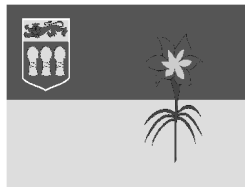


# Bi-weekly Bulletin

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## SASKATCHEWAN



Saskatchewan produces approximately 50% of all the wheat grown in Canada, but it is also diversifying its economy, encouraging higher value-added processing of food and non-food products and leading-edge biotechnology. With about 40% of Canada's total farmland, Saskatchewan is the leading Canadian producer of spring wheat, durum, oats, canola, flaxseed, dry peas, lentils, mustard seed, canary seed, and chick peas, and a dominant producer of barley. This issue of the *Bi-weekly Bulletin* examines the supply and disposition of grains, oilseeds and special crops in Saskatchewan, and provides an overview of the livestock, organic agriculture and biotechnology sectors.

### Geography

Saskatchewan is located between Alberta and Manitoba, in Western Canada, and occupies about 650,000 square kilometres (km<sup>2</sup>) of land and water. Freshwater is in abundance in the province, occupying over 12.5% of the total area, or 81,600 km<sup>2</sup>. In 1999, about 3.4% of the Canadian population, or 1.03 million people lived in Saskatchewan. About 200,000 people reside in the capital city of Regina, while about 230,000 people reside in Saskatoon, Saskatchewan's largest city.

Northern Saskatchewan is rocky and characterized by forest and lakes. As the climate does not permit agricultural production any farther north, the

agricultural land in Saskatchewan is primarily found south of the 54°N parallel, and is confined to 265,691 km<sup>2</sup>, or roughly 40.8% of Saskatchewan's landmass. The combined land in crops, and pasture has been slowly increasing with time, as land in summerfallow decreases.

### Soil Zones

As Saskatchewan's soil is predominantly of loamy texture, production capabilities are determined largely by weather conditions and the presence of organic matter. There are four distinct soil zones in Saskatchewan; Brown, Dark Brown, Black, and Gray.

The Brown soil zone covers approximately 6.3 million hectares (mln ha) in southwest

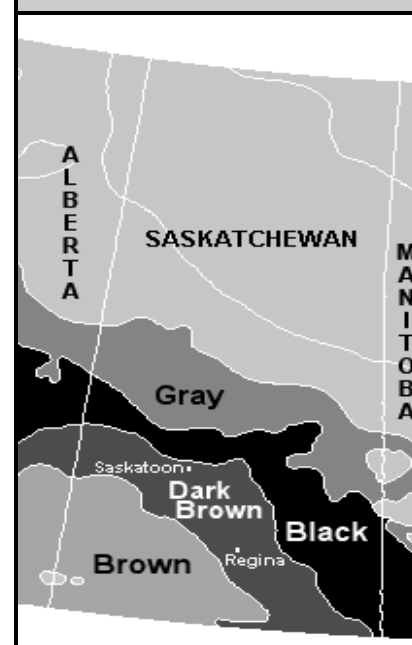
Saskatchewan, of which about 69% are cultivated. The relatively warm temperatures, lack of moisture and lack of organic matter in this region limit crops to small grains and grasslands for livestock production.

The Dark Brown soil zone, covering 7.28 mln ha, lies north and east of the Brown zone. This is the most intensively

### Did you know?

- In addition to being a major agricultural production area, Saskatchewan produces about 15% of Canada's petroleum, and is one of North America's leading oil producers.
- Saskatchewan is one of the world's leading producers of potash.
- Most of Canada's uranium is mined in Saskatchewan.
- Of the ten Canadian provinces, Saskatchewan was the ninth province to experience an urban population majority.
- The rural population became a minority in Saskatchewan in 1971, compared to 1951 in Manitoba, 1956 for Alberta, and 1911 for Ontario.

