Co-operatives Secretariat

Profile of Canadian Agri-food Co-operatives (1986-1996)

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The list of publications can be found at the end of the document. Most of the publications are also available on the Internet at : http://www.agr.ca/policy/coop/accueil.html
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Abstract

The objective of the paper is to study the activities of Canadian agri-food co-operatives. The analysis draws mainly from the financial statements and the balance sheet of co-operatives. This document will help understand the socio-economic aspects of Canadian agri-food co-operatives and their structure. The paper covers the following subjects:

– Are co-operatives necessary for Canadian farmers? This question is addressed in the paper and dealt with using analysis of the industrial structure, both upstream and downstream.

– The study gives a general profile of Canadian agri-food co-operatives using trend analysis (1986-1996). Change in the volume of business, number of co-operatives and membership, number of employees and members' equity are some of the descriptors of the trend analysis carried out in this section.

– Market shares were also calculated for each type of agri-food co-op (marketing, supply, production and service). Market shares reveal the relative strength of agri-food co-operatives in their respective domains.

– Value added for agri-food co-operatives is estimated and compared to the Canadian *Food and Beverage* sector. Some interesting differences in labour compensation were found.

1. Introduction

1.1 Principles of co-operation

Canadian agricultural producers have long been aware of the benefits of forming co-operatives. During the 19th century they were among the first in Canada to experiment with the co-operative formula by setting up mutual insurance organizations to protect themselves from financial losses caused by fires. While these organizations were usually based on the co-operative principle of "one member, one vote," they were not incorporated as co-operatives.

The success of the co-operative formula is based on adherence to co-operative principles. Agri-food co-operatives are no exception to this rule. A group of farmers who decide to set up a co-operative must agree on a set of conditions: the members must agree to jointly sell their products with the goal of getting a better price for their products, or to jointly buy the supplies needed for production at the lowest possible price. A co-operative is a means rather than an end in itself. These requirements are reflected in the following co-operative principles:

- One member, one vote: the members control the co-operative democratically.
- Membership is voluntary and open to everyone participating in co-operative's activities.
- Economic participation by the members.
- Autonomy and independence.
- Education, training and information.

Each member must be aware of and accept these principles before joining the co-operative. All members must also know their rights as members. While some may feel that this approach creates obstacles to the operation of their farm business, it is the application of these principles that makes the co-operative movement strong, and history tells us that adoption of this formula results in many more advantages than disadvantages.

Agri-food co-operatives have also been actively involved and are still very active in educating, training and informing their members by publishing specialized magazines and publications such as the *Western Producer* and the *Manitoba Cooperator* in Wester Canada, the *Coopérateur Agricole* in Quebec and *The Cooperator* in the Maritimes.

1.2 Initial experiments

Dairy producers were among the first farmers to use the co-operative formula to process and market their milk. “Started in Ontario, Quebec, and the Maritimes during the 1870s and 1880s, these [co-operative creameries] ... were partly farmer reactions to the growth of large dairies, and partly attempts to sell directly to the large urban market...By 1900, there were over 1,200 creameries scattered across Canada.” (MacPherson, I., 1979, page 10). Today there are dairy co-operatives everywhere in Canada and many of them have become national industry leaders. Agropur in Quebec and Agrifoods International in British Columbia, resulting from the merger of dairy co-operatives in the Western provinces, are good examples.

As individual businesspeople, farmers had practically no influence over agricultural markets at the turn of the last century. It was at this time that supply and marketing co-operatives appeared in Western Canada. The Grain Growers' Grain Company (now UGG) located in Manitoba, was established in 1906 and experienced remarkable growth. It already had 27 000 members by 1912 (Mullord, Axworthy and Liston, 1988). The 1920s also saw the emergence of the three Prairie pools: Saskatchewan Wheat Pool (1924), Manitoba Pool Elevators (1925) and Alberta Wheat Pool (1929).

In 1922, Coopérative Fédérée de Québec was established through the merger of three regional agri-food co-operatives. During this period, the activities of the Fédérée were focussed mainly on farm supplies.

2. Are co-operatives necessary in the agricultural sector?

To establish whether the agricultural sector needs co-operatives for its survival, we will review, in turn, the industry structure of the sectors upstream and downstream of the agricultural sector. The industry[1] upstream provides farmers with the inputs they need for their production. The industry downstream provides outlets for agricultural production.

2.1 Suppliers of inputs to farmers

Between the beginning and the end of the twentieth century, we have seen continuous substitution of the factors of agricultural production: use of labour has declined, whereas use of capital has increased. This capital took the form of agricultural machinery and chemicals. Agricultural producers became increasingly dependent on the suppliers of these inputs. While each upstream industry has its own structure and properties, they all have in common a limited number of "competing" companies. This oligopolistic situation is well illustrated in Table 1 where, apart from the "agricultural implement" industry, the number of competing firms[2] is no more than about fifteen. Although 225 establishments participated in the production of the agricultural implement industry, the eight largest companies (11 establishments) were responsible for more than 61 percent of this industry's total production in 1992. It should be noted that these firms represented a bare 5 percent of production establishments. Thus, like other upstream industries, the agricultural implement industry also has a highly concentrated structure.

[1] An industry is defined as a set of firms in “competition,” producing comparable products.

[2] Table 1 shows the number of establishments. However, the number of firms is always less than the number of establishments, since a firm may have more than one production establishment.

Table 1 - Number of Establishments of Agricultural Input Producers

Industry	SIC Code	1993	1994	1995	1996
Chemical fertilizer and fertilizer materials	3721	15	15	15	15
Other agricultural chemicals	3729	11	10	11	12
Tires and tubes	1511	13	14	13	13
Agricultural implements	3111	196	196	201	225

This strong concentration of upstream industries places them in a position closer to monopoly on the scale of competition. This oligopolistic structure is often expressed in terms of competition based not on prices but on product differentiation. This absence of price competition will result in agricultural producers paying high prices (i.e. prices higher than those that would prevail in a situation of perfect competition) for their inputs. Whereas the inflation rate between 1993 and 1996 was 3.99 percent,[3] agricultural producers always paid more for the agricultural inputs required for their production: prices of "tires and tubes" rose by 9.8 percent between 1993 and 1996. The inflation rate of "agricultural implements" was 11.5 percent during the same period. Prices of "chemical fertilizer" and "other agricultural chemicals" jumped by 38.2 percent between 1993 and 1996.

Table 2 - Price Index for Industrial Products of Agricultural Input Producers

Industry	SIC Code	1993	1994	1995	1996
Chemical fertilizer and fertilizer materials	3721	100.1	110.7	131.6	138.3
Other agricultural chemicals	3729	100.1	110.7	131.6	138.3
Tires and tubes	1511	106.9	109.8	116.1	117.4
Agricultural implements	3111	115.5	120.0	124.5	128.8

[3] This rate is based on the Consumer Price Index published by Statistics Canada (Catalogue No. 62-001-XPB).

2.2 Buyers of agricultural products

The industries that use agricultural products[4] are at the other end of the production chain. In order to analyse the market power of these industries, we have calculated their concentration ratios, which are in general equal to the percentages of total sales (shipments) by the four, eight or twenty (fifty in some cases) largest firms. Tables 3 and 4 show this percentage for the largest four and largest eight companies respectively. Apart from three industries,[5] the four largest firms in all industries which use agricultural products have at least 40 percent of the market. The four largest companies in some industries hold as much as 80 percent of the market: this is true in particular for the "dry pasta products" industry (SIC 1092), the "potato chip, pretzel and popcorn" industry (SIC 1093), and the "distillery products" industry (SIC 1121). On average between 1991 and 1992, the four largest firms had 23 percent of the production units and held 60 percent of the market of agricultural product users.

Table 4 illustrates the market share of the eight largest firms active in the sector that uses agricultural products for processing purposes. These eight companies hold at least 40 percent of the market for all the above-mentioned industries taken together. In the case of some of them, the eight largest firms hold more than 90 percent of the market: this is true for the following industries: "canned and preserved fruit and vegetable" (1031), "cereal grain flour" (1051), "prepared flour mixes and prepared cereal foods" (1052), "biscuit" (1071), "dry pasta products" (1092) "potato chip, pretzel and popcorn" (1093), "distillery products" (1121) and the “brewery products" (1131). On average during 1991 and 1992, the eight largest firms owned 35 percent of the production units and generated 77 percent of the sales (shipments) of the industries using agricultural products. Because of the opening up of markets in recent years, a number of mergers have occurred and the industry continues to be highly concentrated. We should point out that this concentration is a global phenomenon which Canadian farmers also face when they deal with foreign firms. In short, the industries buying (and using) agricultural outputs are closer to monopoly on the scale of competition. Many farmers see this concentration of firms as a situation of oligopsony (few buyers). According to economic theory, situations of monopsony (or oligopsony) mean terms of trade that are adverse to sellers (farmers in our case).

[4] A selection of industries in the “food” and “beverage” sectors is presented in Tables 3 and 4. This selection is based on *Canadian* agricultural product industries. Industries using mainly imported agricultural products (e.g. the tea and coffee industry – SIC 1091) have been excluded from the selection.

[5] The “meat and meat products” (SIC 1011), “canned and preserved fruits and vegetables” (SIC 1031) and “malt and malt flour” (SIC 1098) industries.

Table 3 - Proportion of Value of Shipments and Production Units of the Four Largest Firms Representative of the Farm Product Buying Industry, 1991, 1992

Industry	SIC Code	Year	Proportion of total production units (%)	Proportion of value of shipments (%)
Meat and meat products	1011	1991	5.5	24.4
		1992	5.2	25.3
Poultry products	1012	1991	24.3	47.9
		1992	23.3	46.6
Canned and preserved fruits and vegetables	1031	1991	6.5	43.9
		1992	4.9	39.8
Frozen fruits and vegetables	1032	1991	2.5	72.6
		1992	22	67.0
Fluid milk	1041	1991	29.9	56.8
		1992	26.0	53.7
Other dairy products	1049	1991	15.6	57.7
		1992	17.5	57.5
Cereal grain flour	1051	1991	26.1	61.3
		1992	37.8	79.4
Prepared flour mixes and prepared cereal foods	1052	1991	NA	NA
		1992	23.8	83.2
Vegetable oils	1061	1991	NA	NA
		1992	NA	NA
Biscuits	1071	1991	33.3	76.0
		1992	34.2	NA
Bread and other bakery products	1072	1991	8.9	42.5
		1992	10.6	55.0
Dry pasta products	1092	1991	15.9	85.1
		1992	16.2	89.3
Potato chips, pretzels and popcorn	1093	1991	37.9	87.7
		1992	37.9	89.4
Malt and malt flour	1098	1991	6.4	36.5
		1992	6.6	33.8
Distillery products	1121	1991	50.0	81.8
		1992	45.5	76.7
Brewery products	1131	1991	NA	NA
		1992	50	NA

Source: Statistics Canada/Industry Canada - Business Integrated Database

Table 4 - Proportion of Value of Shipments and production Units of the Eight Largest Firms Representative of the Farm Product Buying Industry, 1991, 1992

