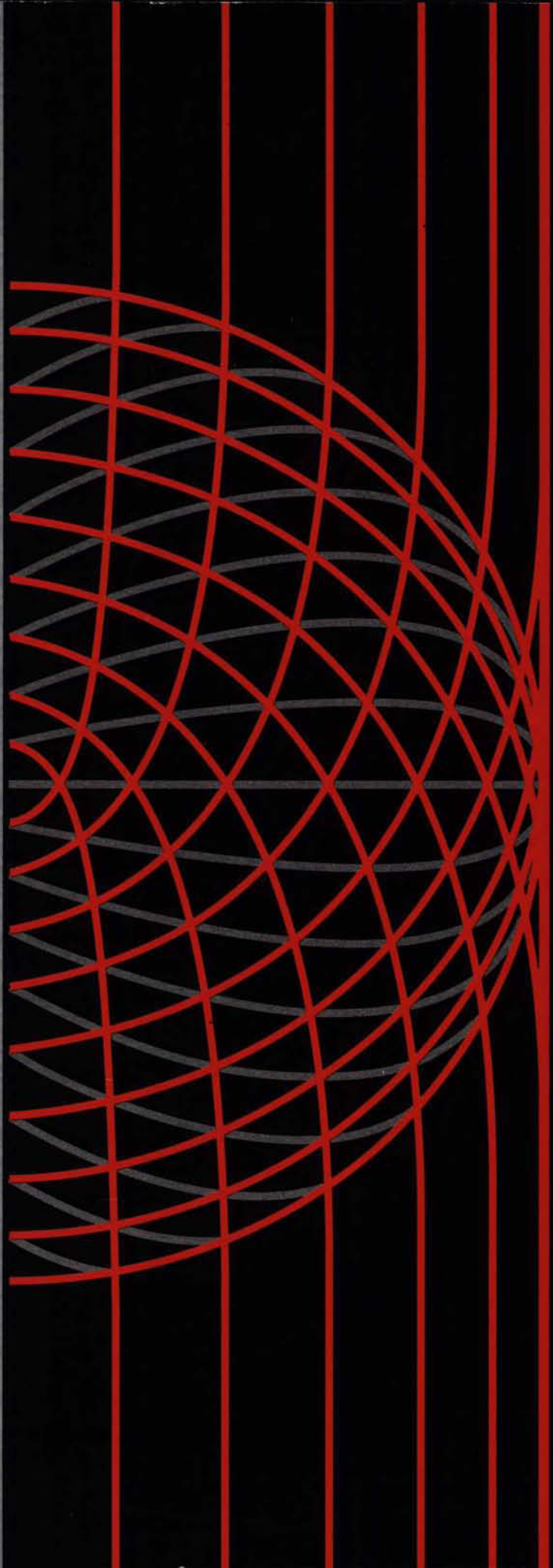
Agricultural Machinery

INDUSTRY PROFILE



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I N D U S T R Y P R O F I L E

1990–1991

AGRICULTURAL MACHINERY

FOREWORD

In a rapidly changing global trade environment, the international competitiveness of Canadian industry is the key to growth and prosperity. Promoting improved performance by Canadian firms in the global marketplace is a central element of the mandates of Industry, Science and Technology Canada and International Trade Canada. This Industry Profile is one of a series of papers in which Industry, Science and Technology Canada assesses, in a summary form, the current competitiveness of Canada's industrial sectors, taking into account technological, human resource and other critical factors. Industry, Science and Technology Canada and International Trade Canada assess the most recent changes in access to markets, including the implications of the Canada-U.S. Free Trade Agreement. Industry participants were consulted in the preparation of the profiles.

Ensuring that Canada remains prosperous over the next decade and into the next century is a challenge that affects us all. These profiles are intended to be informative and to serve as a basis for discussion of industrial prospects, strategic directions and the need for new approaches. This 1990–1991 series represents an updating and revision of the series published in 1988–1989. The Government will continue to update the series on a regular basis.

Michael H. Wilson
Minister of Industry, Science and Technology
and Minister for International Trade

Structure and Performance

Structure

The Canadian agricultural machinery industry encompasses manufacturers of a wide range of farm machinery, including four-wheel-drive tractors, combine harvesters, seeding and tillage equipment, hay handling and harvesting equipment, and grain handling and storage equipment. This specialized machinery is used in the production of cereal grains on large farms under dryland prairie farming conditions.

