No. 14.
- University of Manitoba. 1986. Proceedings of the Seminar on the Theory and Practice of Agricultural Wealth Accounts. Department of Agricultural Economics and Farm Management, The University of Manitoba, Occasional Series No. 16.

Appendix 1

Comparison of Annual Agriculture Income Data

Series	Included	Population	Source	Timeliness	Aggregation	Concepts
Agriculture Economic Statistics (AES)	net farm income, farm cash receipts, operating expenses and depreciation, capital value, debt, cash flow, value added, balance sheet (4 versions)	all farms	Census of Agriculture, various administrative sources, various surveys	5 months after reference year	Provincial	System of National Accounts concepts: Does not include the following: income that farm operators or their families may receive from other sources; income earned from non-agricultural use of the farm; revenue or expenses from the sale or purchase of farm capital; farm-to-farm transactions unless they occur across a provincial or national border; indirect program payments; and capital payments where funds do not relate to current production and transfer payments (e.g., training allowances) directed to individuals.
Taxation Data (CAIS/Tax)	revenue, operating expense and depreciation, gross margin, farm operator income, farm family income, total income	taxfilers with positive gross farm income; excludes corporations sales under \$25k and less than 50% agriculture	Canada Revenue Agency	11 months after reference year	Provincial, subprovincial, farm type, sales class, cross classifications, longitudinal	Generally accepted accounting principals (GAAP): includes farm-to-farm sales
Farm Financial Survey (FFS)	physical data, operator data, balance sheet, sales, expenses	excludes farms under \$10k sales, multis, institutions, Indian reserves	Survey	11 months after reference year for income data	Provincial, subprovincial, farm type, sales class, cross classifications, longitudinal	Per taxation
Census of Agriculture	physical data, operator data, socio-economic, capital value, operating expenses, sales	all farms	Census	17 months after reference year for income data	Provincial, subprovincial, farm type, sales class, cross classifications, longitudinal, Ag-Pop linkage	Per taxation
Farm Income Forecast	net farm income, farm cash receipts, operating expenses and depreciation	all farms	AES base data, various administrative sources and expertise	1 month after reference year for year x and 11 months before reference year end for year x+1	Provincial	Same as AES
Micro Simulation	sales, operating expenses, govt. payments, off-farm income	excludes farms under \$10k FFS and CAIS/NISA sales, multis, institutions, Indian reserves		Not available at present time	Provincial, subprovincial, farm type, sales class, cross classifications, longitudinal	Per taxation

Appendix 2

Release dates of Annual Economic Data for Agriculture, 2005/06

Date released in <i>The Daily</i> in 2005/06	Reference Period (p=prelim.; r=revised)	Data series
April 4, 2005	2002	Total income of farm families (WFDB)
May 25, 2005	2004p	Net Farm Income, Farm Debt, Capital Value (AES)
June 15, 2005	2004p	Balance sheet, Cash flow statement, Value added account (AES)
November 25, 2005	2005r	Net Farm Income, Farm Debt, Capital Value (AES)
December 2, 2005	2004p	Farm Operating revenues and expenses (WFDB)
December 8, 2005	2003	Total income of farm families (WFDB)
December 9, 2005	2004	Farm Financial Survey (FFS)
January 18, 2006	2004r	Balance sheet, Cash flow statement, Value added account (AES)
March 14, 2006	2004r	Farm Operating revenues and expenses (WFDB)

WFDB = Whole Farm Database
AES = Agriculture Economic Statistics
FFS = Farm Financial Survey

Appendix 3

Agriculture Economic Data Definitions, Concepts and Methods

1.0 Agriculture Economic Statistics (AES) series

The agriculture economic statistics program uses three aggregate measures of net farm income (see diagram):

- **Net cash income** measures farm business cash flow (gross revenue minus operating expenses) generated from the production of agricultural goods. Net cash income represents the amount of money available for debt repayment, investment or withdrawal by the owner.
- **Realized net income** measures the financial flows, both monetary (net cash income) and non-monetary (depreciation and income-in-kind), of farm businesses. Similar to net cash income, realized net income represents the net farm income from transactions in a given year regardless of the year the agricultural goods were produced.
- **Total net income** measures the financial flows and stock changes of farm businesses. Total net income values agriculture economic production during the year that the agricultural goods were produced. It represents the return to owner's equity, unpaid labour, management and risk.

