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Factors that influence farm business behavior

By Deborah Niekamp and Margaret Zafiriou

Farm operators and farm families in Canada are a diverse group. Farm operators differ by age, experience, business expectations, size and scale. These differences account for the varying responses these farmers have to farm programs and other government policies. To determine these responses, a farm "typology" has been developed to take account of the factors influencing their behavior.

In much of the research that has been done in the past on farm structure, farm distribution has been analyzed by revenue class, output and net income. As a result of issues raised in the 1998 National Commission of Small Farms in the United States (revenues of \$250,000 and under), the Economic Research Service (ERS) of the U.S. Department of Agriculture developed a farm "typology". This typology was a method of classifying farms into more homogeneous groups based on age (retirement farms), dependence on farming (major occupation farms), asset base (limited resource farms) and sales class. By capturing the life cycle or business intention differences among farmers, it was possible to explain some of the reasons for these issues and to develop policies that would better target the needs of those individual small farms. Compared with classification by revenues alone, the typology classification is much more reflective of operators' expectations from farming, the stage in their life cycle, and their dependence on farm income.

The farm typology developed by Agriculture and Agri-Food Canada (AAFC) is similar in many respects to the ERS typology explained above. Factors such as age experience, asset base, business intentions, and sales class have been used to classify farm operators and farm families into distinct groups. As with the ERS typologies, the groups differ in their contributions to agricultural production, product specialization, program participation and dependence of farm income.



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Defining the Farm Types

Farms and farm families were sorted into seven categories based on age of operator, experience, dependence on farm income and income level. The following describes in detail the characteristics of each type.

Pension (family) farms are those farms in which the oldest operator is 60 to 64 years of age and receiving pension income and includes all operators age 65 and older. This group represents those farmers, approaching or in retirement who may be downsizing or will be in the process of selling off or transferring the farm to their children in the next few years. It is expected that these farmers would not readily adopt new technology at this stage in their life cycle. Therefore, by segmenting these farmers, the impact of a policy encouraging new technology adaptation on other farmers would become much easier to determine.

Beginner (family) farms, on the other hand, are defined as those farms in which the oldest operator reported less than six years of farming experience. This group would include farmers in the early stages of their life cycle. It is not expected that these farms or farm families would have large assets or be operating at full capacity at this stage in the cycle. Many would be struggling to invest back into the business in order to expand. This group would respond well to policies that subsidized financing or provided either technical or management expertise.

Lifestyle (family) farms reflect those farms or farm families that are not full-time farmers. These farms are defined as those with gross farm revenues between \$10,000 and \$49,999, with off-farm income of more than \$50,000 who do not fall into either the pension and beginner categories. Generally, these farmers rely almost exclusively on off-farm employment income for their main source of livelihood, and operate a farm for reasons of "lifestyle" choice or perhaps tax purposes. As expected, they do not report significant net farm operating income or large assets.

Low income (family) farms are those farms with gross farm revenues between \$10,000 and \$99,999 and total family income below \$20,000 who do not fall into the pension, beginner or lifestyle categories. This group represents those farms or farm families that are struggling financially. Like the previous group, these farmers rely almost exclusively on off-farm income for their main source of livelihood, though this source is inadequate. These farms tend to operate inefficiently, unable to reach economies of size or scale, resulting in large negative margins.

Intermediate (family) farms reflect those farms or farm families operating viable small to medium size farms that may expand over time. They are defined as those farms with gross farm revenues between \$10,000 and \$99,999 that do not fall into any of the previous categories. Due to the small size of their operations, they rely heavily on off-farm income, however, they tend to operate more efficiently than other farms in their size category and have high operating margins.

Large (family) farms are defined as those farms with gross farm revenues between \$100,000 and \$499,999 that do not fall into the pension or beginner categories. These are commercial size farms that generally receive more than 50 percent of their total family income from the farm.