Total industry employment in 1989 was approximately 10 100 people working in 246 establishments. Total factory shipments exceeded $1.1 billion in 1989 (Figure 1).

Exports in 1990 amounted to about $757 million, about two-thirds of total shipments. The United States was the main destination of exports (receiving 91 percent of them), especially four-wheel-drive tractors, tillage and seeding equipment and swathers. Canadian-designed equipment is not always suited to the type of crops and agricultural practices of other countries, a fact that limits markets for Canadian agricultural equipment exports abroad. Exports to Australia have decreased in recent years and in 1990 accounted for 3 percent of total Canadian exports. The share going to the European Community (EC) and Japan was 3 percent and 2 percent, respectively.

Imports in 1990 were worth about $1.2 billion, about four-fifths of the Canadian market. The United States was also the main source of imports (77 percent), especially combines and tractors, which made up nearly half of total imports. The balance consisted largely of other equipment not manufactured in Canada, such as milking machines, reversible mouldboard ploughs and conventional two-wheel-drive farm tractors.

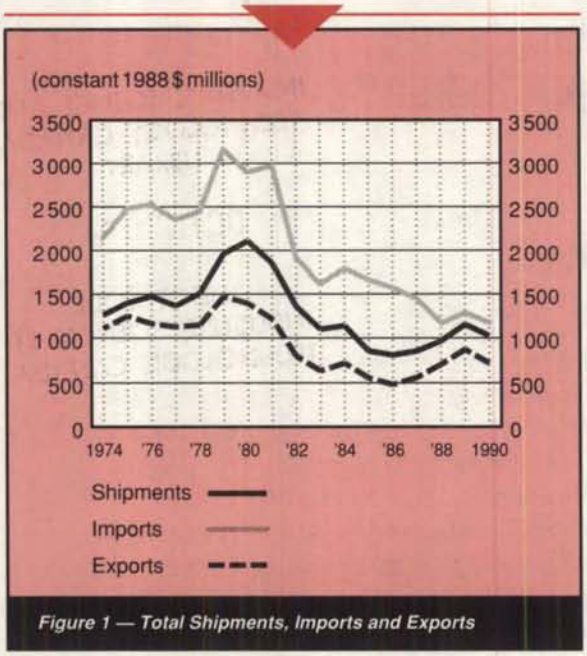

Figure 1 — Total Shipments, Imports and Exports

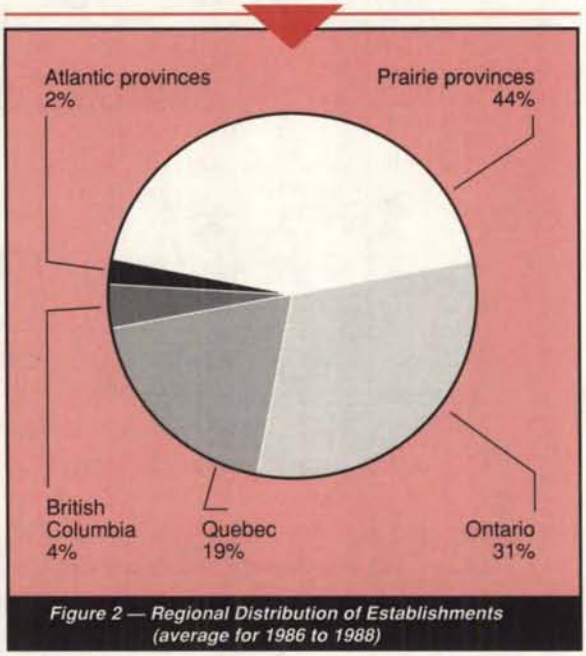

Figure 2 — Regional Distribution of Establishments (average for 1986 to 1988)

The Canadian industry is composed of full-line and short-line firms. Full-line firms market a complete line of farm equipment for all major types of farming through franchised dealers from coast to coast. They manufacture major equipment items such as tractors and combines, and either manufacture or acquire implements such as tillage equipment and seed drills from other manufacturers. The full-line firms are highly vertically integrated multinationals. The majority of their component requirements are obtained from within their world corporate network, and production is rationalized on either a North American or worldwide basis.