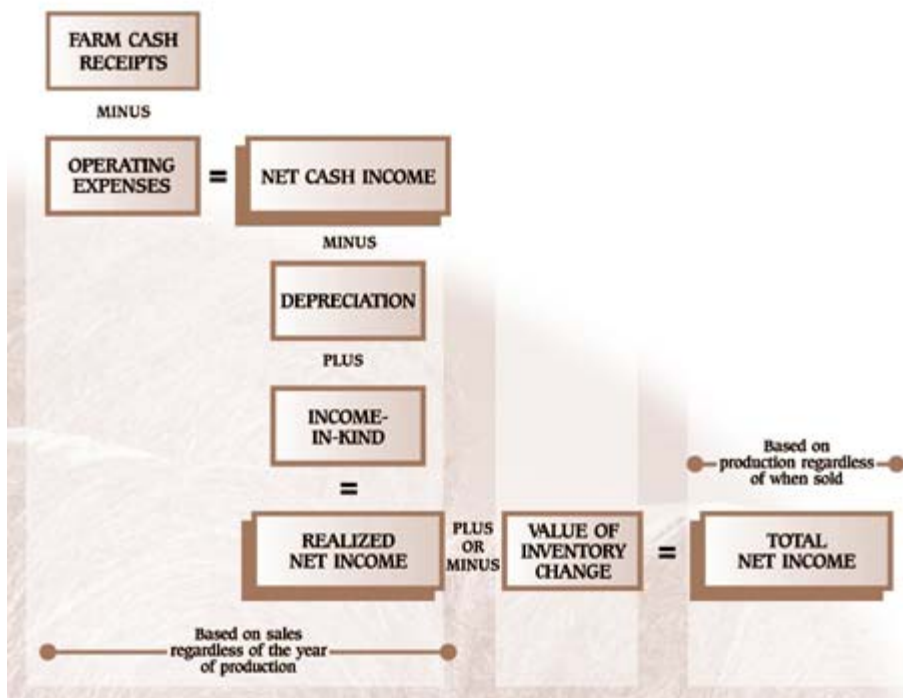


Figure 3 Different measures of farm income

Source: Agriculture and Agri-Food Canada and Statistics Canada. 2000. Understanding Measurements of Farm Income. Publication No. 2060/B, Catalogue No. 21-525-XPB.

Components of these net farm income measures:

1-Farm cash receipts include revenues from the sale of agricultural commodities, program payments from government agencies, and payments from private crop and livestock insurance programs. Receipts are recorded in the calendar year (January to December) when the money is paid (cash basis) to farmers.

Market receipts are farm cash receipts minus program payments. They include sales of field crops, fruits, vegetables, floriculture and nursery products, maple and forest products, livestock, milk, poultry, eggs, wool, fur and honey. The information is collected from a wide variety of surveys and administrative sources that report the quantity and average farm price for each commodity marketed in a province.

Program payments are tied to agricultural production and paid directly from government to farmers. Examples of these payments include come under the Canadian Agricultural Income Stabilization program (CAIS), non-private crop insurance payments, and provincial income stabilization programs.

2-Farm operating expenses represent business costs incurred by farm businesses for goods and services used in the production of agricultural commodities. Expenses, which are recorded when the money is disbursed by the farmer, include property taxes, custom work, rent, fertilizer and lime, pesticides, machinery and building repairs, fuel for heating and machines, wages, interest and business share of insurance premiums.

Initial expense estimates (released in May following the reference year) are based mainly on analysts' estimates using price changes from the Farm Input Price Index (FIPI) and quantity changes based on discussions with industry contacts and other available data. The first revisions in November are based on preliminary tax data. The following May, final tax data are used.

3- Income-in-kind measures the value of the agricultural goods produced on farms and consumed by farm operator families. It is included to measure total farm production. There is no monetary disbursement related to income-in-kind. It is calculated using Statistics Canada estimates of per capita food consumption, coupled with Census measurements of the farm population and the average prices that producers would have received in the marketplace.

4- Depreciation charges account for the economic depreciation or for the loss in fair market value of the capital assets of the farm business. There is no monetary disbursement associated with depreciation. Calculated on farm buildings, farm machinery, and the farm business share of autos, trucks and the farm home, depreciation is generally considered to be the result of aging, wear and tear, and obsolescence. It represents a decrease in the potential economic benefits that can be generated by the capital asset.

5- Value of inventory change (VIC) measures the dollar value of the physical change in producer-owned inventories. This concept is used to value total agricultural economic production. To calculate VIC, the change in producer-owned inventories (between the end and the beginning of a calendar year) is first derived and then multiplied by the average annual crop prices or value per animal. This calculation is different from the financial or accounting book value approach, which values the beginning and ending stocks, and then derives the change.

The VIC over all the major commodities can vary widely (depending on the size of the change of inventories and prices). The VIC can be either positive (when inventories are larger at the end of the year compared to the beginning levels) or negative (when year-end inventories are smaller than the levels at the beginning of the year). If the inventory levels are the same at the beginning and end of the year, VIC will be zero despite price changes.