### SASKATCHEWAN: SOIL ZONES



farmed area, with about 82% of the Dark Brown soil zone under cultivation. A small Dark Brown soil zone area, with the characteristic cooler temperatures and more moisture, is also evident around the Cypress Hills in southwest Saskatchewan.

About 73% of the 7.52 mln ha in the Black soil zone is cultivated. Lying to the north and east of the Dark Brown soils

area, the growing period in the Black soil zone is shorter, but the lower temperatures and increased moisture allow for a wider variety of cropping practices. Gray, Dark Gray and Dark Gray-Wooded soils cover about 4.53 mln ha in the northern extremity of the agricultural area, of which only 45% are cultivated. This area is characterized by better moisture conditions, but a shorter growing season than in the black soils. While yields for cereal crops are typically

higher in the Black soil zones, protein levels in wheat tend to be higher in the Brown and Dark Brown soils.

### Climate

The Saskatchewan climate is characterized by warm, dry summers and cold, dry winters. In the cultivated area, there is a gradual increase in the availability of moisture from the dry southwest to the more humid northeast. According to the *National Ecological Framework for Canada*, the average January temperature for the agricultural area of Saskatchewan is -15.0 degrees Celsius (°C), while the average July temperature rises to 18.3°C. On average, farmers in Saskatchewan receive less precipitation than their neighbours in Manitoba and Alberta, with average annual precipitation of 408 millimeters (mm), including 112 mm of snow and 296 mm of rain.

## SASKATCHEWAN: POPULATION

	1981	1986	1991	1996
Total Population	968,313	1,009,610	988,928	990,237
Farm Population	187,163	168,505	159,725	140,345
Farm Population (%)	19.33%	16.69%	16.15%	14.17%
Number of Census Farms	67,318	63,431	60,840	56,995
Average Size of Census Farms (ha)	394	419	441	466

Source: Statistics Canada

## SASKATCHEWAN: AREA SEEDED

	1990	1998	1999	2000
	.....thousand hectares.....			
Winter Wheat	60.7	40.5	38.4	60.7
Durum	1,659.2	2,428.1	1,456.9	2,165.1
Spring Wheat:	6,596.4	3,935.6	4,364.4	3,961.9
<i>CW Red Spring</i>	<i>n/a</i>	3,358.9	3,965.9	3,662.4
<i>Prairie Spring</i>	<i>n/a</i>	424.9	303.5	182.1
<i>CW Extra Strong</i>	<i>n/a</i>	109.3	72.8	91.1
<i>CW Soft White Spring</i>	<i>n/a</i>	2.0	2.0	2.0
<i>Other Spring</i>	<i>n/a</i>	40.5	20.2	24.3
<b>Total Wheat</b>	<b>8,316.3</b>	<b>6,404.2</b>	<b>5,859.7</b>	<b>6,187.7</b>
Oats	445.2	930.8	809.4	728.4
Barley	1,497.3	1,639.0	1,719.9	2,063.9
Rye (all)	299.5	117.4	97.3	54.7
Mixed Grains	28.3	20.2	24.3	36.4
<b>Total Coarse Grains</b>	<b>2,270.3</b>	<b>2,707.4</b>	<b>2,650.9</b>	<b>2,883.4</b>
Flax <sup>1/</sup>	344.0	566.6	566.6	396.6
Canola	1,133.1	2,529.3	2,670.9	2,387.6
<b>Total Oilseeds</b>	<b>1,477.1</b>	<b>3,095.9</b>	<b>3,237.5</b>	<b>2,784.2</b>
<b>TOTAL GRAINS &amp; OILSEEDS</b>	<b>12,063.7</b>	<b>12,207.5</b>	<b>11,748.1</b>	<b>11,855.3</b>
Dry Peas	52.6	769.0	615.2	930.8
Coloured Beans	nil	1.6	4.1	5.0
Lentils	109.3	364.2	489.7	720.3
Mustard Seed	188.2	234.7	236.6	190.2
Sunflower Seed	6.9	16.2	26.3	8.1
Canary Seed	109.3	182.1	137.6	151.8
Chick Peas	nil	36.1	141.6	283.3
<b>Total Special Crops</b>	<b>466.3</b>	<b>1,603.9</b>	<b>1,651.1</b>	<b>2,289.5</b>
<b>TOTAL CROPS</b>	<b>12,530.0</b>	<b>13,811.4</b>	<b>13,399.2</b>	<b>14,144.8</b>
Summerfallow	6,030.0	3,885.0	4,249.0	3,399.0
Tame Hay	2,857.6	2,812.3	4,127.7	<i>n/a</i>
<b>TOTAL AREA</b>	<b>21,417.6</b>	<b>20,508.7</b>	<b>21,775.9</b>	<b><i>n/a</i></b>