Short-line firms produce a variety of agricultural implements and attachments, such as cultivators, chisel ploughs, seeders, swathers and sprayers. Many short-line manufacturers, especially those who manufacture specialized equipment, sell directly to farmers. Some firms produce specialized equipment for particular crops, such as potatoes and tobacco. Most of their sales are made directly to independent equipment distributors and agents or to their own dealers. Short-line manufacturers have a lower degree of vertical integration and purchase the more sophisticated components (e.g., bearings, castings and sophisticated metal stampings, hydraulic cylinders and valves) from firms specializing in such production. Less than 10 percent of sales are to full-line original equipment manufacturers (OEMs). Short-line companies are mainly Canadian-owned enterprises and compete in domestic and world markets with both full-line manufacturers as well as U.S.-based short-line firms making similar products. An estimated 60 to 70 percent of short-line production is exported, mainly to the United States.

In 1989, the Canadian industry included three U.S.-owned full-line companies whose Canadian headquarters and manufacturing facilities are located in Ontario and Manitoba. These three companies alone accounted for approximately 50 percent of the industry's shipments. There were also an estimated 243 short-line manufacturers located across Canada. The Prairie provinces are the dominant region for farm machinery production: 44 percent of firms are located there, compared with 31 percent in Ontario, 19 percent in Quebec, and the remainder in British Columbia and the Atlantic provinces (Figure 2). Short-line manufacturers in the Prairie provinces accounted for about 30 percent of shipments, while those in Ontario and Quebec accounted for approximately 10 percent each.

Worldwide production of tractors is largely distributed according to size of horsepower, with each type being sold in a particular geographical area. Tractors with less than 40 horsepower (30 kilowatts) are made in Japan. Those with 40 to 100 horsepower (30 to 75 kilowatts) are predominantly manufactured in Europe. Tractors in excess of 100 horsepower (75 kilowatts) are made in North America.

Performance

Industry performance is highly cyclical, with domestic machinery sales being heavily dependent upon performance in the agriculture sector. Weather conditions, crop yields,

