

## CHAPTER 2

# BACKGROUND

In order to better understand the current issues surrounding livestock expansion in Manitoba, it is useful to elaborate on some of the forces driving agricultural development. While there are many such forces, the Panel has chosen to focus on three: the changing structure of Manitoba's agriculture, a perspective on livestock sector development, and an historical perspective on livestock and the environment.

## Changing Structure of Manitoba's Agriculture

### Introduction

The presence of large numbers of "livestock" has been part of the western Canadian landscape for thousands of years. These animals, of course, were buffalo (bison), and they have sustained First Nations peoples for hundreds of generations. Their effect on the landscape was, at times, dramatic, and would today be called pollution. Friesen (1984) described them as follows:

*These animal giants traveled in herds numbered in the thousands and tens of thousands in the summer time, and simply swallowed up the land in their path. Isaac Cowie's party met buffalo near the Qu'appelle Valley: its 'route took us into the midst of the herd, which opened in front and closed behind the train of carts like water round a ship ... the earth trembled day and night ... as they moved ... over the inclinations of the plains. Every drop of water on our way was foul and yellow with their wallowings and excretions'.*

With the coming of European settlers about 125 years ago, agriculture replaced hunting as the way of life and attention became focused on producing grain for foreign markets. Vast quantities were grown and exported; millions of people were fed and relative prosperity prevailed on the Canadian prairies. But times have changed

and our agricultural industry has had to deal with the challenges of this change. Countries that were once customers have become competitors. Making a living producing grain for export has become more difficult, but farmers in Manitoba are moving towards meeting this challenge by expanding their production of specialty crops and livestock.

### Farm Population Trends

Today, only about 7 percent of Manitoba's total population is employed on farms. In the last census year (1996), farmers and their families numbered 79,840 people. By comparison, in 1971 over 13 percent of the population was employed on farms and over 131,000 people lived on farms.

### Structure of Farms

In 1996, family-operated farms accounted for 98 percent of farms, while non-family corporations represented less than two percent of the farms in Manitoba. During the period from 1986 to 1996, more farm families entered into partnerships or operating agreements and sole proprietorships dropped to about 60 percent of farms.

According to the 1996 Census of Agriculture, only 18 percent of farm operators were less than 35 years old, three percent less than the 1991 figure. Over 51 percent of the farm operators were 35 to 54 years of age and 31 percent were age 55 or older. Over 30 percent of all farmers had some off-farm employment. A revealing statistic is that for all Manitoba farms 43 percent of total family income comes from off-farm sources.

### Farms and Farm Investment

With the decline in the farm population, the farming sector has consolidated with fewer, but larger, farms with more capital investment per farm. In 1996, there were about 24,400 farms in Manitoba, a decrease of more than 30 percent

from 1971. By 1999, the number of farms had further declined to an estimated 23,400. The average size of Manitoba farms rose from 543 acres in 1971 to 784 acres by 1996. There has been an increasing trend to rent land rather than buy it. By 1996, 64 percent of farmland was operator-owned while 36 percent was rented.

A natural result of farm consolidation has been the increase in capital investment per farm. Between 1971 and 1996, average capital investment per farm increased from less than \$60,000 to over \$500,000. For 1999, Manitoba Agriculture and Food has estimated that the average capital investment for a farm is almost \$600,000.

The total value of capital on Manitoba farms in 1999 was almost \$13.9 billion. This included over \$9 billion in land and buildings, \$3.4 billion for machinery and equipment and \$1.5 billion for livestock and poultry. Most of the growth has been investment in livestock, reflected by the growth of the hog sector.

Total outstanding farm debt in 1999 was \$3.5 billion, with about 45 percent of this debt owed to chartered banks. The most recent available data (1997) indicates that Manitoba farmers have average farm assets of about \$716,500, liabilities of \$123,900 and a net worth of \$592,600. This translates into an equity-to-asset ratio of 83 percent.