<sup>1/</sup> excludes solin

Source: Statistics Canada

**Agriculture and Economy**  
The Agri-food sector accounts for about 9% of the Gross Domestic Product (GDP) in Saskatchewan. While agriculture provides about 13% of the employment directly, it is estimated that agriculture is directly and indirectly responsible for 40% of the jobs in the province. Primary agricultural products account for about 38% of the total value of all of Saskatchewan's exports, while combined primary and value added agricultural exports account for about 45% of the total value of exports.

## SASKATCHEWAN: USE OF FARMLAND

	1981	1986	1991	1996
	.....thousand hectares.....			
Total Area of Farms	25,947	25,699	26,866	26,569
Land in Crops	11,741	13,326	13,459	14,399
Tame Hay and Seeded Pasture	975	879	1,076	1,233
Summerfallow	6,705	5,658	5,713	4,432

Source: Statistics Canada

### Primary Grain Elevators

The number of licensed grain elevators has dwindled from 2,878 in 1962 to only 464, as of June 22, 2000. This 84% reduction shows that consolidation has been more prevalent than in Manitoba (69%), but less than in Alberta (86%). Of the 455 licensed primary elevators operating in Saskatchewan as of June 22, 2000, 250 were owned by the Saskatchewan Wheat Pool (SWP). It should be noted that the reduction in the number of elevators is somewhat overstated, as the Canadian Grain Commission changed its methodology of accounting for elevators in 1984. With a combined capacity of 1.53 million tonnes (Mt), the SWP had 43% of the grain storage capacity. Other grain companies with a presence in Saskatchewan and their capacities include: United Grain Growers Limited (0.41 Mt), Pioneer Grain (0.39 Mt), AgPro Grain (0.22 Mt), and Cargill (0.20 Mt) among others.

### Number of Farms

According to the *Statistics Canada Whole Farm Data Base*, in 1998, there were 59,185 farms in Saskatchewan with revenues over \$10,000, of which 18,825 had revenues over \$100,000. The number of farms in Saskatchewan with revenues over \$10,000 has decreased by 2.7% since 1990, while the number of farms in Canada with revenues over \$10,000 has decreased by 0.5%. In 1998, while 25.7% of Canada's farms with revenues over \$10,000 were located in Saskatchewan, only 9.7% of the farms with revenues over \$500,000 were in Saskatchewan.

### Farm Income

Saskatchewan has the least diversified farming structure in Canada. A majority of farming operations, 75.8% in 1998, with gross revenues over \$10,000 earned more than 50% of their revenues from grains and oilseeds. As well, in 1998

only 18% were classified as livestock, 0.7% as dairy, and 0.6% are hog operations. By comparison, across Canada, 41.5% of farms were classified as grain and oilseed farms, 27.5% were livestock, 8.8% were dairy and 3.1% were hog farms. Thus, Saskatchewan's agricultural industry, as a whole, is much more sensitive to changes in global prices for grains and oilseeds.