Very large (family) farms refer to very large commercial size farms. They are defined as those farms with gross farm revenues of \$500,000 or more that do not fall into the pension or beginner categories.

Distribution of Farms by Type

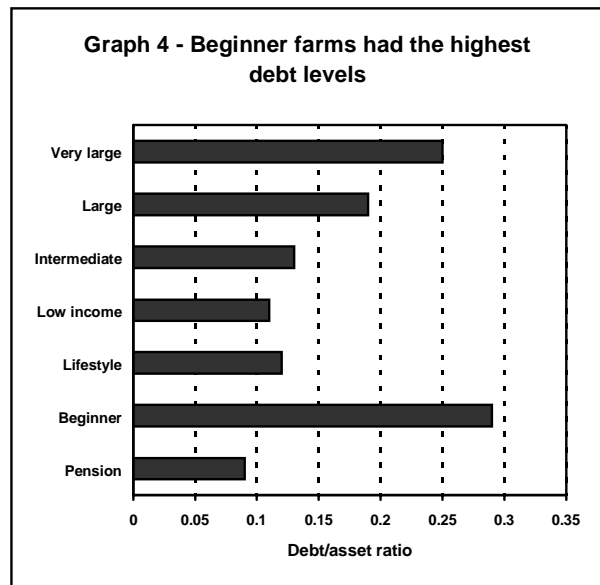
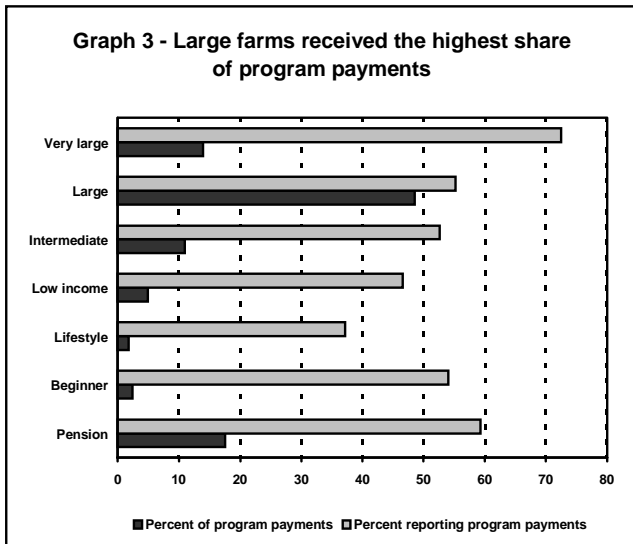
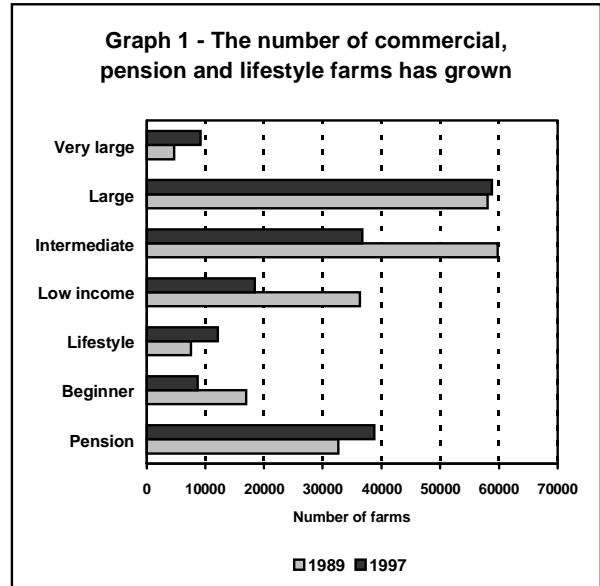
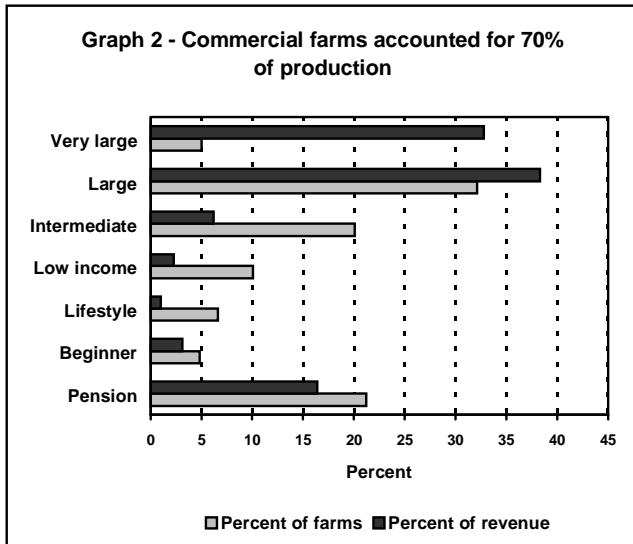
In 1997, farms were distributed in seven groups:

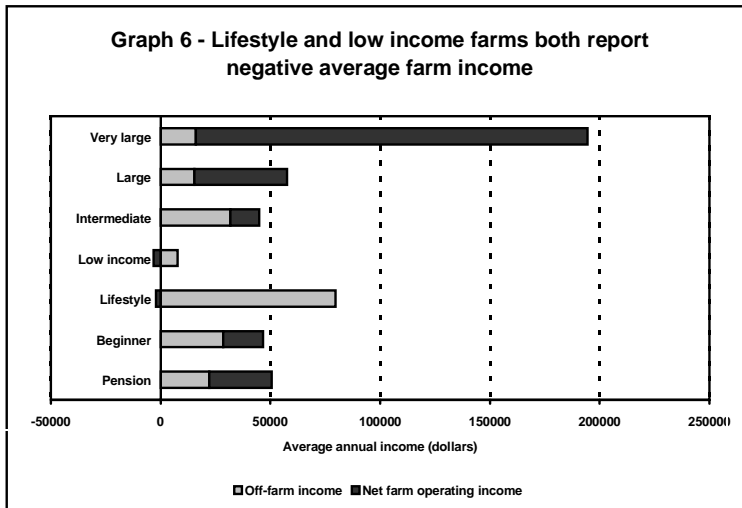
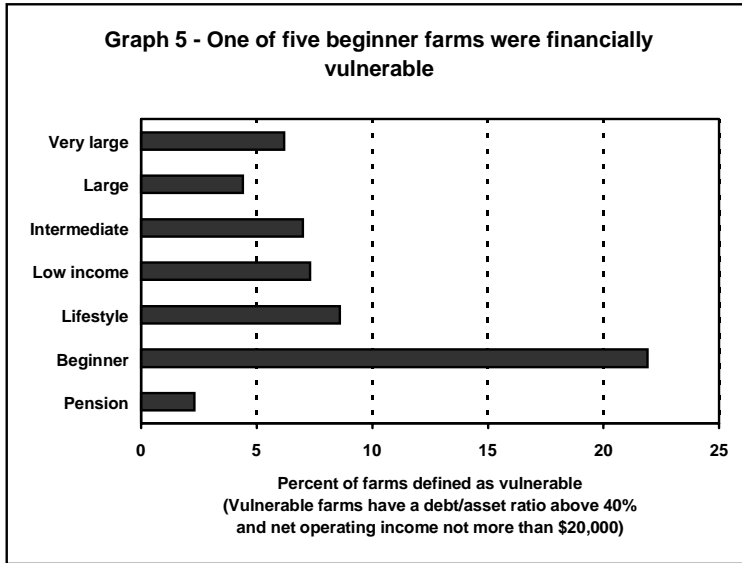
- 21% pension farms
- 5% beginner farms
- 7% lifestyle farms
- 10% low income farms
- 20% intermediate farms
- 32% large farms
- 5% very large farms

Farms change types as conditions improve/deteriorate in the farm sector and as they move through their life cycle. Between 1989 and 1997, while the total number of farms continued their decline in Canada, some types increased in number. Pension farms increased 20%, a reflection of the ageing farm population. Commercial size farms (large and very large farms) increased, though only marginally for large farms. Lifestyle farms also increased in number during this period (Graph 1).