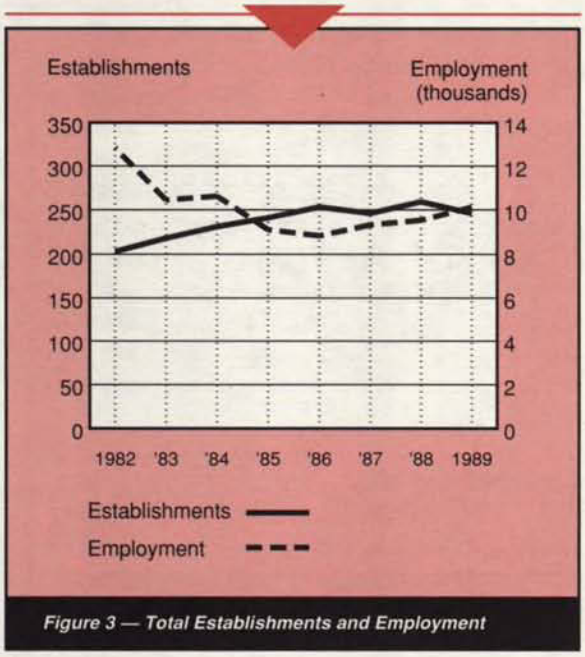

Figure 3 — Total Establishments and Employment

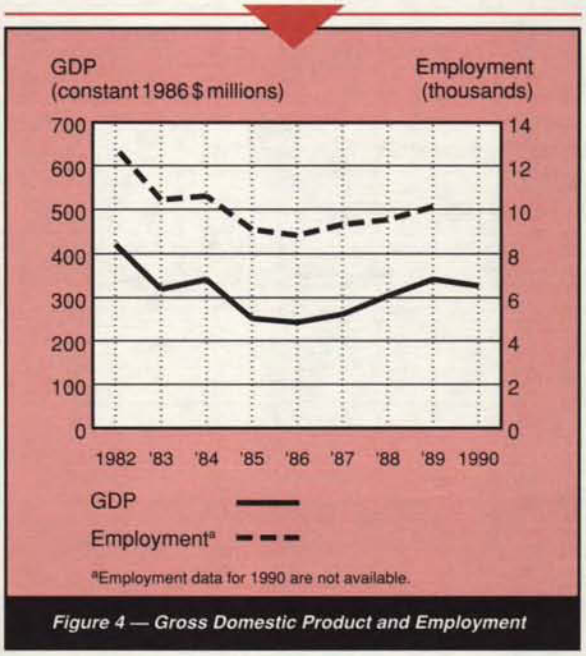

Figure 4 — Gross Domestic Product and Employment

agricultural commodity prices and sales, buyers' expectations, and interest rates on farm inputs all contribute to farm income and farmers' ability to pay for new or replacement machinery. Trade in machinery is conditioned by foreign and domestic government policies regarding farm subsidies as well as by efforts of certain countries to become self-sufficient in particular commodities such as wheat. During the 1970s, buoyed by strong commodity prices, the industry experienced average annual growth of 10 percent in real terms (constant 1988 dollars adjusted for inflation) as farmers replaced their machinery frequently and entertained high expectations for strong market demand for their crops. Although the export share of shipments declined during this period, so did import penetration of the Canadian market by foreign competitors.

The output of the industry in real terms peaked in 1980. Since then, it has experienced a significant decline as reduced prices for farm products severely affected demand for machinery. Farm bankruptcies increased and farmers generally began keeping their equipment longer because their financial situation precluded its replacement. This reduced demand resulted in a decrease in shipments at an average annual rate of nearly 7 percent in real terms between 1980 and 1990. Employment dropped from more than 17 400 people in 1980 to a low of 8 832 in 1986, with a partial recovery to about 10 100 by 1989 (Figures 3 and 4).

Since 1981, the depressed demand for farm machinery worldwide has resulted in the near collapse of several major full-line companies and a decline in profits for most world producers. The high cost of maintaining large inventories, servicing debt loads and financing sales to dealers and farmers has weakened the financial position of some full-line manufacturers during this period. Consequently, these manufacturers have focused their efforts on reducing costs of production and on maintaining market share and cash-flow levels.

In response to these difficult market conditions, the industry underwent considerable rationalization worldwide. In 1985, J.I. Case merged with International Harvester, and Deutz merged with Allis Chalmers to form Deutz Allis, which was bought in 1990 by a U.S. management team and renamed AGCO. By 1987, the active full-line companies manufacturing in Canada were John Deere in Welland, Ontario, J.I. Case Canada in Hamilton, Ontario, and Massey Combines in Brantford, Ontario. Then Ford New Holland, a U.S. full-line company, acquired a Canadian manufacturing base through the purchase of Versatile Farm Equipment in Winnipeg, Manitoba, a major Canadian short-line manufacturer of four-wheel-drive tractors, bidirectional tractors and swathers. Massey Combines, owned by Varity Corporation, went into receivership in March 1988 and the assets were dispersed when sold by the receiver. Varity Corporation has since moved its head office to the United States. Ford New Holland Canada was acquired by Fiat of Italy in 1991.

The decline in demand was not evident to the short-line manufacturers until 1982, since farmers had initially postponed the purchase of such major pieces of equipment as tractors and combines. They have since demonstrated a

greater degree of resiliency than the full-line manufacturers due to product specialization and lower overhead and wage costs. However, some bankruptcies did occur, and the remaining short-line companies are now experiencing significant financial strain. More rationalization is expected until such time as net farm incomes increase.

Although between 1980 and 1986 imports into Canada from the EC averaged less than 13 percent of total imports, they later peaked to 23 percent in 1988, before lowering again to about 17 percent in 1990. Furthermore, imports from Europe and Japan of high-horsepower, front-wheel-assist, two-wheel-drive tractors continue to present serious competition for the smaller Canadian-made four-wheel-drive tractors.

Strengths and Weaknesses

Structural Factors

The principal strength of the Canadian agricultural machinery industry lies in the economies of scale that have resulted from its favourable access to the U.S. market. Trade in agricultural implements between Canada and the United States has been essentially duty-free since 1944. This free trade in agricultural machinery permits Canadian producers to lengthen production runs to serve a North American market rather than a fragmented domestic market.

Depressed agricultural market conditions have resulted in low capacity utilization of plants worldwide, with rates varying from 25 to 50 percent, depending on the product. The result has been extensive layoffs.