Not included in net farm income:

The net farm income measures do not include the following:

- income that farm operators or their families may receive from other sources (e.g., wages and salaries, and investment income);
- income earned from non-agricultural use of the farm;
- revenue or expenses from the sale or purchase of farm capital (real estate, machinery and equipment), although the interest on these purchases is included;
- farm-to-farm transactions, unless they occur across a provincial or national border (within a province, sales from one farm are an expense to another, thus offsetting each other);
- indirect program payments, such as research and industry development funds, where funds are directed to a third party; and

- capital payments where funds do not relate to current production and transfer payments (such as training allowances) directed to individuals.

Estimates can change for a number of reasons, such as better quality data becoming available or improved methods. The Statistics Canada May and November releases incorporate revisions of farm cash receipts, farm operating expenses, and production and inventory levels.

The Census of Agriculture triggers revisions to farm capital value, farm cash receipts, operating expenses, and all sectors of agricultural production (e.g., crops, livestock, poultry and animal products). Intercensal revisions to agricultural commodities are usually completed one to two years after the census data are released. Corresponding revisions to the financial variables (farm cash receipts, operating expenses and net income) are released two to three years after the census data release. Revisions from a new census benchmark normally cover the five-year period back to the previous census. However, new information or changes to methodology or concepts can generate revisions to earlier years.

Agriculture Value Added Account – The agriculture value added account is designed to provide an annual measure of the value of income generated from the production of agricultural goods and services. Net value added represents the sum of the economic returns to all the providers of factors of production: farm employees, non-operator landlords, lenders and farm operators of agricultural businesses.

An important component of this account is the total value of production, which represents the value of the farm sector's gross output occurring within the calendar year. The total value of production is equal to the farm cash receipts plus the following elements: sales of agricultural products to other farms (farm-to-farm sales), custom work receipts, government rebates, farmland rent paid to farm operators, income-in-kind and value of inventory change. The inclusion of the value of change in producer-owned inventories makes possible to value agricultural economic production during the year the agricultural goods were produced, regardless of when it was sold.

This account only relates to the farm business and hence excludes any income that farm operators or their families may receive from non-farm related sources (wages and salaries, investment income, etc.). It pertains to the production and marketing of agricultural commodities but also includes farm-related income such as custom harvesting and feeding, as well as forestry sales. Income from custom work is included only if earned with equipment purchased and used primarily in the farm's production activities. Forestry sales are included if harvested from a farm woodlot. Revenue or expenses related to the sale or purchase of farm capital (real estate, machinery and equipment) are not included.

The format of the agriculture value added account is designed to display sources and allocation of value of production. The sources of value of production fall into four major categories: sales of agricultural products, sales of secondary production, other sources, and own-account production uses. The value of production is allocated into four major categories: expenses on inputs, business taxes, depreciation; and net value added. The net value added is then distributed to the various factors of production, including wages to non-family members; rent to non-operators landlords; interest to lenders of capital and returns to incorporated and unincorporated agricultural businesses.

Balance Sheet of the Agricultural Sector – The balance sheet of the agricultural sector provides the value of farm assets used to produce agricultural products, the liabilities associated with these assets and the farm sector equity, as of December 31. Financial ratios, based on the balance sheet and the Agriculture Value Added Account, are also displayed.

The balance sheet of the agricultural sector includes all assets and debt involved in agricultural production, regardless of ownership. It is not a consolidation of the balance sheets of individual farm operators and corporations involved in the production of agricultural products. Farm real estate assets leased from non-operator landlords are included, as well as automobiles, trucks and farm machinery leased to farmers. The personal portion of farm households' assets and liabilities is excluded, as they are not used in agricultural production.

Unlike other individual or corporate balance sheets, assets are listed at the current market value instead of the book value. Therefore, they cannot be compared with those of accounts using book values.

Farm Business Cash Flow Account – Farm business cash flows provide annual measures of cash flows into and out of farm businesses over a calendar year. The account displays the cash received (cash sources) and the cash disbursed (cash uses) by farm businesses from agricultural production activities. It also displays the cash flows from non-production activities such as the change in the level of farm loans outstanding and the net capital purchases. Farm loans held by non-operators and capital invested in agriculture by non-operators are not taken into account.

Farm business cash flows relate only to the farm business and hence exclude any income that farm operators or their families may receive from non-farm related sources (wages and salaries, investment income, etc.). The account pertains to the production and marketing of agricultural commodities but also includes farm-related income such as custom harvesting and feeding and forestry sales.

Farm Debt Outstanding – The farm debt survey measures the total amount of mortgage and non-mortgage farm debt as of December 31 of each year by class of lender.