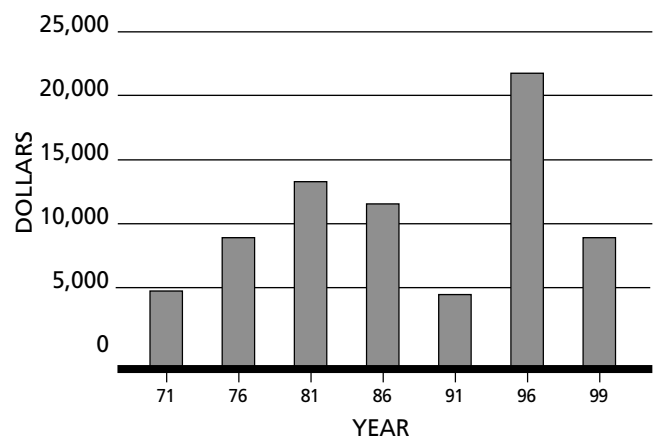
**Farm Income**

Ever-increasing production costs, dependence on unpredictable weather and fluctuating commodity prices make farming a risky business. Figure 2.1 illustrates the extremely variable nature of net farm incomes. By way of comparison, in 1996 the average net income per farm was \$22,100 (the best in the last decade) and the average net income of industrial workers was \$24,800; in 1999, net income per farm had plummeted to \$8,300 while the industrial worker’s net income had risen to \$26,100. For this reason, federal and provincial governments have cooperated in providing a variety of safety net programs to moderate the fluctuations in farm income.

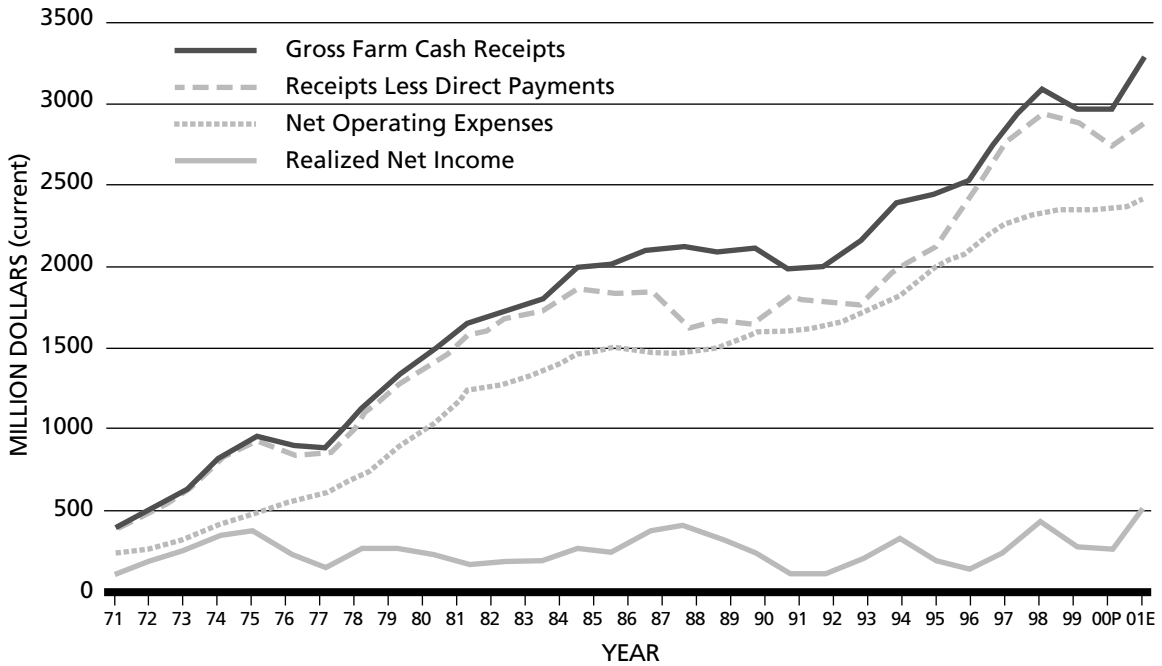
While gross farm cash receipts and farm operating expenses have risen at a relatively steady rate over the last 30 years as shown in Figure 2.2, the stark reality facing the farm sector in Manitoba is that realized net farm income has been relatively static over time with no discernable upward trend, only year to year fluctuations.

Figures 2.3 and 2.4 illustrate the changing economic nature of Manitoba’s agriculture. With respect to changes in source of farm receipts between 1991 and 1999, crop receipts increased about 40 percent while livestock receipts increased over 70 percent. This growth in livestock receipts reflects the recent expansion of the hog sector.