Industry	SIC Code	Year	Proportion of total production units (%)	Proportion of value of shipments (%)
Meat and meat products	1011	1991	7.3	40.2
		1992	7.1	42.5
Poultry products	1012	1991	34.2	63.8
		1992	33.0	62.8
Canned and preserved fruits and vegetables	1031	1991	13.4	60.0
		1992	14.6	56.6
Frozen fruits and vegetables	1032	1991	37.5	94.5
		1992	36.6	88.0
Fluid milk	1041	1991	49.7	80.9
		1992	44.0	77.0
Other dairy products	1049	1991	27.1	74.6
		1992	30.1	71.9
Cereal grain flour	1051	1991	36.9	74.2
		1992	48.6	91.9
Prepared flour mixes and prepared cereal foods	1052	1991	43.5	96.5
		1992	47.6	95.7
Vegetable oils	1061	1991	NA	NA
		1992	NA	NA
Biscuits	1071	1991	44.4	92.9
		1992	45.7	99.1
Bread and other bakery products	1072	1991	11.7	54.7
		1992	12.6	64.6
Dry pasta products	1092	1991	NA	NA
		1992	27.0	95.4
Potato chips, pretzels and popcorn	1093	1991	51.7	95.4
		1992	51.7	NA
Malt and malt flour	1098	1991	9.2	48.6
		1992	8.9	47.9
Distillery products	1121	1991	70.8	96.6
		1992	68.2	91.1
Brewery products	1131	1991	51.9	98.8
		1992	58.3	98.7

Source: Statistics Canada/Industry Canada - Business Integrated Database

2.3 The agricultural sector

Having demonstrated that the industries both upstream and downstream of the agricultural sector are characterized by an oligopolistic structure, it is interesting to locate the agriculture sector on the scale of competition: is it closer to monopoly or to perfect competition? One way to answer this question is to consider the number of farms and their concentration.

In light of industry trends in the 20th century, the agricultural sector is not exempt from the phenomenon of concentration. The number of farms has consistently fallen since 1921 (the year in which Statistics Canada data became available). As shown in Table 5, the number of farms fell from 711 090 in 1921 to 276 548 in 1996, a decline of more than 60 percent over 75 years. This fall in the number of farms was accompanied by a consistent increase in the average size of the Canadian farm, from 198 acres in 1921 to 608 acres in 1996. Will this trend continue in the future, with the result that the farm sector will become as concentrated as the industries trading with it (i.e. the industries upstream and downstream)? Many commentators feel that agriculture has reached a sort of equilibrium in its use of resources. They argue that almost all technical possibilities available in terms of combination of resources for agricultural production are achievable by farms of relatively small size; no benefits are therefore associated with increasing farm size. In this case, economies of scale are exhausted when the farm reaches a certain size (which however, remains modest). Other studies (Boehlje, 1992) have shown that farm size was related to the owner's age. Young farmers begin by operating small farms, since they are faced with credit constraints. As they gain experience and become more successful, they expand their acreages. During their retirement years, owners stop expanding their farms or even reduce them in size. Several other studies have advanced this relationship between farm size and the farmer's age (Gale; LaDue et al.; Sumner and Leiby). According to the studies, therefore, we should not expect indefinite growth in the size of farms.

Table 5 - Change in Number of Farms and Average Acreage in Canada 1921-1996

Year	Number of farms	Average acreage per farm
1921	711,090	198
1931	728,623	224
1941	732,832	237
1951	623,087	279
1956	574,993	302
1961	480,877	359
1966	430,503	404
1971	366,110	463
1976	338,552	499
1981	318,361	511
1986	293,089	572
1991	280,043	598
1996	276,548	608

Source: Statistics Canada - Historical Overview of Canadian Agriculture. Catalogue No 93-358-XPB.

Even though the agricultural sector tends to be dominated by fewer and larger farms, we cannot say that agriculture is close to an oligopoly structure on the scale of competition. In fact, the opposite is true: the agricultural sector, with its 276 548 working farms in 1996, remains very close to the situation of perfect competition. Most farms are also small in size: this is illustrated by the fact that 62.5 percent of farms are smaller than 400 acres. It should also be noted that despite the increasing number of large farms (more than 1 120 acres) over the last 20 years, the number of small farms (less than 130 acres) has also grown. Today, the agricultural sector continues to be quoted as an example of perfect competition in economics textbooks for undergraduate students. The large number of small operators producing homogenous products in a free market (i.e. no barriers to entry or exit) makes the agricultural sector a competitive industry in the sense of perfect competition.

The agricultural industry, which is essentially competitive, must trade with oligopolistic/oligopsonistic industries. According to economic theory, a competitive sector between two oligopolistic/oligopsonistic sectors will pay monopoly (and therefore very high) prices for its inputs and will receive unusually low prices for its products. In the United States, Lanzilloti (1980) has suggested that the agri-food processing sectors (such as food and beverages) and the agricultural input production sector have considerable

market power and tend to use it to manage and administer their situation on the market. Moore (1959) has also indicated that the existence of a concentration of buyers on a local market results in those buyers controlling setting of prices and discriminating through prices.

In order to extricate themselves from this situation, farmers have seen, and still see, the need to come together in associations to combat terms of trade unfavourable to them. In 1981 individual and family farms made up 86.6 percent of all types of farms. Fifteen years later (1996), this proportion was only 60.8 percent. Over the same period, partnerships (with or without written agreements) increased from 9.3 percent to 27 percent of the total of all types of farms. This trend is consistently spreading and the preference for partnerships tells us that co-operation among agricultural producers is no longer an option but a necessity.

2.4 Advantages of agricultural co-operation

Through agri-food co-operatives, their farmer members can:

1) benefit from economies of scale when buying the supplies they need to operate their farms;
2) negotiate better prices for their products;
3) take advantage of the many services provided by the co-operative (technology, advice, and so forth)
4) obtain credit under reasonable conditions;
5) develop new outlets for their products.

Some agri-food co-operatives also allow their members to participate in processing their products. These organizations are used not only to market their members' products in unprocessed form but also to process them into value-added consumption-ready products and distribute them to wholesalers or directly to retailers across Canada and abroad. These value-added products are opening up new markets for agricultural products and are increasing farmers' incomes, who are getting higher prices for their products while also creating jobs here in Canada.

In the following pages we present the main data relating to agri-food co-operatives collected through the Annual Survey of Canadian Co-operatives.

3. Statistics on Canadian agri-food co-operatives

The statistics presented in this section are taken from the Annual Survey of Canadian Co-operatives conducted by the Co-operatives Secretariat. The following definition was used in order to extract statistics related to agri-food co-operatives from the database:

Agri-food co-operatives are organizations established and controlled by agricultural producers with the goal of supplying themselves at lower costs and/or processing and marketing their products, as well as providing themselves with common services.

Agricultural co-operatives have been selected on the basis of four major categories of co-operatives: supply co-operatives, marketing (and processing) co-operatives, production co-operatives and service co-operatives. A set of types of co-operatives (based on the main activity) associated with agriculture was selected for each category. Table 6 lists the different types of co-operatives within each category.

Table 6 - Selection of Types of Agricultural Co-operatives

Supply	Marketing	Production	Service
Farm supplies Feed Petroleum products Other supplies.	Dairy Fruits Vegetables Greenhouse veg. Grains and oilseeds Cattle and hogs Poultry and eggs Honey and maple prod. Other marketing	Artificial insemination Grazing Feeder Farming Machinery	Seed cleaning Farm market Soil conservation

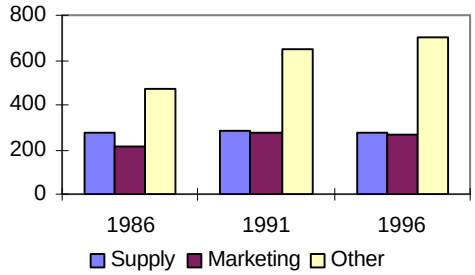
3.1 Basic statistics

In this section we will consider a number of financial and real variables that cast light on the general profile of agricultural and agri-food co-operatives.

3.1.1 Change in the number of agri-food co-operatives in Canada

The total number of agri-food co-operatives in Canada rose by approximately 30 percent over the period from 1986 to 1996, from 955 to 1 239 organizations (Figure 1). The number of co-operatives participating in the survey rose from 736 in 1986 to 925 in 1996, in other words an average participation rate of approximately 75 percent. Numbers of supply co-operatives remained stable; there were 274 at the beginning of the period and 273 at the end. The number of marketing co-operatives increased by 24 percent, from 214 co-operatives to 266. The strongest growth was in the "Other" category, which includes production and service co-operatives associated with agriculture, including farm markets, grazing, agricultural machinery dealers, seed cleaning and feeder operations. The latter group experienced the largest increase, since numbers of feeder operations rose from 71 in 1986 to 248 in 1996. As we will see later, co-operatives in the "Other" category, despite their number, represent only a small proportion of the revenues generated by Canadian agri-food co-operatives.

Figure 1
Number of agricultural co-operatives in Canada



The number of co-operatives fell significantly in some sectors. This lower trend in numbers of some agri-food co-operatives can be explained by several phenomena. The advent of new technologies suited to the agri-food sector has made it possible to increase volumes processed and reduce costs. The advent of global markets is also playing a very important role and has compelled a number of co-operatives to merge their operations with the goal of improving their efficiency and profitability through economies of scale. The same phenomenon has occurred at the farm level, where numbers of farms have declined but revenues have increased. As we will see in the following sections, while numbers of

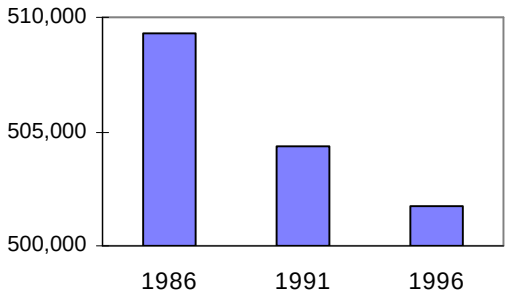
certain types of agri-food co-operatives have declined, their volume of business in real terms has consistently risen over the years.

One consequence of agricultural modernization is a marked decline in the number of farmers in Canada and accordingly in numbers of co-operatives and members.

3.1.2 Change in the number of members[6] of agri-food co-operatives

In 1996 agri-food co-operatives reported more than 501 000 members. Figure 2 shows that the total number of members declined from 509 000 in 1986 to 501 725 in 1996. Furthermore, the average number of members per co-operative over the same period fell from 692 to 542. This phenomenon is directly related to the decline in farmer numbers, which has been consistent since the early 1940s (see Figure 3).

Figure 2
Number of members of agri-food co-operatives in Canada



To gain a better understanding of the changes in numbers of agri-food co-operatives and their members, we should look more closely at the results of the census of agriculture. According to the results of the latest Statistics Canada census,[7] the number of farms in Canada declined from 293 089 in 1986 to 276 548 ten years later, representing 16 541 fewer farms. From the peak of 780 000 farms in 1940, numbers declined to approximately one third of that total in 1996. According to the results of the most recent census of agriculture, however, farm numbers have apparently stabilized at the 1991 level.