Characteristics of Farm Types

The section that follows points to some of the main differences that exists between types. The types differ in their contributions to agricultural production, financial structure, program payments and dependence on off-farm income. These differences may help explain why farmers react differently to various government programs and policies put in place for the farm sector. The data in these graphs refer to the year 1997.





Conclusion

By using the farm type methodology, policy makers have a better understanding of the diverse characteristics of Canadian farms and farm families. Policies and programs need to reflect the diverse needs of the various types.

Data sources for developing this typology include the Farm Financial Survey (FFS) and the Taxfiler Database (TDP) from the Whole Farm Database, and the Census of Agriculture, all from Statistics Canada, as well as the AAFC Market Research Survey.

Questions or comments regarding this article may be addressed to Margaret Zafiriou at (613) 759-1896 or via the Internet zafirim@em.agr.ca or Deborah Niekamp at (613) 759-1897 or via the Internet niekamd@em.agr.ca. Both writers are analysts at Agriculture and Agri-Food Canada.

Organic growing practices establish a clear market position

By Bill Parsons

Until this year, the extent of organic farming practices in domestic fruit and vegetable production was unmeasured. With the addition of two questions to this spring's Fruit and Vegetable Area Survey, Statistics Canada has estimated that almost 5% of these farms consider themselves to be organic producers.

These farms tend to be smaller with the majority being less than 5 acres in size. Organic farms account for about 1.9% of the commercial fruit area under cultivation and approximately 1.6% of the commercial vegetable area under cultivation. The major areas of organic fruit and vegetable production are in the provinces of British Columbia, Ontario and Quebec.

Concerned by a growing awareness of the health issues stemming from standard practices of food production, consumers have demonstrated a willingness to pay higher prices for produce grown under organic conditions. Farmers, in turn, have responded to this market signal capturing a new niche market for organically grown produce.

Organic Certification

To be certified organic, the grower must make no use of chemical fertilizers or herbicides and submit their land and produce to strict testing to meet the requirements of the Canadian General Standards Board, which sets standards for many types of industries.

Principles of organic production as stated by the Canadian General Standards Board are as follows:

- Protect the environment, minimize the soil degradation and erosion, decrease pollution, optimize biological productivity and promote a sound state of health.
- Replenish and maintain long-term soil fertility by optimizing conditions for biological activity within the soil.
- Maintain diversity within and surrounding the enterprise and protect and enhance the biological diversity of native plants and wildlife.
- Recycle materials and resources to the greatest extent possible within the enterprise.
- Provide attentive care that promotes the health and behavioral needs of livestock.
- Maintain the integrity of organic food and processed products from initial handling to point of sale.

Other general practices of organic farming are:

- no genetically modified seeds or plants,
- no irradiation of the produce during the processing to kill bacteria,
- no irrigation with sewage sludge.
- any manure that is used for fertilizer must first be composted according to strict standards, including a cover for the manure pile so rain doesn't wash away the nutrients as it blends in with the soil.

The annual Fruit and Vegetable Area Survey is conducted in May to measure the area to be planted by commodity for the upcoming growing season. The two questions added to identify organic fruit and vegetable producers were:

Are the fruit and or vegetables grown on your farm certified organic?

If yes, name the certifying agency.

It was assumed that when a farm indicated yes, that all production on that farm was considered to be organic. Once a farm adopted an organic approach to producing fruit and vegetables, it seemed reasonable to presume that all production would be organic. The question of organic certifying agency was left unverified.