**FIGURE 2.1**  
**Total Net Income per Farm in Manitoba**



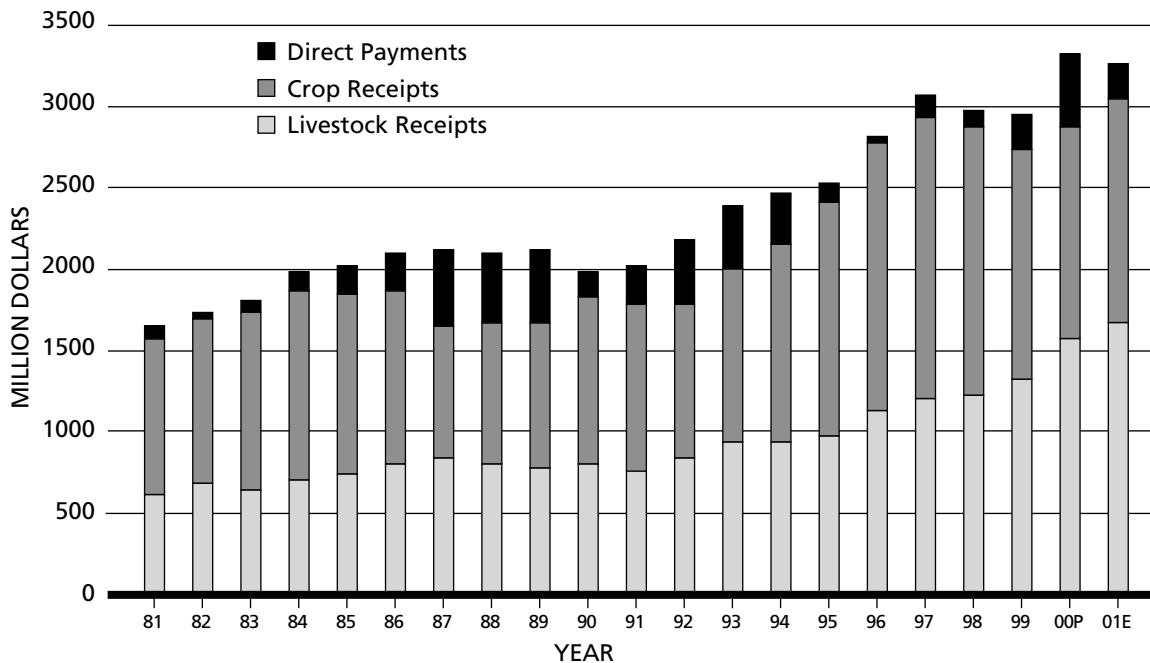
**FIGURE 2.2**  
**Farm Income and Expenses**  
**1971 - 2001**



Source: Statistics Canada

Market Analysis and Statistics Section, Manitoba Agriculture

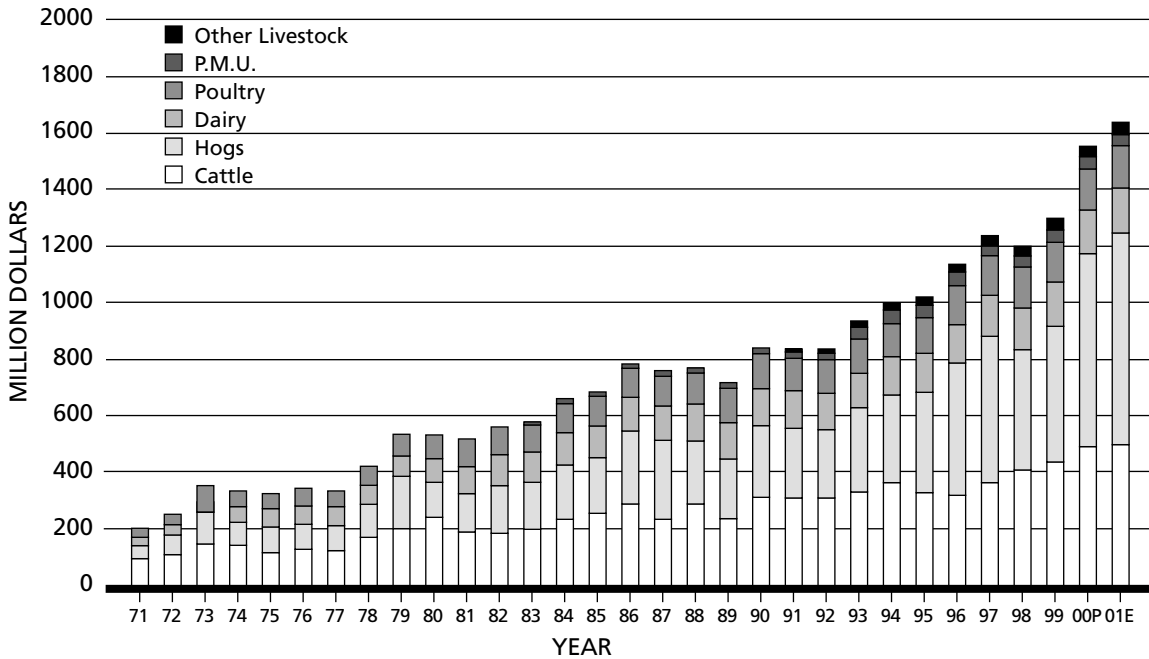
**FIGURE 2.3**  
**Farm Cash Receipts by Type in Manitoba**  
**1981 - 2001**