In 1999 the estimated total value of farm receipts was \$5.46 billion, with receipts from crop production valued at \$3.64 billion and livestock at \$1.36 billion. Realized net income for 1999 was \$318 million, approximately one-half of the five-year (1994-1998) average. According to Agriculture and Agri-Food Canada forecasts published in July 2000, realized net income for 2000 is expected to increase to \$673 million, primarily due to an increase in government transfers.

### Farmland Values

According to Farm Credit Corporation data, between July 1, 1999 and January 1, 2000, Saskatchewan was the only province where land values decreased. Farmland values decreased by 4.6% in Saskatchewan, compared to a 0.6% decrease in value across Canada, including Saskatchewan. Low grain prices and rising costs have affected income throughout the province. The southeast area, affected not only by low commodity prices but also by inclement weather which delayed or prevented seeding in 1999, has seen the most significant decreases in land values. Above-average yields in the remainder of the province have partially offset the impact of low commodity prices.

### Summerfallow

Crops sown on fallowed land give considerably higher yields than those sown on stubble because of moisture accumulation, nitrogen release, and weed control during the fallow year.

The area of land under summerfallow reached a maximum of 9.7 mln ha in 1970, and since then has fallen to 3.4 mln ha in 2000, primarily because of the intensification of agriculture through the increased use of commercial fertilizers and chemicals and the adoption of reduced tillage technologies. As well, the increased availability of alternative crops, some of which are nitrogen-fixing, and the use of crop rotation, has decreased the producers' reliance on summerfallow.

In the future, further reductions in summerfallow are expected to take place in the Black and Dark Brown soil zones of Saskatchewan, where the intensity of fallowing is considerably higher and the use of fertilizers and herbicides lower than in the same soil zones in Manitoba and Alberta. In the Brown soil zone, fallowing intensity will probably remain high, as a means to manage soil moisture.

### Area Seeded

Total area seeded to grains, oilseeds and special crops increased from 12.53 mln ha in 1990 to 14.14 mln ha in 2000, primarily due to a decrease in summerfallow. Summerfallow has dropped by 44% since 1990 to 3.4 mln ha in 2000, while the area seeded to tame hay increased by 44% between 1990 and 1999 to 4.13 mln ha.

In general, since 1990, area seeded to wheat has trended downwards, while the area seeded to coarse grains (barley, oats, rye, corn and mixed grains) has increased. Cereal crops continue to be a substantial portion of the crops raised in Saskatchewan, primarily due to their importance in the crop rotations, and the generally less-intensive farming practices required. The area seeded to oilseeds (canola and flax) has more than doubled since 1990, but there has been a lot of variability in oilseed seeded area between years. There has been a strong upward trend in the area seeded to special crops, such as mustard, lentils, peas and canary seed, from negligible areas recorded in the 1970s and 1980s, to a record 2.29 mln ha seeded in 2000.

## PRODUCTION AND PROCESSING: GRAINS, OILSEEDS, AND SPECIAL CROPS

### Wheat

Since 1986, when the record seeded area for all wheat was 8.80 mln ha, the area

seeded to wheat has been generally declining, to reach 6.19 mln ha in 2000. Between 1988 and 1991, however, there was a period where seeded area trended upwards. Traditionally, 55% to 60% of all the area seeded to wheat in Canada is in Saskatchewan. Of the 3.96 mln ha of spring wheat seeded in 2000, approximately 90% is seeded to **Canada Western Red Spring**, with limited amounts of Canada Western Extra Strong, Canada Prairie Spring, and Canada Western Soft White Spring varieties grown as well. Very little winter wheat is produced, but the area seeded has been increasing with time. Since 1980, the production of wheat, excluding durum, has been variable, ranging from a high of 15.4 Mt in 1986 to a low of 5.5 Mt in 1988. For 2000, production is expected to total 8.4 Mt.

The area seeded to **durum** wheat, however, is trending upward with the record seeded area of 2.43 mln ha in 1998. For 2000, the area seeded to durum is 2.17 mln ha, or 83% of Canada's total durum area, and production is expected to reach 4.6 Mt, 2% less than the record production set in 1998. Most of Saskatchewan's durum is produced in the Brown and Dark Brown soil zones.