While the results of the survey indicated surprising strength in the number of organic producers, they are still relatively few in number and unevenly distributed across the country. Consequently, in some provinces, confidentiality requirements preclude the publishing of detailed information. Totals for the provinces of Quebec, Ontario and British Columbia as well as the national level contain enough respondents to publish.

Number of organic farms and the area they represent

It is estimated that there are 640 organic fruit and vegetable farms. The 640 farms represent approximately 4.9% of the estimated number of commercial fruit and vegetable farms in Canada. There are about 270 organic vegetable farms, 220 organic fruit farms and 150 farms producing both fruit and vegetables organically. Table 1 indicates the number of organic farms and the associated area being used to produce fruit and vegetables by province. As can be seen, a majority of the organic activity is taking place in the provinces of Quebec, Ontario and British Columbia. A good portion of the fruit area not accounted for by the three provinces can be

attributed to blueberry production in the Atlantic Provinces.

The proportion of productive area devoted to organic methods is estimated at 1.9% for fruits and 1.6% for vegetables. Ontario has the most land being used for organic production followed closely by British Columbia and Quebec. However, as a proportion of the total fruit and vegetable area within a province, 8.7% of the vegetable area in British Columbia is used for organic production and 3.2% of the fruit area is organic. In contrast, the organic vegetable area in Ontario accounts for only 1.5% of the total vegetable area and 1.6% of the Ontario fruit area is organic.

Table 1

	Estimated Number of Organic Farms* **		Estimated Organic Area (acres)*	
	Fruit	Vegetable	Fruit	Vegetable
Quebec	55	75	515	600
Ontario	85	140	995	2,025
British Columbia	175	135	1,350	1,340
Canada	365	415	4300	4,200
* the numbers have been rounded to the nearest 5 farms or 5 acres				
** organic farms producing both fruits and vegetables are included in each column				

Only the province of British Columbia has sufficient organic producers to present the areas of individual organically produced crops. The difficulties elsewhere in the country can be traced to a small number of large growers who may dominate the area of an individual organic crop within the province. Table 2 below shows a selection of B.C. crops which are characterized by a significant organic component. Most of these crops were chosen because the organic component accounts for 5% or more of the total commercial area. Radish, leeks, and shallots are particularly interesting as the organic area accounts for 16%, 19% and 36% respectively.

Table 2

British Columbia Vegetable Area			British Columbia Fruit Area		
	Organic (acres)	Total (acres)		Organic (acres)	Total (acres)
Broccoli	124	1,440	Apples	719	15,750
Carrots	75	785	Peaches	66	1,195
Leeks	8	40	Pears	60	825
Lettuce	46	760	Raspberries	100	4,985
Shallots	33	90	Strawberries	53	1,600
Spinach	27	135			
Radish	19	120			
Squash & Zucchini	43	345			
Tomatoes	19	185			