Source: Statistics Canada

Market Analysis and Statistics Section, Manitoba Agriculture and Food

**FIGURE 2.4**  
**Value of Manitoba Livestock Production**  
**1971 - 2001**



Source: Statistics Canada

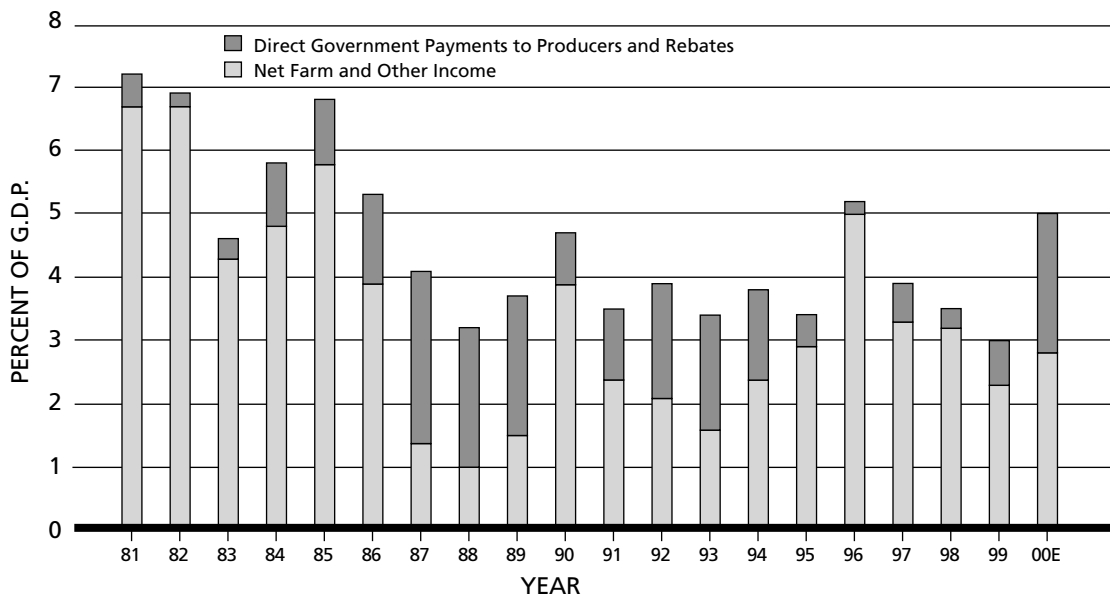
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**Contribution of Agriculture to the Provincial Economy**

Agriculture is an important sector in the Manitoba economy. Between 1995 and 1999, agriculture and its related industries contributed, on average, about 11 percent to the provincial Gross Domestic Product (GDP), or almost one dollar of every ten in the economy. Each dollar of gross farm income generated almost two dollars in the economy. In terms of jobs, one in every ten in the province depends on the agriculture industry. In 1999, 37,100 people were directly employed by the agriculture industry and a further 20,400 were employed in areas of the economy dependent on agriculture. Agriculture’s direct contribution to GDP is highly variable from year-to-year (Figure 2.5). In 1999 it was only three percent due to low net farm incomes, while three years earlier, in 1996, it was five percent.

The food and beverage processing industry, which includes the slaughter and processing of meat and poultry, fruit and vegetables, cereal products, seed, dairy products, vegetable oils, feed, and beverages, produced an estimated \$2.8 billion of goods and services in 1999 or about 25 percent of the total manufacturing output in the province. The largest sector in Manitoba’s food and beverage processing industry is the meat and poultry slaughtering and processing sector, which employs over 2,800 people and produces approximately \$700 million of meat products. Clearly, agriculture and related processing activities are key to Manitoba’s economic future. The challenge is to ensure that this economic future is also environmentally and socially sustainable.