Value of Farm Capital – The value of farm capital, at July 1, is estimated annually. It represents the value of capital used in the production of agricultural commodities, regardless of whether the capital is owned or leased. The three components of farm capital are land and buildings, livestock and poultry, and farm machinery and equipment.

2.0 Whole Farm Data

Capital cost allowance (CCA) – A tax term for depreciation used to define the portion of the cost of the depreciable property, such as equipment and buildings, that is tax-deductible. After the calculation of the capital cost allowance, farmers may deduct any amount up to the maximum allowable.

Net operating income – The profit or loss of the farm operation measured by total operating revenues less total operating expenses, excluding capital cost allowance, the value of inventory adjustments and other adjustments, for tax purposes.

Operating Margin – one dollar minus operating expenses (before depreciation) per dollar of revenue.

Operating expenses – The business costs incurred by a farm operation in the production of agricultural commodities. Inter-farm purchases are included in these costs but capital cost allowance is excluded. Some expense items are reported at net cost (for example, property taxes, interest, and fuel are net of rebates that were applied to the farming operation).

Operating revenues – Agricultural sales, program payments and insurance proceeds as well as custom work and machine rental, rental income and miscellaneous revenues. Inter-farm sales are included in the estimates. Some revenue items are net of payments made (for example, cash advances are net of cash advances repayment).

Total income – The total income of each taxfiling member of the family. It is the sum of the net operating income and the off-farm income of a family involved in a single, unincorporated farm.

Total income adjusted for capital cost allowance (CCA) – The total income **adjusted for** capital cost allowance of each taxfiling member of the family. It is the sum of the net operating income **adjusted for** capital cost allowance (e.g., net operating income less capital cost allowance) and the off-farm income of a family involved in a single, unincorporated farm.

Appendix 4

Table 4

Unincorporated farms							
Number of Farms reporting off-farm income by source- 2004							
Data Source	Estimated number of farm families	Off-farm employment income ¹	Percent of farms reporting	Investment Income	Percent of farms reporting	Pension Income	Percent of farms reporting
Taxfiler	130,970	105,550	81%	98,320	75%	44,490	34%
FFS	131,539	89,103	68%	32,534	25%	40,639	31%

¹ includes family salaries from the farm

Source: Statistics Canada Taxation and Farm Financial Survey data

Table 5

Taxfiler VS FFS

Net operating income		
Year	Taxfiler	FFS
1995	23,561	33,726
1997	24,070	31,625
1999	22,671	32,167
2001	28,998	40,631
2002	30,250	34,127
2003	25,567	25,311
2004	28,784	31,542

Source: Statistics Canada Taxation and Farm Financial Survey data

Table 6

Number of farms

	Gross farm revenue class													
	\$10,000 - \$24,999		\$25,000 - \$49,999		\$50,000 - \$ 99,999		\$100,000 - \$249,999		\$250,000 - \$499,999		\$500,000 +		Total	
	FFS	TAXFILER	FFS	TAXFILER	FFS	TAXFILER	FFS	TAXFILER	FFS	TAXFILER	FFS	TAXFILER	FFS	TAXFILER
2001	22,135	52,970	25,633	44,250	31,582	40,010	41,448	49,590	22,517	23,310	13,329	14,545	156,643	224,675
2002	24,071	52,500	26,439	41,285	32,426	39,035	43,275	47,340	24,155	22,900	14,614	15,515	164,980	218,575
2003	28,926	50,200	28,440	39,745	29,298	36,570	39,664	43,130	21,628	22,370	14,139	15,565	162,095	207,580
2004	26,996	48,940	27,443	38,315	29,289	35,530	38,159	40,960	21,700	21,375	15,078	15,750	158,665	200,870

Net operating income

	Gross farm revenue class													
	\$10,000 - \$24,999		\$25,000 - \$49,999		\$50,000 - \$ 99,999		\$100,000 - \$249,999		\$250,000 - \$499,999		\$500,000 +		Total	
	FFS	TAXFILER	FFS	TAXFILER	FFS	TAXFILER	FFS	TAXFILER	FFS	TAXFILER	FFS	TAXFILER	FFS	TAXFILER
2001	-983	-24	3,699	5,074	13,425	14,043	35,220	34,713	73,213	68,544	207,012	165,751	40,631	28,998
2002	-3,017	-798	-209	4,250	10,421	13,672	28,357	34,284	62,609	69,279	180,029	176,300	34,127	30,250
2003	-6,840	-3,164	-3,271	1,860	2,761	7,646	22,569	27,932	57,760	62,590	153,365	161,090	25,311	25,567
2004	-6,181	-3,077	-2,901	1,862	4,573	9,416	23,593	29,249	60,395	64,278	192,749	187,605	31,542	28,784

Source: Statistics Canada Taxation and Farm Financial Survey data