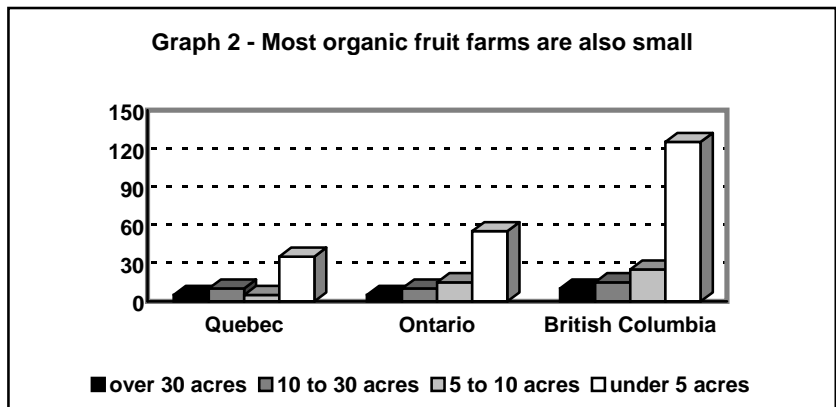
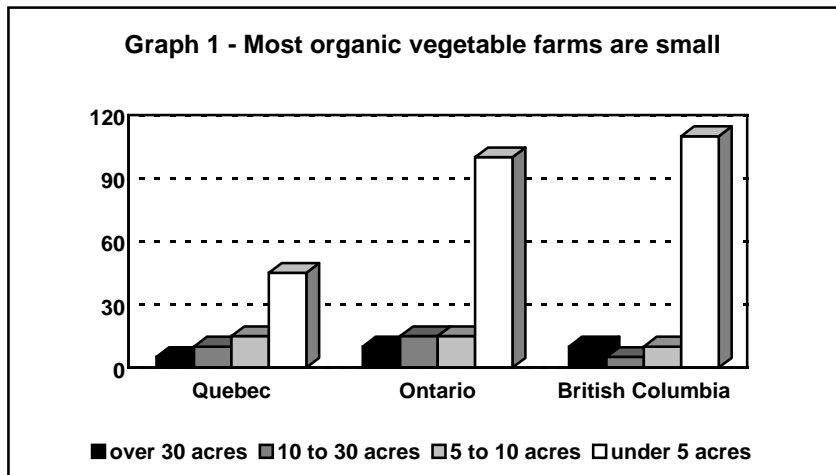
Organic farms are generally small

The majority of the organic farms are less than 5 acres in size. Surprisingly, the number of farms in the ranges of over 30 acres, 10 to 30 acres, 5 to 10 acres and under 5 acres are fairly consistent across the country as can be seen in Graphs 1 and 2.

In summary, the general characteristics of the organic fruit and vegetable farms in Canada include:

- British Columbia has the largest number of producers who have adopted the organic system of production.
- The total organic area as a percentage of total commercial area is highest in British Columbia. Ontario has slightly more area in organic production but the proportion in comparison to the total commercial area is much lower than British Columbia.
- While some organic farms may exceed 30 acres in size, the majority of the organic farms are less than 5 acres.
- The proportion of area used for organic fruit versus organic vegetable production is almost equal.

Comments or questions regarding this article may be addressed to Bill Parsons at (613) 951-8727 or by Internet at bill.parsons@statcan.ca



CURRENT CANADIAN AGRICULTURAL INDICATORS

	1999	2000	Percent Change
Crop Production July 31 Estimate (million tonnes)			
Spring Wheat (excluding durum)	20.9	18.2	-13
Durum Wheat	4.3	5.4	26
Oats	3.6	3.5	-3
Barley	13.2	14.1	7
Canola	8.8	7.1	-19
Flaxseed	1.0	0.8	-20
Dry Peas	2.3	2.9	26
Cattle on Farms (million head)			
Total Cattle - July 1	14.4	14.3	-1
Calves Born - January-June	4.4	4.3	-2
Pigs on Farms (million head)			
Total Pigs - July 1	12.4	12.2	-2
Sows Farrowed January-June	1.3	1.3	-
Sows to Farrow July-December	1.3	1.3	-
Milk Sold Off Farms (million kilolitres)			
January - June	3.8	3.8	-
Chicken Meat Production (thousand tonnes)			
January-June	421	441	5
Egg Production (million dozen)			
January-June	255	269	5
Planted Area of Fruit (thousand hectares)			
Apples	28.5	27.6	-3
Strawberries	5.3	5.3	-
Blueberries	37.8	37.5	-1
Grapes	8.3	8.4	1
Planted Area of Vegetables (thousand hectares)			
Field Vegetables	112	106	-5
Potatoes	159	161	1