**FIGURE 2.5**  
**Contribution of Primary Agriculture to Manitoba G.D.P.**  
**1981 - 2000**



Source: Statistics Canada Manitoba Bureau of Statistics

Market Analysis and Statistics Section, Manitoba Agriculture and Food

## Perspective on Livestock Sector Development

### Current Livestock Situation

The Panel has chosen to focus only on hogs and cattle in this report, as we believe that these are the major sectors with potential for expansion in the future. In our view, any significant expansion in poultry (with the possible exception of eggs) and dairy is unlikely in Manitoba under current national supply management programs. A more detailed analysis of the economic potential for hogs, cattle, and poultry is presented in the separate technical report.

### Cattle

After Alberta and Saskatchewan, Manitoba has Canada's third largest beef cow herd. Manitoba's cattle industry is 95 percent commercial cow-calf operations with the balance being commercial feedlots. A large portion of the cattle raised in Manitoba is sold to Alberta and Ontario as feeder cattle and calves for further finishing prior to slaughter. Manitoba Agriculture and Food has

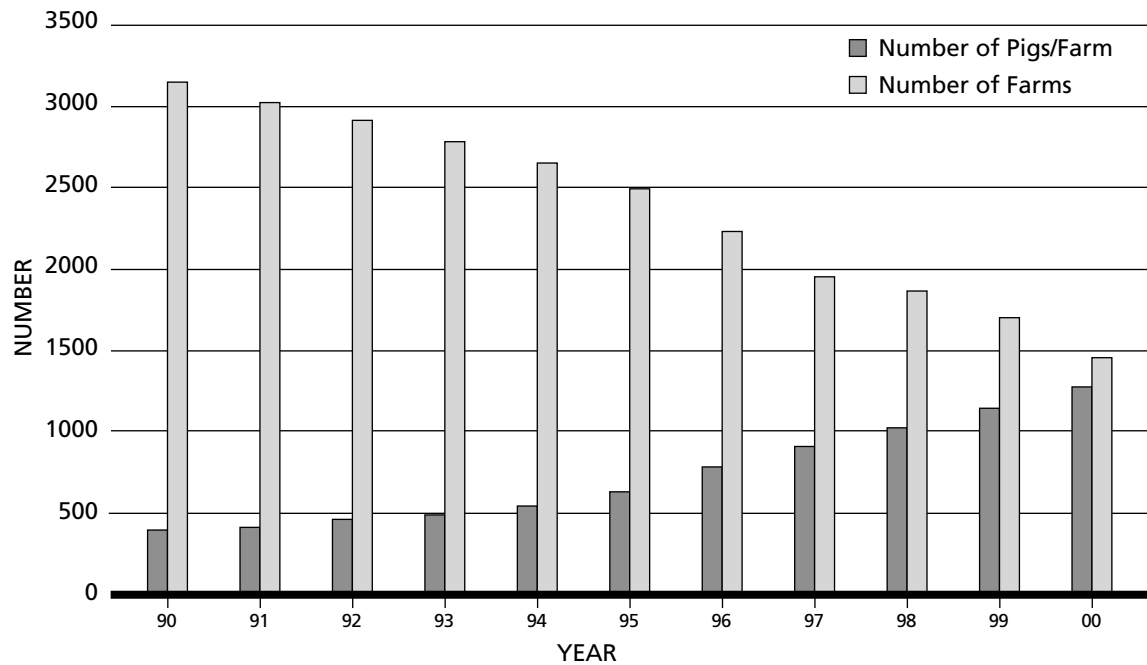
estimated that the province's 12,000 beef cattle producers marketed over 500,000 head for slaughter for sale outside Manitoba.

Since Manitoba has only two small federally-inspected plants and 29 provincially-inspected plants, it slaughters a minimal number of cattle. Manitoba will likely continue to be primarily in the cow-calf and feedlot business. State-of-the art facilities located in Alberta have the capability of processing all the slaughter cattle raised in Western Canada.