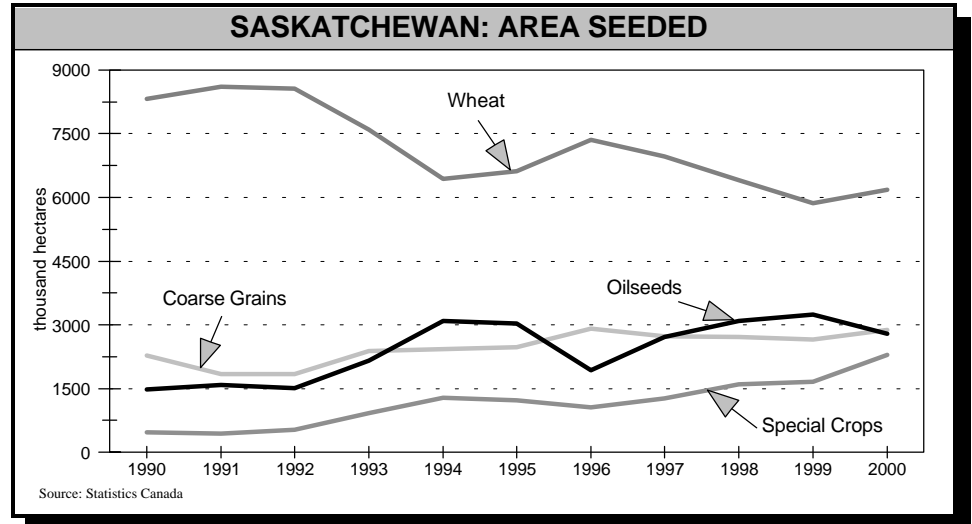
Currently, there are three major flour mills, Robin Hood Multifoods Inc., CSP Foods Ltd., and Humboldt Flour Mills Inc., operating in the province. Together, these three mills have a combined 24-hour capacity of 22,900 hundredweight. Throughout the province there are at least 14 other flour processing operations that produce organic wheat flour, oat flour, or wheat flour.

The major Canadian pasta plants are currently located closer to consumers in the major population centres. Robin Hood Multifoods has recently relocated its durum milling capacity from Port Colborne, Ontario to its Saskatoon mill.

### Coarse Grains

The area seeded to coarse grains has remained fairly constant since 1996, after increasing throughout the early 1990s. For 2000, seeded area is 2.9 mln ha.

**Barley** is the most important coarse grain produced and 2.06 mln ha were seeded in 2000, a 20% increase over 1999. **Oats** are also an important crop, with 728,400 ha seeded in 2000. While



the area seeded to **rye** has been decreasing, 35% of all rye grown in Canada was seeded in Saskatchewan.

Canada is now a world leader in malting barley production, with production concentrated in Saskatchewan, Alberta, and to a lesser extent, Manitoba. All three provinces grow both two-row and six-row malting barley cultivars, but two-row production dominates Canadian crops.

While the majority of barley produced is destined for the feed market, approximately 35% of the barley grown in Saskatchewan is selected for malting purposes and is either used domestically to produce malt or exported as malting barley. As domestic processors typically prefer 2 row malting varieties, more than 60% of the barley grown in Saskatchewan is 2 row.

Prairie Malt Ltd, of Biggar, Saskatchewan, is one of the six main malting plants in Canada. The plant has a malting capacity of 235,000 tonnes (t) and a combined malt and barley storage capacity of 100,000 t. Prairie Malt Ltd. sources domestic 2 row varieties and exports about 90% of its production to breweries around the world.

Because of tight supplies of feed barley in Western Canada due to a growing livestock industry, and high transportation costs, very little feed barley is exported.