Some firms in the Canadian industry, however, have developed products suited to the particular conditions of dry-land farming in North America, thus increasing their competitiveness and contributing to their survival. Other Canadian operations have extended product lines by acquiring or merging with existing plants and extending their distribution networks throughout North America. Because of this increased business, Canadian firms have been able to retain a core of skilled workers, despite worldwide layoffs in the industry, although there has been some dilution of good engineering support. The lower manufacturing cost structures and the availability of skilled labour in Canada have also helped to forestall the retrenchment and consolidation that have been carried out in major multinational full-line companies worldwide.

Short-line firms, which are mainly Canadian-owned, have generally avoided the worldwide market downturn to an even greater extent than the full-line multinationals in Canada by focusing on the production of less-sophisticated equipment in smaller plants and by adapting more quickly during periods of low market demand to changing market conditions. Flexible production processes coupled with lower wage rates have kept their manufacturing and distribution costs low and their utilization and employment rates high.

Individual short-line manufacturers, however, may be vulnerable to managerial and financial weaknesses typical of small enterprises. They may face a competitive threat from full-line companies that are able to offer better financing terms and price discounts. Being dependent on the full-line firms they serve, they must meet stringent conditions with respect to prices and delivery times imposed on the original equipment they provide.

Trade-Related Factors

In 1913, the United States removed its import duties on most agricultural machinery. Canada followed suit in 1944, thereby creating a free trade environment between the two countries for those products. While a small number of items remain dutiable, most are perceived to have uses that are not strictly agricultural, such as small tractors that could be used by non-farmers or hobby farmers. Most of these products may qualify for duty-free treatment if it is verified that they meet agricultural end-use requirements. Both countries have instituted certification procedures for this purpose.

Canada and the United States similarly extend duty-free access to agricultural machinery from all member countries of the General Agreement on Tariffs and Trade (GATT) accorded Most Favoured Nation (MFN) status. While Canadian manufacturers are assured access to the large U.S. market, they must compete with all other foreign manufacturers accorded duty-free access of farm machinery there as well as into Canada. Despite the tariff-free access to Canada and the United States, many of these countries maintain tariff and non-tariff barriers (NTBs) to their own markets. For example, barriers against Canadian tractor and tillage equipment make it difficult for Canadian manufacturers to compete in the EC. Tariffs on agricultural equipment entering the EC range from 4 to 17 percent.

Under the Canada-U.S. Free Trade Agreement (FTA), any remaining duties on agricultural machinery are being eliminated in 10 annual, equal steps, reaching zero on 1 January 1998. The FTA also facilitates transborder movement of service and technical personnel. U.S. country of origin marking requirements remain a problem, but the Canadian government is actively seeking a solution through the Multilateral Trade Negotiations and the North American Free Trade Agreement (NAFTA).

Technological Factors

In recent years, the Canadian industry has been at the forefront of several technological achievements. Among these are the development of large-capacity four-wheel-drive and bidirectional tractors and axial-flow combines. While product improvements and innovations continue to be made, no new major technological breakthroughs can be expected until overall markets improve.

Production technology has been evolving steadily with the increasing use of computers in the design, production and co-ordination of a plant's functions. Improved processes include computer-aided design/computer-aided manufacturing (CAD/CAM) equipment in several Canadian companies, improved material handling within their plants, and cell manufacturing technology used to centralize similar operations, parts and assemblies.

Evolving Environment

Over the long term, the agricultural machinery industry, which is highly dependent on farm incomes, is expected to experience a stable but mature market environment as food production increases to meet global population growth. As in the past, demand will continue to fluctuate. In Canada, there is concern that high farm debt, unstable land values and reduced farm incomes could lead to a continued deterioration in equipment demand. While it is expected that market conditions will improve marginally over the next two to three years, a return to the high level of machinery demand experienced during the 1970s is unlikely in the foreseeable future. The market outlook must also consider the emergence of a new trading order through the current GATT round and the possible impact of the greenhouse effect.

An improvement in market conditions is needed to assure the long-term viability of the larger full-line and short-line firms that are still in a tenuous financial position, despite having undergone considerable rationalization of operations. If demand remains constant or falls, then certain areas of heavy production (e.g., large four-wheel-drive tractors and windrowers) would be vulnerable. In such circumstances, plant closures and divestitures could affect the structure of the Canadian industry severely, as evidenced by the acquisition of Ford New Holland by Fiat. The consolidation that began in the early 1980s will continue as the major industry players increase market shares while inhibiting the emergence of new major players through emphasis on their own strengths in scale of production, research and development, marketing and distribution networks.