On the other hand, while the number of farms has fallen, those whose gross farm income was greater than $100,000 increased by 25 percent between 1986 and 1996 to 83 000 farms. In other words, there are fewer but larger farms in Canada. This phenomenon also explains why certain types of agri-food

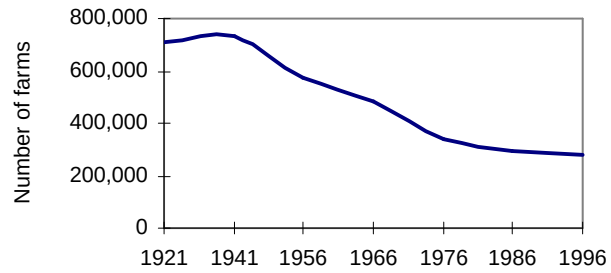
[6] Some farmers may be members of more than one co-operative.

[7] Statistics Canada - Catalogue No. 93-358-XPB.

co-operatives and their members are also fewer but generate higher sales.

This phenomenon is not unique to Canada. In the United States, many medium-sized agri-food co-operatives have closed, to the benefit of larger co-operatives. Recently, four dairy co-operatives merged to form one of the largest dairy businesses in the world with total sales of US$8 billion. The new Dairy Farmers of America Inc. processes one quarter of all American dairy production.

Figure 3
Number of farms in Canada



3.1.3 Volume of business of agri-food co-operatives

Volume of business of Canadian agri-food co-operatives has consistently grown over the last 10 years. Their volume of business, which was approximately $11 billion in 1986, almost doubled to $19 billion in 1996. Even taking inflation into account, their volume of business rose by 30 percent during this period, from $10.7 billion to $13.9 billion, as shown in Figure 4. Average real volume of business (in 1986 constant dollars) increased from $13.0 (in 1986) million to $15.1 million in 1996.

In the latter year, marketing co-operatives, although few in number, accounted on average for more than 82 percent of volume of business over the period. Their average volume of business was $89.6 million, compared with $11.3 million for supply co-operatives. Co-operatives in the "Other" category represented only 2 percent of volume of business. It is interesting to note that 12 agri-food co-operatives were included on the *Financial Post* list of the 500 largest Canadian companies in 1996.

Table 7 sets out the list of the 10 largest agri-food co-operatives in 1996 and their respective ranking in the *Financial Post* list. Four of these co-operatives market cereals and oilseeds, three poultry and other livestock, two are dairy co-operatives and, last, Western Co-operative Fertilizers Ltd. supplies its members with chemical fertilizers of all kinds.

These ten co-operatives alone accounted for approximately 75 percent of the total sales of all agri-food co-operatives. Furthermore, 32 agri-food co-operatives were included on the list of Top 50 Canadian Co-operatives published in 1996 by the Co-operatives Secretariat. This does not include organizations like Federated Co-operatives Ltd that supply farmers with oil, construction materials and other supplies necessary to run their farms but are not regarded as agri-food co-operatives, since they are not owned solely by farmers, even though many farmers are members.

Figure 4
Real volume of business of agri-food co-operatives (1986 $M)

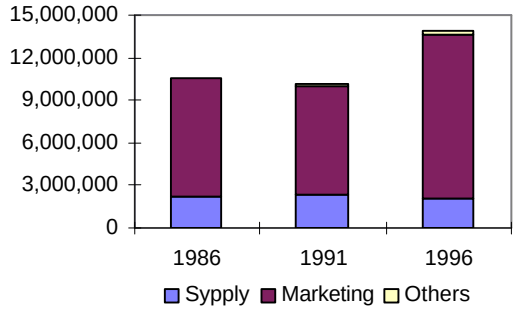


Table 7 - Top 10 Co-operatives in 1996[1]

Co-operative	FP500 Ranking	Total Sales	Sector
Saskatchewan Wheat Pool	35	$4,133,241,000	Grain
Alberta Wheat Pool	68	$2,128,120,000	Grain
Coopérative fédérée de Québec	89	$1,790,946,000	Meat
XCAN Grain Pool Ltd.[a]	111	$1,333,377,000	Grain
Manitoba Pool Elevators	128	$1,220,534,000	Grain
Agrifoods International Cooperative Ltd.	138	$1,131,685,000	Dairy
Agropur	145	$1,038,420,000	Dairy
Lilydale Co-op Ltd.	336	$ 298,828,421	Poultry
Western Co-operative Fertilizers Ltd.[a]	363	$ 286,751,024	Fertilizer
Groupe Dorchester/St-Damase	404	$ 210,675,103	Poultry

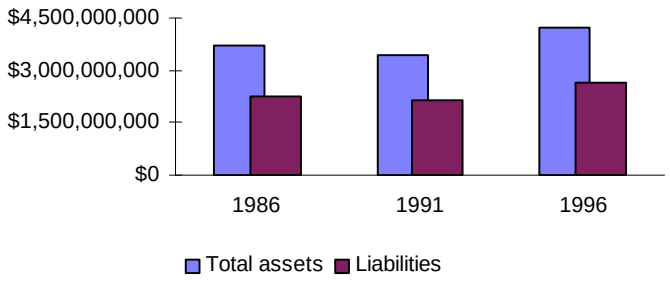
[1] Source: Top 50 Canadian Co-operatives, 1996. Co-operatives Secretariat, October 1997.

[a] Owned by the three Prairie pools.

3.1.4 Assets and liabilities

Total assets of agri-food co-operatives in 1996 reached $5.7 billion, an increase of 54 percent compared with 1986. After taking inflation into account, total assets rose by 13 percent over this period, as we can see in Figure 5.

Figure 5
Agri-food co-operatives' real assets and liabilities (1986=100)



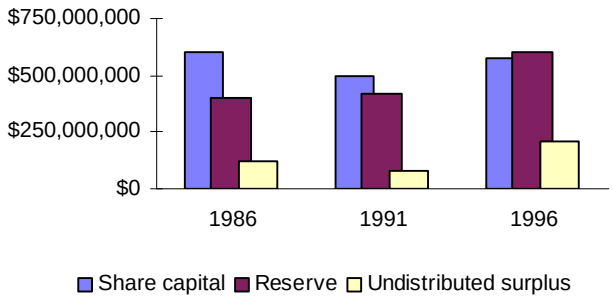
Liabilities also increased over the same period, from $2.2 billion to $3.6 billion, representing an increase of 59 percent. In real terms, liabilities grew by 17 percent, or slightly more than the increase in assets. The liability/asset ratio rose from 60 percent to 62 percent over this period. The increase in liabilities over assets can be explained in terms of the major investments made during this period to modernize equipment and build new facilities. The elimination of the federal grain transportation subsidy resulted in a requirement for major investments by marketing co-operatives in Western Canada, especially to build grain elevators. The agri-food co-operatives financed these investments mainly through borrowing rather than funding by members or private investors.

3.1.5 Members' equity of agri-food co-operatives

The members' equity of agri-food co-operatives, which includes share capital, accumulated reserves and undistributed surpluses, rose by 23 percent in real terms, from $1.1 billion in 1986 to $1.4 billion in 1996. As shown in Figure 6, most of this increase was due to accumulated reserves, which grew by 50 percent during this period to reach more than $602 million in 1996. Reserves represented 35 percent of members' equity in 1986 and 43 percent in 1996.

Share capital and undistributed surpluses, which fell between 1986 and 1991, subsequently increased, with undistributed surpluses rising from $125 million in 1986 to more than $211 million in 1996, representing an increase of 68 percent in real terms. Over the same period share capital fell by 4 percent, which means that agri-food co-operatives relied more on external funding for their investment needs.

Figure 6
Equity of agri-food co-operatives
(1986=100)



3.1.6 Number of employees and wages paid

The total number of employees rose slightly over the period observed, despite the fact that many co-operatives streamlined or merged their operations. The total number of employees was 30 666 in 1986 and 33 063 ten years later, representing an increase of approximately 8 percent. Coopérative fédérée de Québec is the largest employer among all non-financial co-operatives in Canada.

Total wages paid) which were $652 million in 1986) increased by approximately 12 percent in real terms to $727 million in 1996. The average wage rose from $21 252 to $22 008.

3.2 Statistics by sector

Most Canadian agri-food co-operatives provide their farmer members with a farm supply service as well as processing and marketing of their products. But many co-operatives specialize in one of these activities and are therefore classified as supply or marketing co-operatives, depending on the source of the major proportion of their revenues.

3.2.1 Processing and marketing

Co-operatives most of whose activities focus on processing and marketing of their members' products are found in the major agricultural sectors in all Canadian provinces. Most of these co-operatives are modern organizations with extensive experience in processing and marketing agricultural products. These co-operatives market most of Canada's grains (and oilseeds) and dairy products. These two sectors represented more than 80 percent of total sales of agricultural products by Canadian co-operatives in 1996. Co-operatives are also major players in processing and marketing of poultry and eggs, livestock) including hogs) fruits and vegetables and other more marginal sectors such as honey and maple products. This section presents the features of co-operatives in each of these sectors.

Figure 7 - Breakdown of sales of marketing co-operatives, 1996

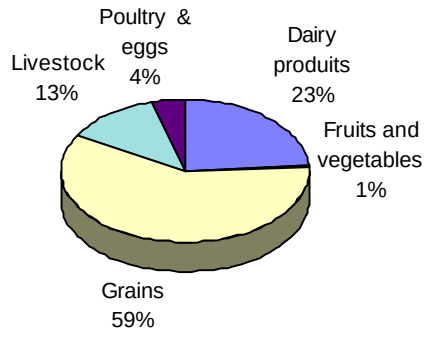


Table 8 summarizes, on a regional basis, the relevant data on processing and marketing agricultural co-operatives, reporting in Canada in 1996.

Table 8 - Summary data of Marketing Co-ops,
by Region, 1996

	West	Ontario	Quebec	Atlantic
Number of cooperatives	62	27	52	32
Number of members	164,456	13,123	16,750	5,597
Volume of business	10,788,836,165	483,728,799	3,650,985,599	570,089,965
Assets	1,866,871,170	675,709,101	1,294,268,318	504,419,901
Members' equity	685,529,555	202,040,376	426,703,012	223,632,037

Grains and oilseeds

The co-operatives operating in this sector are by far the largest in terms of total sales, since they represent approximately 60 percent of all sales of agricultural marketing co-operatives in 1996 (see Figure 8). Among all the co-operatives that participated in the 1996 survey, 49 reported sales of grains and oilseeds. Of this number, sales of grains and oilseeds were the main activity of 12 co-operatives. These co-operatives reported sales of $7.0 billion, i.e. 97 percent of total grain and oilseed sales reported by co-operatives in 1996. They had a total of 151 726 farmer members, representing 76 percent of total members of marketing co-operatives in Canada.

In addition, 22 supply co-operatives also reported sales of grains and/or oilseeds for a total of approximately $200 million. Fifteen co-operatives, classified in the "other" category, also reported grain and oilseed sales of a total of $4.9 million. Table 9 summarizes grain and oilseed sales in real terms over the 1986-1996 period.