Three of the seven major oat processing facilities in Western Canada, Can-Oat Milling in Saskatoon, Robin Hood Multifoods, also of Saskatoon, and Popowich Milling of Yorkton, are located in Saskatchewan, with a combined daily capacity of 855 t per day. While Can-Oat

Milling and Popowich Milling only produce groats, the Robin Hood Multifoods plant also produces oat flour, bran and flakes.

### Oilseeds

The area seeded to oilseeds has remained relatively stable since the mid-1990s, after increasing significantly during the late 1980s and early 1990s. The move to longer rotations, new varieties, and continuous cropping has driven the expansion of oilseed area. The area seeded to oilseeds almost doubled between 1990 and 1994, but declined in both 1995 and 1996 due to low prices compared to wheat. After dramatic growth once again in the latter part of the decade, as prices rose, the seeded area for 2000 declined 14% to 3.88 Mln ha due to depressed prices and burdensome stocks. **Flaxseed** has been a relatively important crop since the 1940s, but flaxseed production is relatively small compared to **canola**. In 2000, about 68% of Canada's flaxseed will be produced in Saskatchewan and 47% of Canada's canola.

Large global supplies of edible oils have pressured canola oil prices, and constrained the growth in canola processing. For 2000-2001 canola crush is expected to increase.

There are two oilseed processing plants located in Saskatchewan. Cargill operates a canola crushing plant at Clavet, Saskatchewan. The products, degummed canola oil and canola meal, are sold into North American and Pacific Rim countries. CanAmerica operates a plant at Nipawin, which produces crude and refined canola oil, as well as canola

meal. Two other major oilseed processing facilities located near the province source canola seed from Saskatchewan; the ADM plant at Lloydminster, Alberta and the CanAmera plant at Harrowby, Manitoba. Exports of unprocessed canola seed, canola oil and canola meal are significant, with the seed typically moving through the west coast, and the canola oil and canola meal being exported to the U.S.

### Special Crops

Special crops, particularly **dry peas**, have become an important cropping option for farmers since the early 1990s. While requiring more intensive farming practices than cereal grains, they are an important part of the crop rotation, providing the benefit of nitrogen fixation which has the potential to reduce farm input costs.

Saskatchewan is a major producer of **dry peas, lentils, chick peas, mustard seed and canary seed**, among others. In 2000, Saskatchewan will produce approximately 72% of Canada's dry peas, 97% of the lentils, 93% of the chick peas, 88% of the mustard seed and 85% of Canada's canary seed. In the last decade, area seeded to special crops increased dramatically, reaching a record of 2.29 mln ha in 2000. Production has grown by 489%, from 639,300 t in 1990-1991 to an expected record 3.77 Mt in 2000-2001. The special crop share of total Saskatchewan grains, oilseeds and special crop production increased from 2.6% in 1990-1991 to a forecast 15.6% in 2000-2001.

Pulse crops, including various types of peas, beans, lentils and chick peas, are grown as a profitable alternative to cereals, to diversify farm sales and to agronomically improve cereal production in the following season. Canada is the world's leading exporter of lentils and dry peas, accounting for about 50% and 40% of the world's exports, respectively. In addition to their uses as food, dry peas have been increasingly used in Canada in livestock feed. As a source of human and animal food, pulses are rated second to cereals in many countries of the world.

According to a survey conducted by Saskatchewan Agriculture and Food, there were an estimated 128 special crop processors in Saskatchewan in 1999. Of these, 86% processed dry peas and 75%

processed lentils. The only other crop processed by more than half of processors is canary seed. The total annual volume of value-added processing in the sector is estimated to be 3.55 Mt. The primary value-added activities in the sector are cleaning, bulk loading and bagging. These three processes account for 97% of all special crop processing in Saskatchewan. Splitting, colour sorting and feed processing account for a small, but increasing, portion of all special crops processing. Several processors have moved into secondary processing activities, and examples include Parrheim Foods, of Saskatoon and Canadian Select Grains Ltd. of Eston.