The big three (Deere, Case and Fiat/Ford) are likely to dominate the production of large machines such as tractors and combines. For these items, only Fiat/Ford New Holland has a manufacturing capability in Canada. However, opportunities will continue to exist for Canadian manufacturers to develop new niche markets and enlarge their services under contract to OEMs. For example, Western Combines manufactures rotary combines carrying the Massey Ferguson brand label.

The Ukraine is one of several areas in the world suitable for the kind of dryland farming practices that have been developed successfully in the cereal-growing regions of North America. There is a growing interest on the part of these countries to adopt such dryland farming techniques. This interest presents opportunities for Canadian farm equipment firms specializing in this type of machinery to increase and diversify their export sales.

Competitiveness Assessment

The market for agricultural machinery worldwide has been depressed for an extended period of time. Most agricultural machinery manufacturers continue to experience financial difficulties in trying to maintain market share and survive. In this context, the Canadian industry generally remains competitive in the areas of price and technology, despite capacity utilization rates that are under 50 percent and limited financial resources. In the short term, the ability of individual companies to maintain market share depends largely on their financial strengths.

In the longer term, the situation is less clear. Notwithstanding the relative competitiveness of Canadian firms, a sustained major increase in commodity markets and farm income is vital to maintaining the viability of the agricultural machinery industry in Canada. Increased sales by Canadians will partially depend on reduced subsidies to farmers in the United States and EC. In addition, achieving a consistent level of profitability in the industry over the next decade will be difficult in the face of tighter margins, increasing labour costs (relative to U.S. costs) and fewer farmer customers who are able to afford the increased cost of machinery. On the positive side, there are indications of some shifts in production from higher-cost EC factories to Canada.

The short-line manufacturers, because of their greater resiliency and lesser financial exposure, have not suffered major dislocations and, to date, have largely retained their competitive position. For many of these firms, however, significantly improved market conditions will be necessary if they are to remain viable in the longer term.

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PRINCIPAL STATISTICS[a]

	1973[b]	1983	1984	1985	1986	1987	1988	1989	1990
Establishments	135	218	231	241	253	246	259	246	N/A
Employment	13 477	10 439	10 612	9 104	8 832	9 322	9 534	10 117	N/A
Shipments									
($ millions)	339.0	956.9	1 036.2	808.6	783.1	841.7	966.3	1 186.6	1 078.6[c]
(constant 1988 $ millions)	1 087.2	1 097.6	1 137.3	854.0	808.4	853.5	966.3	1 151.4	1 024.1
GDP[d] (constant 1986 $ millions)	360.6	319.7	342.1	251.8	242.9	261.6	304.5	342.3	327.5
Investment[e] ($ millions)	9.4	15.0	19.2	20.5	16.9	20.4	17.2	33.5	34.3
Profits after tax[f] ($ millions)	38.6	-120.6	-9.4	-75.7	-237.6	-6.9	N/A	N/A	N/A

[a] For establishments, employment and shipments, see *Machinery Industries, Except Electrical Machinery*, Statistics Canada Catalogue No. 42-250, annual (SIC 3111, agricultural implement industry).

[b] Data for this year are not strictly comparable with data for other years shown, due to changes in the definition of the industry that were introduced in the revised edition of *Standard Industrial Classification, 1980*, Statistics Canada Catalogue No. 12-501.

[c] See *Monthly Survey of Manufacturing*, Statistics Canada Catalogue No. 31-001, monthly.

[d] See *Gross Domestic Product by Industry*, Statistics Canada Catalogue No. 15-001, monthly.

[e] See *Capital and Repair Expenditures, Manufacturing Subindustries, Intentions*, Statistics Canada Catalogue No. 61-214, annual.

[f] See *Corporation Financial Statistics*, Statistics Canada Catalogue No. 61-207, annual.