Table 9 - Grain and Oilseed Sales by all Reporting Canadian Co-operatives (1986 $M)

	1986	1991	1996
Number of co-operatives	**53**	**34**	**49**
Grains	**2,982.6**	**2,579.1**	**3,828.8**
Oilseeds	**619.3**	**521.9**	**1,519.8**
Average sales	**67.9**	**91.2**	**109.2**
Total sales	**3,601.9**	**3 ,01.0**	**5,321.9**

While 49 co-operatives reported grain and oilseed sales in 1996, the sector is dominated by the three Prairie pools: Alberta Wheat Pool (AWP), Saskatchewan Wheat Pool (SWP) Manitoba Pool Elevators (MPE). The combined grain and oilseed sales of these three organizations for 1996 were more than $5.9 billion, representing more than 80 percent of total grain and oilseed sales by all reporting co-operatives. SWP and AWP were respectively the largest and second-largest agri-food co-operatives, while MPE ranked fifth (see Table 7). This does not take into account XCAN Grain Pool Ltd, which ranks fourth and is owned equally by the three pools. Its mandate is to co-ordinate food exports that do not fall under the authority of the Canadian Wheat Board.

This sector is therefore characterized by the existence of very large co-operatives involved in every stage of production, from sales of seed and chemical fertilizers through crop transportation to value-added processing.

In terms of market shares, co-operatives have strongly dominated the grain and oilseed industry at the farm level for several decades. In 1986 the market share of co-operatives in grain and oilseed marketing was estimated at 70 percent; this compares with 59 percent in 1996, a decline that can be explained by the change in the corporate status of United Grain Growers (UGG), which has not been considered a co-operative since 1993. In other words, this industry is dominated by the co-operatives, especially in the areas of crop transportation and cleaning. These co-operatives also act as brokers with the Canadian Wheat Board for grains produced under its control.

The grain industry has currently been experiencing major changes following the termination of the federal

grain transportation assistance program. The Pools are adjusting to the situation by streamlining their operations and diversifying their activities into value-added sectors. Competition has been fiercer for a number of years as a result of such factors as the advent of the American giant Archer Daniels Midland (ADM), which acquired 45 percent of the shares of UGG in 1997, thus gaining an advantage over Manitoba Pool Elevators and Alberta Wheat Pool.

The co-operatives operating in the grain and oilseed industry reported total real sales of approximately $5.3 billion ($1986) in 1996, representing an increase in real terms of 48 percent over 1986. In 1996 total grain sales by Canadian co-operatives were more than $5.2 billion (in current dollars), compared with approximately $2.1 billion for oilseeds.

Co-operatives whose primary activity was marketing of grains and oilseeds also reported revenues of $1.2 billion from the supply sector, most of which) $792 million) came from sales of all types of chemical fertilizers. The aggregate assets and members' equity of these co-operatives were respectively more than $2.3 billion and $792 million. In addition, they have paid almost $237million in salaries to more than 6,400 employees. The main data relating to co-operatives whose primary activity is marketing of grains and oilseeds are summarized in Table 10.

Table 10 - Summary of Data Relating to Reporting Grain and Oilseed Co-operatives in 1996 (including activities unrelated to grains)

Number of co-operatives	12
Members	151,726
Employees (full- and part-time)	6,413
Wages ($M)	237
Total sales ($M)	8,988
Grain and oilseed sales ($M)	7,200
Assets ($M)	2,312
Members' equity ($M)	792

Dairy products

For many years, co-operatives have been playing a major role in dairy product processing and marketing around the globe, and Canada is no exception to this rule. Canadian dairy co-operatives are responsible for processing almost all types of dairy products: fluid milk, butter, powdered milk, almost every type of cheese, yogurt, UHT (ultra-high temperature) milk, condensed milk, ice cream and milk-based drinks.

The market share of co-operatives in the Canadian dairy industry was approximately 60 percent in 1986 and continued at that level over the next 10 years. The two largest dairy co-operatives in Canada, Agropur and Agrifoods International Co-operative Ltd, processed approximately 40 percent of the milk produced in Canada. However, foreign competition is increasingly strong in this sector with the appearance in Canada of the Italian company Parmalat and the Swiss company Nestlé.

Dairy product processing and marketing represented the sole activity of 24 of the 25 co-operatives reporting dairy product sales in 1996. Unlike the co-operatives operating in the grain and oilseed area, dairy co-operatives are highly specialized and provide their members with practically no supply services: all activities are focussed on processing and marketing the milk received from farmer members.

Table 11 - Dairy Product Sales by all Canadian Co-operatives

(1986 constant $M)

	1986	1991	1996
Number of co-operatives	37	25	25
Total sales	2,450	2,265	2,440
Average sales	66	91	98

As shown in Table 11, the total number of dairy co-operatives fell over the 1986-1996 period, but average sales nevertheless rose significantly. This is due to the fact that a number of dairy co-operatives merged their operations with the goal of achieving economies of scale, thus positioning themselves better to meet domestic and foreign competition.

According to Statistics Canada,[8] the number of dairy farms fell from 50 037 in 1986 to 30 926 in 1996, a drop of 38 percent. On the other hand, the average number of dairy cattle per farm rose from 29 to 40 during the same period, representing an increase of 36 percent. Despite the fact that the total number of dairy cattle in Canada fell by approximately 16 percent between 1986 and 1996, total production still rose because of genetic improvement of the dairy herd and advances in technologies associated with dairy production. Thus, dairy co-operatives followed a trend similar to grain co-operatives, i.e. they are fewer in number but their size has consistently increased. These data also explain why the number of members of Canadian dairy co-operatives fell from 39 900 to 22 300 during this period.

Dairy co-operatives rank second after grain and oilseed co-operatives in terms of sales, representing approximately one quarter of sales of marketing co-operatives in 1996. They have more than 22 000 members, half of them are in Quebec. The total assets of these co-operatives were $1.1 billion and their members' equity totalled $442 million.

As in the grain and oilseed sector, the dairy industry is dominated by large co-operatives. Agrifoods International Co-operative Ltd of British Columbia and Agropur of Quebec are the two largest dairy

[8] Statistics Canada - Catalogue No. 93-358-XPB.

product processing and marketing co-operatives in Canada. The latter was awarded the North American Milk Processor of the year (1996) by the prestigious American magazine *Dairy Foods*. Agrifoods Ltd. And Agropur have also established a joint business, Ultima Foods Inc., to market dairy-product and fruit-based desserts under the Yoplait brand name. Agrifoods was formed in 1992 through the merger of dairy co-operatives in Western Canada. Together, Agropur and Agrifoods were responsible for approximately three quarters of total dairy product sales by reporting Canadian co-operatives in 1996, and process about 40 percent of the milk produced in Canada. Accordingly, the structure of this industry is characterized by a few large businesses and many smaller players.

Table 12 - Summary Data of Reporting Dairy Co-operatives in Canada in 1996

Number of co-operatives	24
Members	22,318
Employees (full and part-time)	8,403
Wages ($M)	260
Total sales ($M)	3,516
Assets ($M)	1,123
Members' equity ($M)	442

Poultry and eggs

A number of co-operatives are leaders in poultry processing in their province. This applies to Lilydale in Alberta and British Columbia, and also Granny's in Manitoba, which are involved in poultry processing in Western Canada. Coopérative fédérée de Québec controls approximately 50 percent of the retail poultry market in Quebec through its Flamingo poultry division. The Dorchester-St-Damase group is also a major player in Quebec, especially in turkey slaughtering. In the Atlantic provinces, ACA plays an important role in poultry processing in Nova Scotia.

In 1986, co-operatives had approximately 30 percent of the poultry processing and marketing market in Canada. Ten years later, this market share was about 40 percent, mainly because of consistent growth of some large co-operatives.

In 1996, twelve marketing co-operatives reported poultry and egg sales totalling more than $1 billion. Poultry and egg marketing was the primary activity of four of these co-operatives. It should be noted that Coopérative fédérée de Québec headed the list with poultry sales of approximately $400 million in 1996. However, this co-operative is not considered a poultry co-operative since poultry sales were not its primary activity in 1996; accordingly, it sales have not been included in Table 14.

Unlike dairy co-operatives, whose sole activity is milk processing and marketing, most poultry co-operatives are diversified, with poultry production accounting for only part of their activities. This is why, on average, poultry and egg sales represent only 39 percent of the total sales of the twelve co-operatives which reported poultry and egg sales in 1996. In that year, poultry production represented 6 percent of total sales of farm marketing co-operatives and included 5,372 member producers. Table 13 includes total poultry and egg sales by all reporting co-operatives in Canada. Table 14 summarizes the data for reporting co-operatives whose primary activity in 1996 was poultry production.

Table 13 - Poultry and Egg Sales by all Reporting Co-operatives in Canada (1986 $m)

	1986	1991	1996
Number of co-operatives	16	10	12
Poultry sales	494	592	1,002
Egg sales	21	22	23
Average sales	32	61	85
Total sales (poultry and eggs)	515	614	1,025

Table 14 - Summary of Data of Reporting Poultry and Egg Co-operatives in Canada in 1996

Number of co-operatives	6
Members	1,723
Employees (full- and part-time)	3,331
Wages ($M)	98
Total sales ($M) (poultry & eggs)	624
Assets ($M)	199
Members' equity ($M)	67

Co-operatives Secretariat, Government of Canada

Cattle and hogs

The co-operatives in the five provinces west of Quebec provide only sales services for replacement livestock and fat cattle. BC Livestock Producers Co-op, Community Auction Sales of Alberta and Heartland Livestock (owned jointly by Manitoba Pool Elevators and Saskatchewan Wheat Pool) are involved in replacement cattle on consignment for producers. A high proportion of the livestock, especially hogs, produced in Quebec is processed by Coopérative fédérée de Québec (CFQ) and some member co-operatives primarily through their membership in the Olymel company, which operates three slaughterhouses. In 1996, hog sales by the CFQ totalled approximately $715 million, or 91 percent of all hog sales by reporting co-operatives in Canada. With 36 percent of total sales, the meat division has become the CFQ's principal activity. A high proportion of the CFQ's pig meat production is exported, mainly to the United States and Japan.

The market share held by these co-operatives has risen consistently since 1986, from 8 percent to 20 percent. This increase has come mainly from growth in pigmeat sales by the CFQ and a greater number of cattle feeder operations, which have more than tripled over the last 10 years.

In the area of cattle sales, Saskatchewan Wheat Pool (SWP) is the largest co-operative with sales of $317 million in 1996, representing 52 percent of cattle sales by reporting co-operatives. However, most sales by SWP in this area are sales of live animals by auction and not processed products, as in the case of the CFQ with its pigmeat production.