Parrheim Foods processes locally grown yellow field peas, separating them into starch, protein, and fibre products. Their products include: flour for uses in extruded snacks, batter and breadings, and baked goods; protein for extruded snack foods, casein extenders, pet foods and dietetic foods; and starch for canning and industrial applications.

Canadian Select Grains cleans, sorts and bags chick peas, anise, small red lentils and dry peas. It also processes desi chick peas into a product called *chana dahl*. These dehulled and split chick peas are either sold as is to grocery stores or they are destined for further processing into a flour called *besin*, which is used to make breads for the Indian and Pakistani food markets. Most of Canadian Select Grains' products are transported in 25 to 1,350 kilogram bags to large urban centres, such as Toronto, Vancouver, and New York, while some chick peas are shipped in container loads to overseas customers.

## LIVESTOCK PRODUCTION

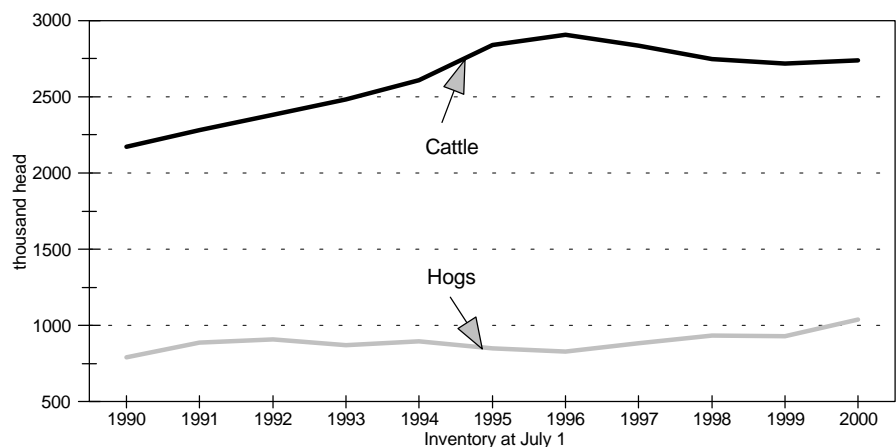
In 1999, livestock production in Saskatchewan generated approximately \$1.4 billion in farm cash receipts, accounting for approximately 25% of the province's total farm cash receipts.

### Cattle

In 1998, about 16% of the farms in Saskatchewan were classified as cattle farms. Saskatchewan is Canada's second largest cattle producer, following Alberta. Cattle inventories in Saskatchewan increased rapidly in the first half of the 1990s, increasing 34% to 2.9 million head as of July 31, 1996. After contracting for the next few years, cattle inventories once again increased in 2000. As of July 1, 2000, cattle inventories increased to 2.74 million head, making Saskatchewan the only province where inventories increased. In 1999, farm cash receipts for cattle and calves totalled \$1.068 billion, or 19.6% of total receipts. The number of beef cattle in Saskatchewan is expected to expand further, as producers look for viable diversification options to grain and oilseed operations.

While four federally-inspected packing and processing plants handle Saskatchewan beef, Saskatchewan is a net exporter of beef cattle. About 75% of Saskatchewan's cattle are shipped outside of the province for slaughtering, with the majority destined for Alberta. As well, a large number of feeder cattle are shipped out of the province to feedlots in Alberta and the United States.

### SASKATCHEWAN: CATTLE AND HOGS INVENTORIES



Source: Statistics Canada

## Hogs

In 1998, less than 1% of the farms in Saskatchewan were classified as hog farms. Throughout most of the 1990s, hog numbers have been more or less stable, and Saskatchewan's share of Canada's hog population has fallen. In 1999, farm cash receipts for hogs totalled \$144.3 million, or 2.6% of all receipts. In the past year, however, hog inventories increased by 13% over 1999, to reach 1.04 million head as of July 1, 2000, and when combined with improved prices for hogs, the percentage of cash receipts is expected to increase.