N/A: not available

TRADE STATISTICS

	1973[a]	1983	1984	1985	1986	1987	1988[b]	1989[b]	1990[b]
Exports[c]									
($ millions)	290.1	551.1	655.3	523.6	465.2	551.2	703.7	899.3	756.5
(constant 1988 $ millions)	930.3	632.1	719.2	553.0	480.2	558.9	703.7	872.6	718.3
Domestic shipments									
($ millions)	48.9	405.8	380.9	285.0	317.9	290.5	262.6	287.3	322.1
(constant 1988 $ millions)	156.9	465.5	418.1	301.0	328.2	294.6	262.6	278.8	305.8
Imports[d]									
($ millions)	538.9	1 404.5	1 635.1	1 573.7	1 523.0	1 424.7	1 163.8	1 326.1	1 236.7
(constant 1988 $ millions)	1 728.2	1 611.0	1 794.6	1 662.1	1 572.2	1 444.7	1 163.8	1 286.7	1 174.3
Canadian market									
($ millions)	587.8	1 810.3	2 016.0	1 858.7	1 840.9	1 715.2	1 426.4	1 613.4	1 558.8
(constant 1988 $ millions)	1 885.1	2 076.5	2 212.7	1 963.1	1 900.4	1 739.3	1 426.4	1 565.5	1 480.1

[a] Data for this year are not strictly comparable with data for other years shown, due to changes in the definition of the industry that were introduced in the revised edition of *Standard Industrial Classification, 1980*, Statistics Canada Catalogue No. 12-501.

[b] It is important to note that data for 1988 and after are based on the Harmonized Commodity Description and Coding System (HS). Prior to 1988, the shipments, exports and imports data were classified using the Industrial Commodity Classification (ICC), the Export Commodity Classification (XCC) and the Canadian International Trade Classification (CITC), respectively. Although the data are shown as a continuous historical series, users are reminded that HS and previous classifications are not fully compatible. Therefore, changes in the levels for 1988 and after reflect not only changes in shipment, export and import trends, but also changes in the classification systems. It is impossible to assess with any degree of precision the respective contribution of each of these two factors to the total reported changes in these levels.

[c] See *Exports by Commodity*, Statistics Canada Catalogue No. 65-004, monthly.

[d] See *Imports by Commodity*, Statistics Canada Catalogue No. 65-007, monthly.

SOURCES OF IMPORTS[a] (% of total value)

	1983	1984	1985	1986	1987	1988	1989	1990
United States	89	85	82	79	76	69	73	77
European Community	8	10	12	13	16	23	20	17
Asia	2	3	4	6	5	4	3	2
Other	1	2	2	2	3	4	4	4

[a]See *Imports by Commodity*, Statistics Canada Catalogue No. 65-007, monthly.

DESTINATIONS OF EXPORTS[a] (% of total value)

	1983	1984	1985	1986	1987	1988	1989	1990
United States	89	89	88	90	90	90	93	91
European Community	3	2	3	3	3	3	2	3
Asia	–	1	1	2	2	2	1	2
Other	8	8	8	5	5	5	4	4

[a]See *Exports by Commodity*, Statistics Canada Catalogue No. 65-004, monthly.

REGIONAL DISTRIBUTION[a] (average over the period 1986 to 1988)

	Atlantic	Quebec	Ontario	Prairies	British Columbia
Establishments (% of total)	2	19	31	44	4
Employment (% of total)	X	11	45	42	X
Shipments (% of total)	X	9	48	40	X

[a]See *Machinery Industries, Except Electrical Machinery*, Statistics Canada Catalogue No. 42-250, annual.

X: confidential

MAJOR FIRMS

Name	Country of ownership	Location of major plants
Full-line		
J.I. Case Canada (A Tenneco Company)	United States	Hamilton, Ontario
John Deere Limited	United States	Welland, Ontario
Ford New Holland Canada Ltd.[a]	Italy/United States	Winnipeg, Manitoba
Short-line		
John Buhler Inc.	Canada	Winnipeg, Manitoba
Degelman Industries Ltd.	Canada	Regina, Saskatchewan
Ezee-On Mfg. Ltd.	Canada	Vegreville, Alberta
Flexi-Coil Ltd.	Canada	Saskatoon, Saskatchewan
Leon-Ram Enterprises Inc.	Canada	Yorkton, Saskatchewan
MacDon Industries Ltd.	Canada	Winnipeg, Manitoba
Morris Industries Ltd.	Canada	Yorkton, Saskatchewan

[a]In June 1987, Ford New Holland Inc. of the United States acquired Versatile Farm Equipment, a short-line manufacturer. The company was subsequently acquired in 1991 by Fiat of Italy.

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