Table 15 - Cattle and Hog Sales by all Reporting Co-operatives in Canada (1986 $M)

	1986	1991	1996
Marketing and processing			
Number of co-operatives	22	24	28
Cattle sales	311	422	328
Hog sales	81	43	544
Total sales	392	465	872
Grazing and feeder			
Number of co-operatives	49	73	114
Cattle sales	56	158	266
Hog sales	0	0	1
Total sales	56	158	267
Other co-operatives			
Number of co-operatives	32	12	15
Cattle sales	167	185	0
Hog sales	179	194	35
Total sales	**346**	**379**	**35**

Table 16 - Summary of Data of Reporting Cattle and Hog Co-operatives in Canada in 1996

Number of co-operatives	31
Members	11,064
Employees (full- and part time)	6,062
Wages ($M)	178
Total sales ($M)	1,909
Assets ($M)	532
Members' equity ($M)	164

Fruits and vegetables

While total sales of fruit and vegetable co-operatives decreased between 1986 and 1996, this type of co-operative continued to be popular with producers: the number of co-operatives rose during the period from 43 in 1986 to 69 in 1996. However, their size seems smaller; in 1986 the average co-operative sold $6 million of fruits and vegetables, whereas in 1996 average total sales were only $3 million.

The largest fruit and vegetable marketing co-operatives in Canada are those associated with the BC Tree Fruit Marketing Board. Norfolk Fruit Growers Co-op in Ontario and Scotian Gold in Nova Scotia also hold major market shares in their respective regions. To a lesser degree, co-operatives are involved in fruit and vegetable processing and marketing in most provinces. Co-operatives also play a major role in marketing blueberries in provinces where this fruit is grown.

British Columbian vegetable co-operatives have the largest share of the regional market (more than $180 million in 1996); in Alberta and Saskatchewan, vegetable co-operatives' sales totalled only $8.5 million in 1996. In Ontario there are several vegetable co-operatives specializing in food freezing ($55 million in 1996). In Quebec, fruit and vegetable co-operatives are involved in processing and marketing of potatoes, cigar leaf tobacco, strawberries, blueberries, tomatoes, carrots, onions, apples and so forth (a value of $13.5 million in 1996). In the Atlantic region, a number of co-operatives are involved not only in marketing but in some cases in processing several types of fruits and vegetables ($15 million in 1996).

Table 17 - Fruit and Vegetable Sales by all Reporting Co-operatives in Canada (1986 $M)

	1986	1991	1996
Number of co-operatives	43	44	69
Fruit sales	138	86	132
Vegetable sales	109	130	83
Average sales	6	4,9	3,1
Total sales	**247**	**216**	**215**

Honey and maple syrup

There are two large honey co-operatives in Western Canada: Alberta Honey Producers Co-operative Ltd, and Manitoba Co-operative Honey Producers, which together processed and marketed the honey products of their 365 members through BeeMaid Honey Ltd., which they own.

Maple syrup co-operatives are very active in Quebec. In 1996 their 2,638 members sold maple syrup and associated products worth $17 million, mainly through *Les producteurs de sucre d'érable du Québec* of Plessisville, which is responsible for approximately 35 percent of world production.

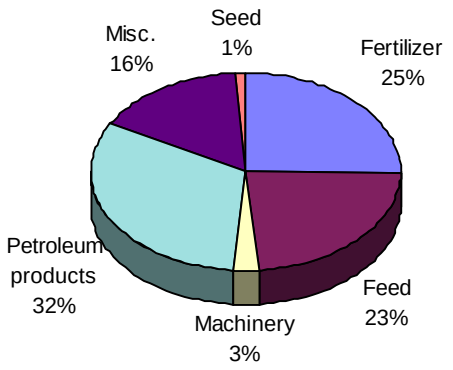
Table 18 - Honey and Maple Product Sales by all Reporting Co-operatives in Canada (1986 $M)

	1986	1991	1996
Number of co-operatives	5	5	8
Total sales	30	24	25

3.2.2 Farm supply co-operatives

Farm supply co-operatives have been very important for the development and consolidation of Canadian agriculture. Early in the last century individual farmers were at the mercy of the large supplier companies. Since farmers had practically no influence over the prices of their products, and since they also wished to co-ordinate their activities more effectively, they joined together in co-operatives; this allowed them to

Figure 8 - Breakdown of supply co-operative sales, 1996



obtain all the supplies they required for operation of their farms at reasonable prices through economies of scale. In other words, Canadian farm supply co-operatives enabled farmers, first, to access a reliable source of high-quality farm supplies and, second, to reduce their production costs and thereby increase their net incomes.

Farm supplies include animal feed, fertilizers and chemicals, seed, machinery and everything farmers need; a portion of sales of petroleum products and construction materials must also be included (the other portion is used for non-farm use).

Figure 8 sets out the percentage breakdown of farm supply sales by sector. Only co-operatives that earn the majority of their revenues from farm supplies have been included. On the other hand a number of marketing co-operatives such as Coopérative fédérée de Québec and Saskatchewan Wheat Pool have substantial revenues from farm supplies and are even among the main players, despite the fact that they are not classified as supply co-operatives.

Table 19 - Profile by Province of Farm Supply
Co-operatives in Canada, 1996

	West	Ontario	Quebec	Atlantic	Canada
Number of co-operatives	134	30	80	13	257
Members	405,180	40,368	20,098	8,024	473,670
Total sales	1,690,907,235	528,016,297	662,676,545	31,722,978	2,913,323,055
Assets	679,750,378	193,501,858	256,375,717	12,514,517	1,142,142,470
Members' equity	399,455,114	61,592,132	110,586,997	4,646,195	576,280,438
Employees	2,484	1,292	1,708	159	5,643
Wages	65,581,534	35,770,872	48,350,378	2,351,111	152,053,895

Table 19 summarizes, by region, relevant data on co-operatives whose principal activity in 1996 was farm supplies. While a number of co-operatives specialize in farm supplies, many marketing co-operatives also provide their members with farm supply services. Table 20 summarizes the farm supply sales of all reporting co-operatives in Canada. The data do not include oil sales by wholesale co-operatives such as Federated Co-operatives Ltd.

Table 20 - Farm Supplies Sold by all Reporting Co-operatives in Canada (1986 $M)

	1986	1991	1996
Feed	531.3	427.6	638.9
Fertilizers and chemicals	579.0	549.3	1097.7
Seed	97.5	73.9	97.3
Other farm supplies	237.5	308.7	327.4
Machinery	157.5	85.7	102.8
Petroleum products	569.0	597.0	707.9
Construction materials	72.4	64.5	99.9
Total	**2,244.1**	**2,106.7**	**3,071.9**

3.2.3 "Other" agriculture-related co-operatives

We have classified in the "Other co-operatives" category all production and service co-operatives related to agriculture. Production co-operatives are involved in the following activities: artificial insemination, grazing, feeder operations, farming and machinery. Service co-operatives operate in the areas of seed cleaning, farmers' markets and soil conservation.

Table 21 - Summary of Data for "OTHER" Agricultural Co-operatives in Canada - 1996

Category	Production Co-operatives	Service Co-operatives
Number of co-ops	341	154
Members	18,691	46,561
Employees	684	342
Wages ($M)	13	9
Sales and services ($M)	418	32
Assets ($M)	208	48
Members' equity ($M)	28	37
Sales and services per co-op ($)	1,225,807	207,792

As Table 21 shows, there are twice as many production co-operatives as service co-operatives, but they are owned by fewer members. This is hardly surprising, since service co-operatives normally have more members than the other types of co-operatives. Whereas total sales and assets are much greater for production co-operatives than for service co-operatives, the members of the latter type of co-operative own approximately $10 million more in members' equity. Last, it should be noted that the average production co-operative generates sales of $1.2 million, while the sales of the average service co-operative are a mere $208 000.

Service co-operatives

Most service co-operatives are concentrated in seed cleaning; farmers' markets rank second, while there are very few soil conservation co-operatives (only 8 in Canada). The wages and assets of seed cleaning co-operatives account for approximately 90 percent of those of all service co-operatives. Soil conservation co-operatives are still quite marginal and generate average sales of only about $20 000 (see Table 22).

Table 22 - Summary of Data for Farm Service Co-operatives by Activity -1996

Category	Seed Cleaning	Farm Market	Soil Conservation
Number of co-ops	91	55	8
Members	40,612	5,759	190
Employees	288	50	4
Wages ($M)	7.6	0.830	0.034
Sales and services ($M)	23.7	8.2	0.164
Assets ($M)	44.1	3.8	0.300
Members' equity ($M)	35.3	1.3	0.225
Sales and services per co-op ($)	260,440	149,091	20,500

Production co-operatives

Production co-operatives are found mainly in the areas of grazing and feeder operations (see Table 23). While there are few artificial insemination co-operatives (11), they have an average of 190 members

each. The Quebec insemination co-operative alone has 93 percent of the insemination co-operative market. Of the 387 employees in the artificial insemination co-operative sector, 302 are employed by this Quebec co-operative which, unlike other agricultural co-operatives, is owned by its employees.

Feeder co-operatives also have a considerable number of members (an average of 98 members per co-operative). The other production co-operatives (i.e. grazing, farming and machinery] have an average of only 10 to 20 members per co-operative. Two grazing co-operatives, Torch River Livestock and Pipeline Grazing, in Saskatchewan and Manitoba respectively, are responsible for approximately 18 percent of the sales of the 152 grazing co-operatives in Canada. The sales and services of the two largest farming and machinery co-operatives[9] account for more than 80 percent of all the sales (and services) of the co-operatives in these sectors.

The most promising co-operatives in terms of sales remain those associated with artificial insemination and feeder operations (with sales of $2.1 million and $2.9 million respectively per co-operative). The sales and services of the average grazing co-operative totalled only $31 000 in 1996. The total assets of feeder co-operatives are huge, exceeding $170 million (or $1.3 million per co-operative).

Table 23 - Summary of Data of Farm Production

Co-operatives by Activities - 1996

Category	Artificial Insemination	Grazing	Feeder	Farm	Machinery	Other Production
Number of co-ops	11	152	132	13	25	8
Members	2,084	2,608	12,938	195	479	387
Employees	337	86	213	30	15	3
Wages ($M)	8.3	0.54	2.7	0.61	0.33	0.002
Sales and services ($M)	23.3	4.7	381.7	4.2	3.9	0.106
Assets ($M)	6.5	14.1	171.8	10.5	4.3	0.109
Members' equity ($M)	2.6	11.3	4.4	6.3	3.0	0.087
Sales & services per co-op ($)	2,118,182	30,921	2,886,364	323,077	156,000	13,250

[9] The co-operative farms are Matador Farming Pool of Saskatchewan and Langnes Co-op Farm of Manitoba. The machinery co-operatives are *Coopérative des propriétaires de machinerie de Quévillon* of Quebec and Watson Machinery Co-op of Saskatchewan.

3.3 Relative importance of co-operatives in the industry

In the previous sections we have seen the main characteristics of Canadian agri-food co-operatives. The purpose of the present section is to assess the relative importance of co-operatives in the Canadian agri-food industry.

Food and beverage processing is the third largest manufacturing sector in Canada. In 1996 approximately 2,800 establishments posted shipments worth $52 billion and provided 234,000 jobs.

The food and beverage processing sector is an important outlet for Canadian farmers. Approximately 40 percent of all agricultural production is exported unprocessed, and about 75 percent of the remainder is marketed through the food and beverage processing sector. In 1996, that sector represented approximately 12 percent of manufacturing Gross Domestic Product (GDP) and about 2 percent of total GDP.