### Hogs

Between 1990 and 2000, the number of hog farms in Manitoba has declined by more than 50 percent from 3,150 to 1,450, while the average number of hogs per farm has more than tripled - increasing from 388 head to 1,290 head (Figure 2.6). This intensification in the hog sector, and its concentration in certain locations within the province, has heightened public concerns regarding the environment (air and water quality) and public health. At the same time, the rapid decline in the number of small and medium hog farms has also become a matter of social concern.

**FIGURE 2.6**  
**Average Number of Pig/Farm and Number of Farms in Manitoba**  
**1990 - 2000**



Total hog production in Manitoba has increased from 3.2 million hogs in 1996 to 4.8 million in 1999. Manitoba Agriculture and Food estimates that about 13 percent of commercial hog operations produce weanlings only, 40 percent are farrow-to-finish operations and 47 percent are feeder operations. In 1999, Manitoba exported over 2.2 million live hogs to the United States. Approximately 60 percent of these were weanlings. Manitoba slaughter volumes have increased from 1.9 million head in 1996 to 3.1 million head in 1999. About 515,000 of the pigs slaughtered in Manitoba came from Alberta, Saskatchewan and Ontario.

Manitobans consume only about 11 percent of the pork produced in the province. Pork exports in 1999 of 88 million kg valued at \$240 million were made to over twenty-three countries, led by the United States and Japan.

Currently approximately 80,000 hogs are slaughtered weekly in Manitoba. About 45,000 of these are processed at the new Maple Leaf plant in Brandon. This plant has been designed to

process 90,000 hogs per week when it operates with two shifts. If Schneiders follows through with its planned expansion in Winnipeg to 90,000 hogs per week, this will give Manitoba a potential capability to process 10 million hogs per year.

**Factors Affecting the Growth in Livestock Numbers in Manitoba**

A number of factors have encouraged the expansion of the livestock industry, especially hogs, in Manitoba over the last decade. In summary, these factors include:

- changes in world grain trade resulting in relatively static volumes of grains being sold at ever declining prices (constant dollars) due to technology improvements;
- loss of the Crow Benefit on export grain resulting in farmers facing the full freight bill and lower (at least initially) feed grain prices;
- growth in world demand for meat due to rising incomes;

- desire by producers to diversify their production base and thus reduce risk and fluctuations in farm income;
- government programs encouraging rural diversification;
- improved animal genetics and production technologies;
- integration of various components in the supply chain to reduce costs, share the risks and improve profits, and
- concerted effort by the Government of Manitoba to expand hog processing capacity in Manitoba.

### **Future Prospects for Expansion of Manitoba's Hog Sector**

Major restructuring has occurred in the slaughter and processing industry with on-going development of vertical integration and strong linkages between producer and consumer throughout North America. In the United States, four firms control over 60 percent of the daily kill capacity. In Canada, the top four processors accounted for 68 percent of the average daily hog slaughter in 2000 compared to 51 percent in 1993. This concentration in the industry has developed because economies of scale are now dictating that plants are able to slaughter four million hogs annually based on a double shift operation.

In 1996, the Government of Manitoba eliminated mandatory marketing of hogs through a marketing board and allowed producers to sell hogs directly to packers. Direct contracting with producers in Manitoba has permitted established facilities to guarantee a certain percentage of their daily slaughter requirements. It has also resulted in processors developing affiliations with others in the supply chain to ensure production of the type and quality of hogs desired for specific markets. However, smaller hog producers appear to have more difficulty with direct selling to packers.

As indicated earlier, Manitoba slaughtered 3.1 million hogs in 1999, with about 515,000 of this

total coming from Alberta, Saskatchewan and Ontario. Since the establishment of the Maple Leaf plant in Brandon in 1999, the current provincial slaughter capacity has increased to approximately 6 million hogs annually. Manitoba's production is currently less than 5 million hogs. Packing plants (even if they were able to buy all locally grown hogs) will still have to rely on more production from other provinces to offset the shortfall, or else operate at less than full capacity.

Manitoba hog producers also exported 2.2 million live hogs to the United States in 1999, approximately 60 percent of which were weanling pigs sold to feeder operations located in Iowa, Minnesota, Nebraska and South Dakota. Large portions of these sales to US grower-finisher operations were under contract. As well, some slaughter hog exports went directly to packing plants in South Dakota, North Dakota, Iowa and Wisconsin. Farmers with slaughter hogs typically want to diversify their sales to avoid one or two buyers dictating market prices. For this reason, many analysts and industry observers believe that the flow of live hogs to the United States will continue, perhaps in smaller numbers, despite expansion of the packing industry in Manitoba. A current production shortfall of two to three million hogs to meet existing hog processing capacity in Manitoba has to be a major consideration in further expansion of hog processing and production in this province.