	1999	2000	Percent Change
International Trade in Agricultural Commodities and Food (billion dollars)			
Exports January-June	11.8	12.9	9
Imports January-June	8.6	8.9	3
Price Indexes			
CPI Food Component (1992=100) - July	111	113	2
Farm Cash Receipts (billion dollars)			
January-June	14.7	16.2	10
Bankruptcies - Agriculture and related service industries (number)			
January-April	157	142	-10
Manufacturing Shipments of Food (billion dollars)			
Total Value January-June	25.1	26.2	4
Retail Trade in Food Stores (billion dollars)			
Total Value January-June	28.6	29.5	3
Population (million persons)			
April 1	30.4	30.7	1
Employment (million persons)			
July	15.0	15.3	2
Raw Unemployment Rate (percent)			
July	7.7	7.0	-9

Scheduled Releases of Agricultural Information

September 1, 2000 through February 28, 2001

Field Crops

- September 12 - Stocks of Canadian grain at July 31, 2000 (Cat. No. 22-002-XPB).
- October 6 - September estimates of production of principal field crops by province for 2000 (Cat. No. 22-002-XPB).
- December 5 - November estimates of production of principal field crops by province for 2000 (Cat. No. 22-002-XPB).
- January 31 - Stocks of Canadian grain at December 31, 2000 (Cat. No. 22-002-XPB).

Grain Markets

- September 28 - Cereals and oilseeds market statistics, monthly (Cat. No. 22-007-XPB).
- October 30
- November 29
- December 21
- January 29
- March 1

Horticulture Crops

- November 24 - Area, yield and production of potatoes by province for 2000 (Cat. No. 23-008-UIB).
- January 19
- February 28 - Area, production and value of fruit and vegetable crops by province for 2000 (Cat. No. 22-003-XIB).
- November 17 - Production and value of honey and maple products by province for 2000 (Cat. No. 23-221-XIB).

Food Consumption

- October 19 - Supply, disposition and per capita disappearance of oils, fats, fruits, vegetables, potatoes and fish for 1999 (Cat. No. 32-230-XPB/XIB).

Livestock and Animal Products

- November 15 - Farm sales of milk for fluid and manufacturing purposes, production and stocks of creamery butter, cheddar cheese and other dairy products by province, monthly (Cat. No. 23-001-QXPB/XIB).
- February 13
- October 23 - Inventories of pigs on October 1 by province (Cat. No. 23-603-UPE).
- February 15 - Inventories of pigs, cattle and sheep on January 1 by province (Cat. No. 23-603-UPE).

Scheduled Releases of Agricultural Information

September 1, 2000 through February 28, 2001

Livestock and Animal Products (concl'd)

September 28 - Stocks of frozen meat products in Canada by type of meat product and
October 30 by province, monthly (Cat No. 23-009-XIE).
November 28
December 22
January 30
February 27

Poultry

September 20 - Stocks of frozen poultry meat by province, monthly (Cat. No. 23-603-UPE).
October 19
November 20
December 19
January 19
February 19

September 8 - Egg production and number of laying hens by province, monthly (Cat. No. 23-003-XPB).
October 6
November 10
December 8
January 8
February 5

Farm Income and Prices

November 23 - Farm cash receipts by province, quarterly (Cat. No. 21-001-XIB).
February 22

November 23 - Estimates of ten agricultural economic indicators for 1999: farm income, farm cash receipts, farm operating expenses and depreciation charges, the index of farm production, current values of farm capital, farm debt outstanding, the farm product price index, direct program payments, the agriculture production account and balance sheets (Cat. No. 21-603-UPE).

Notice of each release will be published on the day of release in "The Daily " on the Statistics Canada website at www.statcan.ca. Much of the data is available in machine readable form in CANSIM at the same time. The publications will be available at a later date.

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Editor: Rick Burroughs, (613) 951-2890

Internet: rick.burroughs@statcan.ca

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Editor - Vista
Agriculture Division
Statistics Canada
12th floor, Jean Talon Bldg.,
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K1A 0T6

FAX: (613) 951-3868

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Contact the Agriculture Division at:

Agriculture Division
Statistics Canada
Ottawa, Ontario
K1A 0T6

Toll free telephone number: 1-800-465-1991

Fax: (613) 951-3868

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