The advent of the global economy has given multinational corporations access to our economy. Canadian agri-food co-operatives must now compete with firms that are often much larger than they are, a phenomenon that is causing great concern. The capitalization and method of operation of co-operatives may put them at a disadvantage in some respects in relation to other traditional businesses whose primary goal is to maximize profits. For many farmers, however, co-operation has more advantages than disadvantages.

To establish whether Canadian agri-food co-operatives have indeed lost ground or, on the contrary, are continuing to hold their market positions, market shares were estimated for 1986, 1991 and 1996.

3.3.1 Method of estimating market shares

The market shares of Canadian agri-food co-operatives were estimated using data provided by the Annual Survey of Canadian Co-operatives (Co-operatives Secretariat). Farm cash receipts and expenses used to measure an entire sector come from Statistics Canada.

The method of estimating market shares is identical to the method used by Cooperative Service Statistics of the United States Department of Agriculture (USDA).[10]

Market shares for marketing activities represent estimates of co-operative activities on the farm. They are also a measure of farmers' use of the co-operative formula as a preferred method for marketing their produce. Market shares estimated for farm supplies represent a measure of co-operative activity in sales of farm supplies to producers. The estimated market shares for each product are based on sales volumes expressed in dollars. However, use of physical quantities for each product would have been a more accurate estimation method; unfortunately, these data are unavailable.

Market shares were estimated by deducting the gross margin from total sales of co-operatives. These estimates of payments to farmer-members were then compared with total farm revenues for the respective products.

3.3.2 Market shares of co-operatives in farm product marketing

Market shares were calculated for the following products: grains and oilseeds, dairy products, poultry and eggs, cattle and hogs, fruits and vegetables and, honey and maple products.

Grain and oilseed marketing and processing is the sector -- with dairy products -- in which co-operatives hold a very large market share, with approximately 60 percent of total sales. As we have already seen, the three Prairie pools alone have a major proportion of the market. However, other large businesses have appeared on the Canadian market, including the US giant Archer Midland Daniels (AMD), which now controls United Grain Growers (UGG).

[10] Those interested in further details concerning this method may consult the article by Charles A. Kraenzle in the March/April 1997 issue of *Rural Cooperatives* magazine.

TABLE 24 - MARKET SHARES OF CO-OPERATIVES IN FARM PRODUCT MARKETING			
Products	**1986**	**1991**	**1996**
	% of gross farm revenues		
Grains and oilseeds	70	66	59
Dairy products	61	59	59
Poultry and eggs	30	39	39
Cattle and hogs	8	14	20
Fruits and vegetables	15	13	13
Honey and maple products	20	21	15

In the case of dairy products, co-operatives also have considerable influence since they hold more than half of the market. This is also the sector in which co-operatives are most present around the globe. In the United States co-operatives marketed 88 percent of dairy products in 1995, an increase of 2 percent over the previous year. In this sector as well, a number of large foreign companies have increased their presence on the Canadian market, including the Italian giant Parmalat, which has taken over Ault Foods, and the Swiss multinational Nestlé, which has acquired certain assets in the ice cream manufacturing sector.

3.3.3 Market shares of co-operatives in farm supplies

In the farm supplies sector, market shares were estimated for fertilizers and chemicals, petroleum products used by farmers, seed, and animal feed.

The market shares for 1986, 1991 and 1996 are set out in Table 25. It can be noted that fertilizer and chemical co-operatives, as well as those supplying petroleum products, posted a small but consistent increase in their respective market shares. Co-operatives selling animal feed did not advance and those supplying their members with seed even lost ground, benefiting so-called "traditional" businesses.

TABLE 25 - MARKET SHARES OF CO-OPERATIVES IN FARM SUPPLIES			
Products	**1986**	**1991**	**1996**
	% of total farm expenses		
Fertilizer and chemicals	25	30	34
Petroleum products	17	22	24
Seed	20	14	16
Feed	21	22	22

3.4 Value added by agricultural co-operatives

Today, the concept of value added is especially important to farmers and agricultural co-operatives. Following the recent drastic fall in prices of certain agricultural products, farmers have been confronted with the need to integrate their activities into the vertical marketing-processing chain. Although in late 1998 hog prices reached historic lows not seen in more than 50 years, large multinational agri-food businesses posted substantial profits during the same period.[11]

Co-operatives are increasingly aware that much of the value added of finished agricultural products is generated during processing, and some of them are becoming involved in processing raw agricultural products. As in the case of "traditional" agri-food businesses, co-operatives are now present at various levels of the chain "production and marketing of raw products) processing) marketing of finished products". It should be noted however, that historically, agricultural co-operatives operated in the area of marketing unprocessed agricultural products, since they were much closer to producers (who often made up their membership) than to consumers. Although the situation has subsequently changed, and some co-operatives are close to consumers (e.g. retail sales of agricultural products), the fact remains that a high proportion of agricultural co-operatives in Canada are still confined to the role of marketing and storing their member producers' products. A possible explanation of this phenomenon is shortage of capital; some farmer members prefer to expand their own farms rather than invest in co-operative processing plants.

3.4.1 Defining value added

There are two possible definitions of value added; one is a strict definition closely related to the manufacturing process, while the other is a broad definition including all links of the economic chain, from start (natural or human resources) to finish (consumption of the finished product or service). Originally, the concept of VA (value added) was derived from the macroeconomic definition of the residual value between input and output: this is calculated as the difference between the value of the output and the value of the purchased inputs required to produce that output. This definition of value added is particularly well suited to a manufacturing context where the finished (or semi-finished) product is

[11] IBP Inc, for example, the largest global fresh meat processor, posted an increase of 44 percent in the third quarter of 1999.

physically different from the original input. It can be said that the greater the processing of the raw material, the greater is the value added.

Today, the concept of value added is seeking to free itself from the strait-jacket of the manufacturing process to cover all levels of economic activity. According to Statistics Canada,[12] the VA measures the "value of economic production of goods and services... Economic production can be defined as any process which creates value or adds value to existing goods." The Canadian System of National Accounts gives "economic production" a very broad definition: the production of goods and services which are exchanged for money in a market economy. This second broader definition seems to cover all economic activities, including services (of which marketing is a part).

Today, Western economies are undergoing a process of transformation: they are making the transition from manufacturing societies to service-providing societies. Services are becoming increasingly important in the budgets of western households and the trend is accelerating[13]. This situation is leading us today to see VA as a concept much broader than the concept traditionally associated with manufacturing.

3.4.2 Measuring value added

According to Statistics Canada, VA is the value of product shipments (production) less the cost of materials and supplies, fuel, and electricity purchased and used. This is the definition of GVA (Gross Value Added). NVA (Net Value Added) is calculated by deducting depreciation from GVA. From the accounting standpoint, this GVA is to some extent similar to the "gross margin" item in income statements.

The RBS (Rural Business Co-operative Service) of the US Department of Agriculture gives a definition similar to the Statistics Canada definition. The GVA is calculated as the sum of Net Earnings Before

[12] Statistics Canada: Agriculture economic statistics: Catalogue No. 21-603-XPE.

[13] This is due mainly to the growth of purchasing power and aging of populations in Western countries.

Taxes (NEBT), wages (W), interest paid on debt (I), and depreciation (DEP). Depreciation is deducted from GVA to calculate NVA.

$$GVA = NEBT + W + I + DEP$$

$$NVA = GVA - DEP$$

For the purpose of calculating the VA of agricultural co-operatives, we have adopted the RBS method.[14]

The relevance of calculating VA for co-operatives lies in the assessment of the contribution of the labour and capital (and land) used by co-operatives to create and/or add value to agricultural products. This VA of agricultural co-operatives may also be compared with the VA of the agricultural sector as a whole.

While there are minor differences in the area of VA calculation in different countries, this concept remains useful because it facilitates international comparisons. Calculation of the VA can also help managers of agricultural co-operatives to more accurately target opportunities for enhancing VA. Calculation of VA on a regular basis is important, both for the Co-operatives Secretariat and for the co-operatives themselves; it makes it possible to prepare time series showing the evolution of the VA trend for different types of co-operatives.

3.4.3 Comparison of VAs of agricultural co-operatives and the food and beverage sector

The gross value added (GVA) generated by co-operatives in 1996 was $1.6 billion, while the NVA was around $1.4 billion. The compound average annual growth rate of VA (gross or net) of agricultural co-operatives for the ten previous years was approximately 3.7 percent, whereas the equivalent figure for the "private" food and beverage sector was 3.1 percent[15]. However, this growth in the VA of agricultural co-operatives is less than the rate of increase of their sales (and services) which was on the order of 5.9 percent on an average annual (compound) basis between 1986 and 1996.

[14] The Statistics Canada method has not been adopted, since some co-operatives include total wages and salaries in expenses related to inputs.

[15] Food Bureau: "The Canadian Food and Beverage Processing Sector". Market and Industry Services Branch, 1997. The rate for the "food and beverage" sector is equivalent to the1988-1995 period, since at the time this paper was prepared only those years were available.

While sales of agricultural co-operatives represented 36.2 percent of the sales of the "private" food and beverage sector in 1996, the (gross) value added of agricultural co-operatives represented just under 9 percent of the GVA generated by the food and beverage sector. This is due mainly to the high concentration of sales of co-operatives in low value-added sectors, where processing is minimal: sales of co-operatives specializing in grain transportation and storage make up a substantial proportion of the total volume of agricultural co-operative sales.

To reach the same level as the food and beverage sector, agricultural co-operatives should generate a GVA on the order of 37 percent[16] of the value of sales, whereas they currently generate a GVA of only 9.5 percent (annual average for 1986, 1991 and 1996) of total sales (and services). It is unlikely that the co-operatives will catch up if they remain confined to low value-added sectors.