To increase production by three million hogs beyond the current level would require an additional investment of about \$750 million in barns, equipment, breeding stock and land. Assuming that hog producers can obtain an adequate return on their investment, this level of capitalization can likely be found. There are other challenges, however. The availability of appropriately trained labor to work in barns has been identified as a current constraint. The problem of local barley being infested with fusarium has necessitated the import of "clean" barley from Saskatchewan and Alberta, adding to the cost of feed. The recently imposed import tariff on US corn coming into Manitoba will also bring about some increase in local feed prices. The

duration and intensity of these factors will certainly influence the speed and extent of hog production expansion in Manitoba.

Not to be forgotten are public pressures opposing hog expansion, an issue which will be discussed later in this report.

## Historical Perspective on Livestock and the Environment

### Earlier Reviews

Concerns about livestock production and its impact on the environment have deep roots in Manitoba. In the late 1970s, the government of the day requested that the Clean Environment Commission (CEC) conduct an investigation to determine the pollution problems associated with intensive livestock operations with the objective of developing guidelines and regulations to address these concerns.

At the time the Commission undertook its study, there were a number of pieces of legislation affecting livestock operations, including *The Public Health Act*, *The Clean Environment Act* and its regulations focusing on water quality, *The Nuisance Act*, *The Planning Act* and provincial land use policies. This array of policies and legislation resulted in confusion and, sometimes, inconsistent application among municipalities. The general public was also concerned about the impact livestock production was having on the environment. This was reflected in the fact that approximately 75 percent of complaints received by environmental control authorities in the late 1970s were related to odors emanating from livestock operations.

In the *Report on an Investigation of Intensive Livestock Production Operations in Manitoba*, the Commission stated that odors were nuisances but were not a risk to human health. It was generally recognized that no effective technologies existed to completely reduce odor emissions other than to use policies to ensure good management practices and to maintain minimum separation distances between the livestock operation and nearby

residences. Measurement of odors was difficult because available apparatuses recorded different readings depending on who operated the equipment.

The Commission therefore concluded that land use planning and zoning were the only practical measures to address odor complaints. Intensive livestock operations (ILOs) would be obliged to maintain a minimum distance from residential areas and, similarly, residential areas were prohibited from encroaching on existing farming operations.

Given the variation in definitions and the array of legislation and regulations, the CEC suggested a consolidation of the legislation and regulations into one piece of legislation. The CEC further recommended that regulations relating to livestock operations under *The Clean Environment Act* be revised and the regulations under *The Public Health Act* be rescinded. Existing operations were to be given a five-year period to comply but had to file a plan for compliance with the Department of Mines, Natural Resources and Environment. The proposed revised regulations clarified the definition of an ILO and required that any operation over 300 animal units (AUs) be registered with the department and file a proposal detailing plans of their operation. The report encouraged municipalities to form planning districts and to identify zones around urban areas where limited agricultural activities could occur. Until municipal land plans could be developed, *The Clean Environment Act* stipulated the minimum separation distances for municipalities to use.

Guidelines were also suggested as a means to provide producers with information on best management practices. The Commission also said that the Departments of Agriculture and Mines, Natural Resources and the Environment along with any other appropriate departments, should develop these guidelines. They also suggested a set of development guidelines be available to help municipalities adopt land use plans.

The Commission realized that it was essential to have maps detailing areas sensitive to groundwater pollution based on soil types, soil moisture and



groundwater aquifer locations. Site-specific soil and groundwater studies were also suggested to assess the risk of groundwater pollution from any proposed intensive livestock operation. Manure storage was considered a preventative measure to avoid groundwater contamination. The report also suggested that manure should be distributed on the land, incorporated quickly and used by a crop within 30 months. Monitoring of groundwater would be essential to identify any contamination.

