1/Introduction

Introduction Contents

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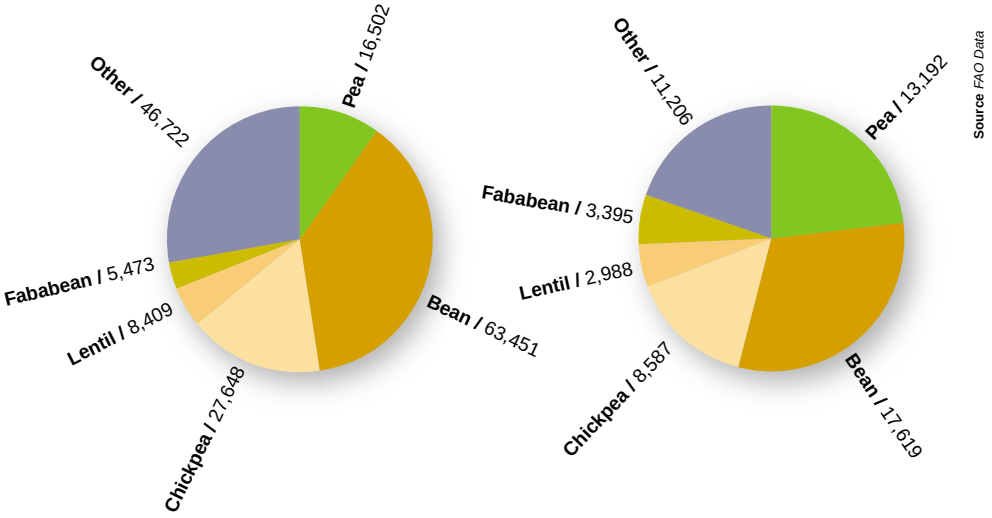
Historic Production of Pulse Crops

Pulses are the seeds of legumes that are used as food, and they include pea, bean, lentil, chickpea and fababean. These comprise a small, but very important, part of the 1800 species in the legume family.

The word "pulse" is derived from the Latin "puls, pultis", a thick soup. It is the broad term used to describe the dried, edible seeds of legumes.

The use of pulses dates back more than 10,000 years and spans the globe. Records of their use were found in the Egyptian pyramids. Dry pea seeds were discovered in a village in Switzerland dating back to the Stone Age and some centuries-old pea seeds have been discovered in the ruins of Troy and buried in caves in Hungary. It is likely that Aryans from the East introduced pea to the pre-Christian Greeks and Romans. Archaeological evidence suggests that pea was grown in the eastern Mediterranean and Mesopotamia at least 5,000 years ago, and in Britain as early as the 11th century.

Lentil originated from the wild lentils that still grow in Turkey and other Middle Eastern countries. Lentil was one of the favourite dishes of the ancient Greeks. Pea, fababean and chickpea also originated in western Asia. Dry beans originated in South and Central America. About 8,000 years ago, Indians in what is now the Ancash province of Peru cultivated the same kinds of bean that we know today as navy bean, black bean, and other types of bean.



Global Production of Pulse Crops

Pulses are an important source of protein, especially in developing countries. In total, they provide about 10% of the total dietary protein in the world. Pulses have about twice the protein content of most cereal grains. In 1998, about 57 million tonnes of pulses were produced on 168 million acres (68,099,493 hectares) worldwide (Figure 1.1). Bean is the most important pulse crop in terms of both area and production. Pea is the second most important pulse crop in terms of production and third in terms of area. Chickpea is the second most important pulse crop in terms of area and third in terms of production.

Pea is produced mainly in developed countries (France and Canada), whereas chickpea is produced and consumed mainly in India. Lentil is produced mainly in India, Turkey, and Canada. Beans of various types are produced in many countries around the world.

Figure 1.1 *World crop area in acres (left) and production in tonnes (right) of various pulses (000) (1998)*

Total Area 168,206,000 ac (68,099,493 ha)