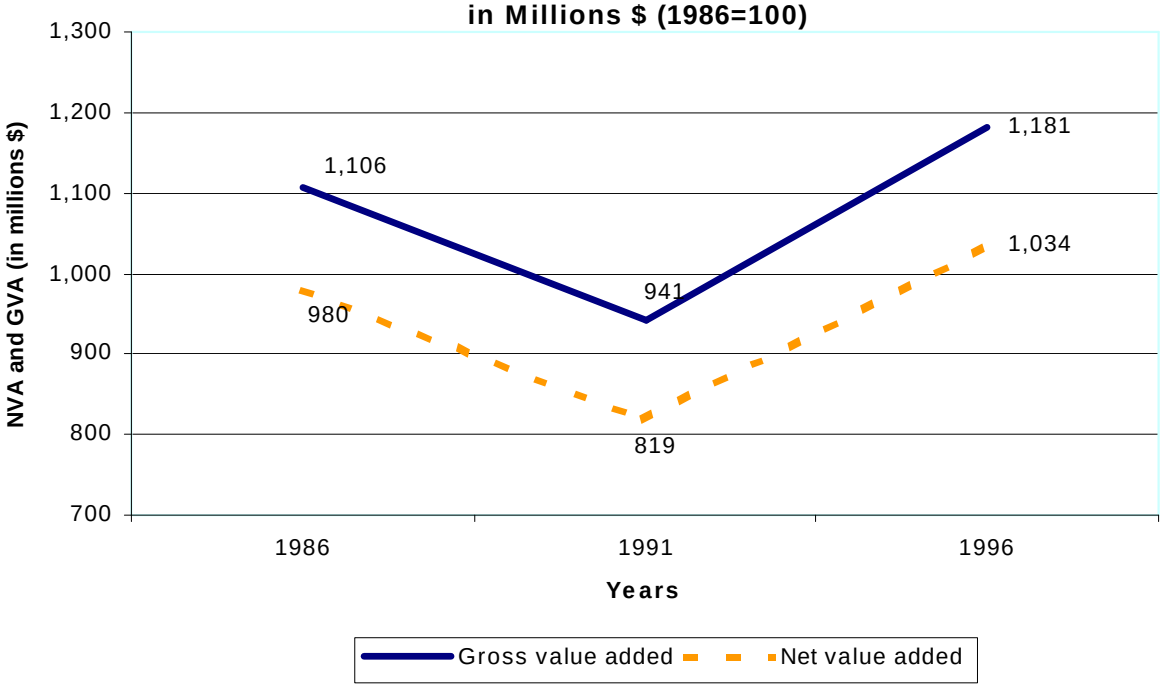
3.4.4 Value added by sector

In 1996, marketing co-operatives were responsible for 78 percent of all net value added generated by agricultural co-operatives. Supply co-operatives ranked second, with an NVA of approximately 21 percent of all value added by agricultural co-operatives. Last, the NVA of production and service co-operatives was minimal, accounting for less than 2 percent of all NVA of agricultural co-operatives.

However, it is not surprising that the marketing sector represents the largest share of the VA generated by Canadian agricultural co-operatives, since co-operatives involved in grain (NVA = $396 million), dairy products (NVA = $314 million) and cattle and hogs (NVA = $211 million) are included in the marketing sector

[16] The GVA of the food and beverage sector represented, on average, 37 percent of the value of shipments between 1988 and 1995.

Figure 9
Real Net Value Added and Gross Value Added
in Millions $ (1986=100)



Furthermore, if we compare the evolution of VA over time, we will note that, as shown by Table 26, the marketing sector has the slowest growth (55% in 10 years). The sector posting the highest rate of increase of VA is undoubtedly the production sector, with more than 238 percent between 1986 and 1996. This is explained by appearance of *Coopérative des inséminateurs du Québec* on the market of artificial insemination. This Quebec co-operative was incorporated in 1987 and generated a NVA of more than $12 million in 1996 (81.4 percent of the NVA generated by the entire production sector). The service sector posted a substantial increase of 67 percent in NVA between 1986 and 1996. This is explained by the growing number of service co-operatives established between 1986 and 1996 (122 co-operatives in 1986 compared to 154 co-operatives in 1996).

Figure 10
NVA per 1 $ Sale, in Cents, 1986, 1991 and 1996

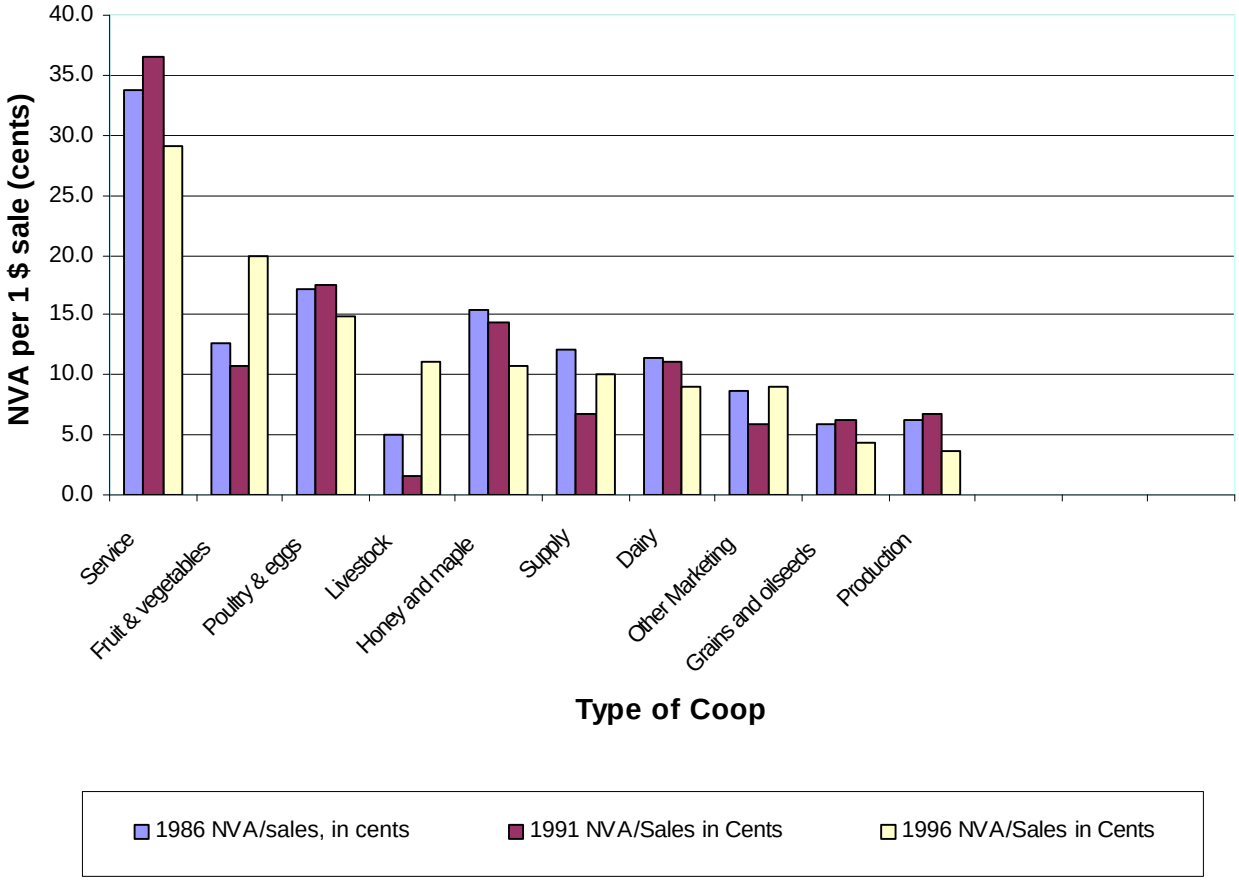


Table 26 - Net Value Added by Type of Co-operative

1986, 1991 and 1996

	1986	1991	1996
Total Marketing	701,076,632	813,034,021	1,089,958,349
Grain	273,557,859	328,678,105	395,557,710
Dairy products	307,738,805	351,307,346	314,089,277
Cattle and hogs	10,566,650	2,184,508	210,750,748
Poultry	68,687,797	92,285,937	95,466,761
Fruits & vegetables	31,181,058	29,845,176	63,967,123
Other marketing	4,520,255	4,176,272	5,744,248
Honey and maple	4,824,208	4,556,677	4,382,482
Supply	268,798,684	197,166,654	288,387,597
Production	4,395,178	16,099,990	14,871,711
Service	5,575,285	7,330,827	9,331,879
TOTAL	**979,845,779**	**1,033,631,492**	**1,402,549,536**

While the absolute value of the NVA of the various sectors provides us with information concerning their relative strength, it cannot provide information on the dynamism of a specific sector. To identify this dynamism, we considered it appropriate to develop a relative measure of NVA, based on the concept of the NVA generated for each dollar of sales. Thus, this ratio (NVA/sales) will compare the sectors on the same ground (i.e. dollar of sales). If we look at the year 1996 in Table 27, we will note that the service sector is ahead of the other sectors[17] (for each dollar of sales, this sector generates 29 cents of NVA). The "fruits and vegetables" sector, which remains a very high relative value-added sector, ranks second

[17] Since the “service,” “supply” and “production” sectors are smaller than the “marketing” sector, we decided to retain them as such. However, we have disaggregated the “marketing” sector into its main components in order to provide a better description of this large sector and more details concerning its various components. It should be noted that the marketing sector includes the following activities: “fruits and vegetables,” “poultry and eggs,” “cattle and hogs,” “honey and maple products,” “dairy products,” “grains” and, last, “other marketing products.”

(almost 20 cents of NVA per dollar of sales). The "poultry" sector is considered a high relative value-added sector (almost 15 cents per dollar of sales). The following sectors are considered average (relative) value-added sectors: "cattle and hogs" (11 cents), "honey and maple products" (11 cents), "supply" (10 cents), "dairy products" (9 cents) and "other marketing products" (9 cents). Finally, the "grains" and "production" sectors are low relative value-added sectors (4.4 cents and 3.6 cents respectively).

Table 27 - NVA per $1 of Sales for Various Sectors (¢)

Activity	1986	1991	1996
SERVICE	33.8	36.6	29
Fruits and vegetables	12.6	10.7	19.9
Poultry and eggs	17.2	17.5	14.9
Cattle and hogs	5.1	1.6	11.1
Honey and maple prod.	15.4	14. 4	10.7
SUPPLY	12.2	6.7	10.1
Dairy products	11.4	11	9
Other marketing	8.6	5.9	8.9
Grains and oilseeds	5.9	6.2	4.4
PRODUCTION	6.2	6.7	3.6

NB: Activities shown in lower case are part of the marketing sector.

3.4.5 Components of value added

Net value added is made up of compensation for labour (wages and salaries) and for capital [Net Earnings Before Taxes (NEBT) and interest on debt (I)]. In 1986 and 1991 (see Table 28), NEBT made up approximately 14 percent of NVA, and wages represented some 80 percent of NVA. In 1996 the share of NEBT increased (25 percent) and the share of wages decreased (70 percent). Following the economic recession of 1990/1991, co-operatives -- like other "traditional" firms -- were forced to streamline their (human) resources in order to meet the competition. This reorganization partly explains the increased share of "profit" (NEBT) and the fall in the proportion of wages in the makeup of NVA.

While the share of wages in the "private" *food and beverage* sector was around 37 percent[18] of GVA (in 1995), agricultural co-operatives devoted a larger proportion of their GVA in 1996 to paying their workers (61 percent).

It should be noted that about $350 million was generated as net profits (or NEBT) by agricultural co-operatives in 1996. In the same year, these co-operatives paid almost $1 billion in miscellaneous wages and salaries, and more than $70 million in interest payments.

Table 28 - Values of Components of Value Added
1986, 1991 and 1996

	1986	1991	1996
Net earnings before taxes (NEBT)	144,156,516	136,912,484	348,744,391
Interest paid on debt	49,773,868	66,194,617	70,730,441
Wages and salaries	785,915,395	830,524,391	983,074,704
Depreciation and amortization	126,153,410	153,722,062	199,510,687
Gross value added	1,105,999,189	1,187,353,554	1,602,060,223
Net value added	979,845,779	1,033,631,492	1,402,549,536

3.4.6 Components of value added by type of co-operative

In this section we will present the components of NVA and their proportions for the various types of co-operatives. We have calculated the averages of these components for the three study years (1986, 1991 and 1996) and have expressed them in real terms (1986 = 100). These calculations are set out in Tables 29 and 30.