In 1993, the Government of Manitoba established the Manitoba Pork Study Committee with the purpose of determining the opportunities for growth in Manitoba's pork industry and establishing what actions needed to be taken by the various stakeholders to ensure the growth occurred. Although largely focused on economic growth, the report entitled, *Manitoba's Pork Industry: Building for the 21st Century – Prospects and Challenges*, made a number of recommendations aimed at sustainable hog development in Manitoba. These included:

- the public be made more aware of the economic benefits of the pork industry and that information include details on hog manure management and the regulations that farm operators must meet;
- regional technical committees evaluate new site locations and plans and that regional committees or independent professionals be used to evaluate complaints;
- there must be consistency in land use regulations across all jurisdictions;
- an independent livestock operations review panel be established to consider land use issues when requested by a municipality or a hog producer;
- land use remain under the jurisdiction of the municipalities;
- environmental liability is an important issue for financial institutions and must be addressed. Consideration could be given to an environmental insurance or industry contingency fund;
- municipal councilors require more information, support and an enhanced education program to assist them in evaluating hog expansion plans;
- guidelines and regulations must reflect the latest technologies and be applied to new developments, and
- research and development of new by-product management systems should be encouraged.

Although the Manitoba Government has long advocated the development of the livestock industry, while at the same time ensuring the integrity of the environment, it is apparent that progress since the 1979 CEC report has been slow. While the Pork Industry Study did generate some debate initially, its report has essentially been ignored by government. In fairness, progress tends to be very difficult since the process must adequately address and balance both the environmental risks and the potential economic benefits of hog production for all Manitobans. Key to this is an assurance that standards are being met, monitored and enforced.

### Current Environmental Regulations

Current legislation and regulations include the control of the siting of livestock operations through permits issued by the municipality or planning district. *The Planning Act* allows for voluntary land use planning at the local government level. As of September 2000, local planning authorities represented 184 of the 201 municipalities. In addition, five municipalities are actively discussing the formation of planning districts. The remaining 12 municipalities have no district plan and therefore no legal authority to regulate siting and development of proposed intensive livestock operations. ILOs built in areas with no local land use planning authority simply require the appropriate permits from Manitoba Conservation regarding manure storage design and construction and a water rights license. In summary, municipalities have adopted a wide variety of development policies and zoning standards to address the issue of intensive livestock operations. Some municipalities have

more stringent controls; others permit almost all operations in agricultural areas. The result, as the Panel has been told, has been little consistency among municipal jurisdictions.

The province provides technical assistance to help planning authorities evaluate proposed ILOs. Through its regional Technical Review Committees (TRCs), proposals are evaluated based on local and provincial land use policies and zoning, the Farm Practices Guidelines, the Livestock Manure and Mortalities Management Regulations and any other appropriate information such as local well logs, soil survey maps, hydrogeological studies and engineering standards. A TRC is ordinarily made up of government-appointed staff with appropriate specialist knowledge from provincial Departments of Agriculture and Food, Conservation, and Intergovernmental Affairs. Recent amendments to *The Planning Act* would make a review by the TRC mandatory whenever a municipality receives a conditional use application related to an ILO.

The Farm Practices Guidelines have been developed with input from a broad cross-section of industry, academics, provincial specialists and consumer groups. These guidelines are intended to identify normal practices to help individuals evaluate their operations and to assist in dispute resolution under *The Farm Practices Protection Act*. They include technical information on siting of operations, odor control, manure storage planning, manure storage types, pollution prevention relating to water and soil, and dead animal disposal.

*The Environment Act* through the Livestock Manure and Mortalities Management Regulation addresses issues involving livestock manure storage, spreading and hauling. It also regulates the disposal of dead animals. Operators proposing to construct or modify a manure storage facility are required to obtain a permit to ensure that the facility has been designed and properly sited by a qualified professional. Operations with more than 400 AUs of any one species are required to register manure management plans annually. Manure management plans are intended to ensure that application rates recognize crop needs and that adequate land is available for spreading the manure. Restrictions apply to maintain water quality in watercourses, wells, springs and sinkholes. Operations using more than 25,000 litres of water per day must obtain a license under *The Water Rights Act*. The licensing process includes a hydrogeological assessment of the surface water and groundwater capacity to supply the volume of water required and the potential impact on existing uses of these water sources.

A more detailed description of Manitoba's current regulations and guidelines for livestock development is found in *Livestock Stewardship 2000: A Public Discussion Paper*. A summary of the regulations in other Canadian provinces can be found in the separate technical report. Compared to other jurisdictions in Canada, Manitoba's regulations and procedures appear to be of an adequate standard, although improvements are certainly possible. The overriding issue appears to be the monitoring and enforcing of these standards.