Hog processing capacity has expanded on the Prairies. Saskatchewan's major pork processor, Mitchell's Gourmet Foods in Saskatoon, has embarked on a modernization and expansion program. As well, the establishment of the Maple Leaf hog slaughter and processing plant in Brandon, Manitoba will encourage further growth in the hog industry in Saskatchewan.

## BIOTECHNOLOGY

Saskatchewan is a world class centre of excellence for agriculture biotechnology. It is recognized as one of the top international centres for agricultural research in the world and is particularly recognized for oilseed research. Saskatchewan represents 30% of Canada's agriculture biotechnology industry. Saskatchewan's agricultural biotechnology industry is built on a substantive research infrastructure and is an extension of traditional research strengths in plant breeding and veterinary science. Although research has been the primary focus of the biotechnology industry for a number of years, the commercialization of products is also occurring. Agricultural biotechnology activities contribute to the creation and growth of competitive value-added industries, including the manufacturing of agriculture biotechnology products, and marketing worldwide.

The number of biotechnology companies in Saskatchewan has grown significantly since 1991. A 1998 survey conducted by the Saskatchewan Economic and Co-operative Development Department shows that the Saskatchewan industry grew from three biotechnology companies prior to 1980 to 28 companies in 1998. These companies have grown

out of the research base of the University of Saskatchewan, the National Research Council's Plant Biotechnology Institute, Agriculture and Agri-Food Canada's Saskatoon Research Centre and other research organizations.

Ag-West Biotech Inc. serves as the association representing the agricultural biotechnology sector and works closely with companies to provide investment and strategic support. Since 1987, agricultural biotechnology industry sales have grown almost tenfold to reach about \$100 million in 1998. This sector has also experienced strong growth in employment, with over 600 people employed in this industry in 1998. The majority of employees are located at Innovation Place in Saskatoon.

## ORGANIC PRODUCTION AND PROCESSING

Relative to many wheat growing areas of the world, Saskatchewan farmers have few disease and weed problems. This has enabled some producers to successfully develop several methods to produce field crops without the use of man-made chemicals. Organic production in Saskatchewan has grown significantly in recent years. In 1998, it was estimated that there were approximately 500 certified organic farmers, producing 60,000 to 80,000 t of organic grain annually, worth CAN\$20 to 30 million.

There are approximately 50 food processors that are processing some type of organic food. Some use exclusively organic ingredients and others only use organic ingredients for specific product lines or customer groups. Organic foods processed in Saskatchewan range from ingredients such as flour and flaxseed oil to consumer ready/packaged products like bread, cereal mixtures and oatmeal. Examples of organic food processors and their products include: Humboldt Flour Mills which produces organic flour; Bioriginal Food and Science Corp, which produces fatty acids, edible oils, malts, herbs, pulse and oilseed products; Popowich Milling, which produces oat bran, flour, cereals and oatmeal; and, FarmGro Organic Foods Inc. which produces wheat and durum flour.

FarmGro opened a \$12 million strictly organic flour mill near Regina in June 2000. It is the largest dedicated organic flour mill in North America. The plant, which employs between 18 and 25 people, will

process about 32,000 t of organic grain annually. FarmGro processes wheat and durum. They produce white and whole wheat flour, durum semolina, wheat germ and bran, and also bag grains, lentils and peas.

## OUTLOOK

There has been considerable growth in value-added agriculture, such as intensive livestock production and processing. With a small population and a highly efficient production system, Saskatchewan will always be a major exporter of agriculture and food products. Future challenges for Saskatchewan will continue to be adding value to raw exports through further processing prior to export, and continued diversification. There is also substantial interest and opportunity in plant-based advanced agricultural technologies, such as nutraceuticals and health products. Saskatchewan has a resource base and expertise that support this growth.

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