[18] This percentage was estimated using Statistics Canada statistics on the average earnings of Canadians (Earnings of men and women in 1996, Catalogue No. 13-217-XPB) and statistics of employment in the *food and beverage* sector (Food Bureau, Agriculture and Agri-Food Canada, 1997).

Table 29 - Average Real Value of Components of VA by Type of Co-op (1986=100): 1986, 1991 and 1996 years

	NEBT	Interest on debt	Wages	Depreciation	GVA	NVA
Supply.	51,412,566	8,948,058	152,208,504	17,462,163	230,031,292	212,569,128
Dairy prod.	30,611,181	15,736,513	226,232,825	41,613,335	314,193,854	272,580,519
Fruits & veg.	7,708,972	3,088,438	23,203,777	4,414,169	38,415,356	34,001,187
Grains	67,106,322	15,339,507	192,790,612	51,265,155	326,501,596	275,236,441
Cattle & hogs	5,154,235	3,941,962	46,809,985	6,677,670	62,583,851	55,906,182
Poultry	4,748,988	2,949,122	63,041,139	7,289,290	78,028,539	70,739,249
Honey & maple	1,543,768	157,121	2,188,047	343,136	4,232,071	3,888,935
Other market.	305,893	651,465	3,064,533	862,818	4,884,710	4,021,892
Production	694,382	512,900	8,166,063	708,001	10,081,347	9,373,345
Service	657,408	137,285	5,294,007	1,062,087	7,150,786	6,088,699

NEBT

In absolute terms, grain, supply and dairy product co-operatives generate the largest net earnings before taxes. Production and service co-operatives lag in terms of NEBT.

In relative terms, however, honey and maple product co-operatives generate the largest proportion of NEBT (equal to 39.7 percent of NVA). Grain, supply and fruit and vegetable co-operatives come next (with NEBT of 24.4 percent, 24.2 percent and 22.7 percent of the value of NVA respectively). The "relative" NEBT of poultry and egg co-operatives is the smallest at less than 7 percent of the value of NVA. Last, we should point out that, on average, the NEBT of all co-operatives is on the order of 16.4 percent of the value of NVA.

Table 30 - Average Real Percentages of Components of NVA by Type de Co-op (1986=100): 1986, 1991 and 1996 years

	NEBT	Int. on debt	Wages	NVA
Supply	24.2	4.2	71.6	100
Dairy prods.	11.2	5.8	83	100
Fruits & veg.	22.7	9.1	68.2	100
Grains	24.4	5.6	70	100
Cattle & hogs	9.2	7.1	83.7	100
Poultry	6.7	4.2	89.1	100
Honey & maple	39.7	4	56.3	100
Other market.	7.6	16.2	76.2	100
Production	7.4	5.5	87.1	100
Service	10.8	2.3	86.9	100
AVERAGE	**16.4**	**6.4**	**77.2**	**100**

Wages

Dairy product, grain and supply co-operatives each pay more than $150 million in wages to their employees. Honey and maple product co-operatives pay just over $2 million in wages.

In relative terms, wages make up a large proportion of NVA for poultry (and egg), production, service, cattle (and hog) and dairy product co-operatives. All these co-operatives use more than 80 percent of their NVA to pay their personnel. It should be noted that of the five types of co-operatives referred to above, three (cattle, poultry and dairy) are greatly involved in processing unprocessed products; accordingly, the major proportion of their NVA is used to pay labour. Wages of workers employed by honey and maple product co-operatives account for only 56.3 percent of total NVA; this is the lowest percentage among all agricultural co-operatives. It is important to note that average wages paid by agricultural co-operatives are around 77 percent of the value of NVA.

Interest on debt

In absolute terms, real interest (1986 = 100) paid by dairy, grain and supply co-operatives totals approximately $40 million on average (1986, 1991 and 1996). This interest accounts for more than three quarters of all interest paid by agricultural co-operatives. It should be noted that these sectors normally require large fixed capital investments.

Among all agricultural co-operatives, the ones classified as "other marketing co-operatives" pay the largest proportion of their NVA as interest (16.2 percent). These "other" co-operatives include flower, alfalfa dehydration and emu-raising co-operatives. Ranked second are co-operatives specializing in fruit and vegetable marketing, with more than 9 percent of their NVA going to compensate borrowed capital. Last, service co-operatives use only 2.3 percent of their NVA for payments on debts contracted. It should be borne in mind that, on average, interest paid is on the order of 6.4 percent of the value of NVA.

To conclude, we can argue that NVA is used to compensate two types of factors of production: labour (through wages) and capital (through interest paid and NEBT). With the exception of fruit and vegetable and honey and maple product co-operatives, all agricultural co-operatives spend at least 70 percent of their NVA on compensating labour. Honey and maple product co-operatives stand out from other co-operatives, in that they devote a larger proportion of NVA to compensating capital: 43.7 percent, compared with an average of 22.8 percent for all agricultural co-operatives.

4. Conclusion

The growing concentration of the industries upstream and downstream of the agriculture sector has resulted in that sector consistently losing ground to the benefit of its trade partners: prices of farm inputs were too high (since they included a monopoly markup) and farmers sold their unprocessed products below the competitive price. To overcome this phenomenon, farmers joined together in a variety of economic organizations, including co-operatives. These associations enabled them to reduce the deterioration in the terms of trade with their trade partners. The co-operative formula was adopted on a large scale by farmers, since it provided them with the market and negotiating power they did not command individually. They were thus able to deal with the large quasi-monopolistic firms on input markets (pesticides, fertilizer and so forth) and on (unprocessed and processed) farm product markets. However, many isolated farmers continue to be penalized by the market power of the large firms they dealt with. Today, co-operatives are not equally present in all economic sectors: some sectors (such as grain and milk) seem to have been conquered, while others (such as fruits and vegetables) are still more difficult to access, and a great deal remains to be done.

Agri-food co-operatives have consistently prospered, posting growth of 73 percent in their total sales over a ten-year period ($11 billion in 1986, compared with $19 billion in 1996). Grain and oilseed co-operatives are the largest in Canada, with total sales of approximately $9 billion (about half of the total sales of all Canadian co-operatives). There are also more employees working for co-operatives – 33,000 in 1996 compared with 30,000 in 1986.

Grain and dairy co-operatives are dominant on their respective markets: they have approximately 60 percent of farm sales of their products on the Canadian market. Fruit and vegetable co-operatives remain in a somewhat minority position, since they have only 13 percent of total fruit and vegetable sales in Canada. Fertilizer and chemical supply co-operatives have approximately one third of Canadian sales. Supply co-operatives specializing in seed provide farmers with only 16 percent of the seed marketed in Canada.

In 1996, the value added of agricultural co-operatives was $1.6 billion. However, this figure is not very high in relative terms by comparison with the traditional *food and beverage* sector. The value added of that sector is on the order of 37 percent of the value of its sales. Furthermore, the value added of agricultural co-operatives accounts for only 9.5 percent of the value of their sales. Thus, agricultural co-operatives have a great deal of catching up to do in terms of value added. This is explained by the fact that in some sectors (such as grain and oilseed) co-operatives have specialized in transportation and storage of unprocessed agricultural products

and are not involved significantly in their processing. In Western Canada today, especially since the end of the Western Grain Transportation Act, there is increasing awareness of this phenomenon, and farmers want to capture part of the value added that is generated during processing. New generation co-ops (NGCs) seem the ideal vehicle for the purpose of capturing the value added resulting from processing of unprocessed agricultural products.

NGCs are the most recent type of co-operative in Canada. One of the most important features of these NGCs is that they are no longer interested in operating as mere warehouses for unprocessed products: they are strongly focussed on handling and processing unprocessed products[19]. They are seeking to capture the value added that is generated during the manufacturing process.

In the United States, NGCs developed in circumstances of rural economic decline (especially in North Dakota and Minnesota) during the 1980s. The worst-affected rural communities took charge of their destiny and, with assistance from various US Department of Agriculture rural programs, decided to experiment with NGCs. A few years later, this new type of co-operative proved an unprecedented success,[20] especially in the area of economic development of rural communities (these NGCs even managed to reverse the trend of rural depopulation). The example of the Dakota Growers Pasta Company provides a good illustration of the benefits of NGCs for farmers: a farmer who sells his durum wheat to a "traditional" firm gets 10 cents for each packet of pasta sold for a dollar. By contrast, the NGC farmer member gets 22 cents for the same packet. However, this is not surprising, since the NGC farmer member, in addition to his revenue from selling durum wheat, captures the value added generated at the pasta production plant.

Being just a producer is no longer an option in the 21st century, for the following reasons: 1) the market is increasingly demanding in terms of finished products; 2) global markets require highly automated production structures; 3) withdrawal by governments from the agricultural sector; and 4) the end of the Western Grain Transportation Act (WGTA). All these factors have contributed to the present economic malaise of rural Canada. In the United States, the rural states experienced the crisis and survived it through local initiatives

[19] Other important characteristics of NGCs are closed membership and product shipping rights. For further details on the functioning of these co-operatives, readers can refer to Assoumou-Ndong (1998).

[20] Only seven years after it was established in North Dakota, are NGC became the third largest pasta producer in the United States.
After two years of existence, the Dakota Growers Pasta Company paid its investors (who are also durum wheat producers) a 31¢ dividend, equivalent to a 20 percent return per share; this was in addition to the profit made by producers on the sale (at market price) of their produce to their co-operative.

and the commitment of the US Department of Agriculture. There are now several dozen NGCs, although this phenomenon is still relatively new overall. In Canada less than half a dozen NGCs are in operation at the dawn of the 21st century (December 2000). In the Prairie provinces, only two NGCs are registered and operational[21] (both in Manitoba, where the provincial co-operatives act has been amended to include this type of co-operative).[22]

On the model of what occurred in the United States, we believe that a joint commitment by rural communities and governments involved to create and develop NGCs will probably have a positive impact on the economic development of rural areas. The current farm income crisis in Canada could be overcome if farmers were to become involved in diversified activities. Association of farmers in new generation co-operatives will enable them to diversify their activities while also vertically integrating upstream of the distribution chain. With the help of these NGCs, producers are no longer just producers: they are also processors, distributors and managers. All these functions, whether carried out directly or indirectly, will enable them to improve and adapt their (unprocessed) production to market requirements: this is the specific purpose of integration. The "new" agriculture should go hand-in-hand with the "new" farmers. It is likely that traditional farmers will no longer be able to perform their "new" functions individually, since individual capital is inadequate for the requirements of the "new" agriculture with its large fixed capital (intensive automation). They will then come together in a "new" type of association that will enable them not only to survive, but to thrive.

[21] In Saskatchewan there were approximately 20 NGC projects in 2000, where the founders were seriously considering the NGC model for incorporation purposes.

[22] Murray Fulton believes that the first generation of NGCs in Canada will probably be established in niche-product such markets such as wild boar, goat and organic crops (quoted in “Sean Pratt: Pasta company a test case,” Western Producer, October 28, 1999).

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