Total Tonnes 56,987,000

Figure 1.2 *Acreage of pea in western Canada, 5-year intervals, 1970-present*

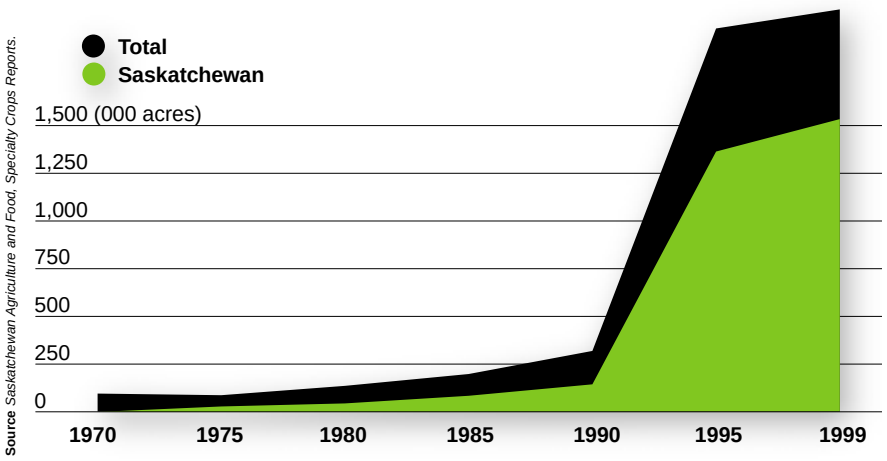
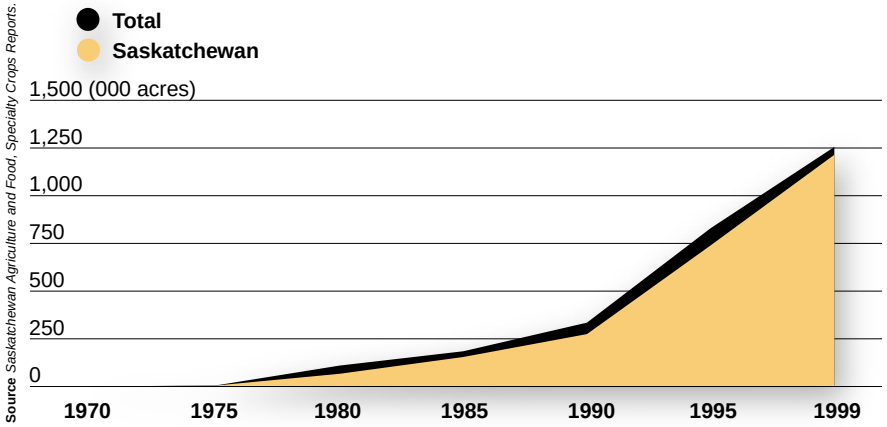


Figure 1.3 *Acreage of lentil in western Canada, 5-year intervals, 1970-present*



Domestic Production of Pulse Crops

Pulses played a colourful part in the dietary history of North America. The hearty "pea soup" was introduced in Canada by the early French settlers and was popular in the diets of pioneers who helped develop the West. Baked beans were considered a staple for ranchers riding the winter trail. They froze beans in batches, carved off their daily portion and heated it over an open fire. To this day, baked beans are an important part of the menu at rodeos and barbecues.

Pea was a leading crop in eastern Canada at the turn of the century with an average of 720,000 acres (288,000 hectares) grown each year from 1883 - 1902. Production in eastern Canada gradually declined. By 1970, only 82,000 acres (33,000 hectares) were grown in all of Canada with about 70% of that production in Manitoba.

Pulses did not play a significant commercial or economic role in western Canada until the 1970s, when the wheat glut encouraged farmers to diversify into cash crops, such as rapeseed (canola), lentil, pea and other special crops. The registration of herbicides, such as Treflan, provided a method of weed control in poorly competitive pulse crops and the development of new, well-adapted varieties by Dr. Slinkard and co-workers at the Crop Development Centre, University of Saskatchewan, contributed to the commercial acceptance of lentil and pea.

Since the 1970s, pulse production in western Canada has increased dramatically, especially for pea (Figure 1.2) and lentil (Figure 1.3). With the opening of the European feed pea market in 1985 and resulting high prices, pea production has exploded with a record 2.663 million acres (1.078 million hectares) grown in western Canada in 1998. The recent inclusion of red cotyledon lentil in the list of Canadian pulse crops has greatly increased the production of lentil in western Canada, resulting in a record 1.251 million acres (0.500 million hectares) in 1999.

Canada produces a relatively small proportion of the world's pulse crops. In 1998, Canada planted about 2.3 % of the world's pulse acreage and harvested about 5.6 % of the world's pulse crop. In 1998, Canada planted about 13 % of the

world's pea acreage and harvested about 18 % of the world's pea crop. In 1998, Canada planted about 15 % of the world's lentil area and harvested about 16 % of the world's lentil crop.

At the same time that technological change and changing markets (low prices for cereals) were encouraging the growing of pulses, other changes, including reduced summerfallow acreage, longer crop rotations, continuous cropping, and direct seeding, were also occurring. The nitrogen-fixing ability of pulses, as well as the improved control of disease and weeds through better rotations, contributed to the increase in acreage of pulses in the Canadian prairies.

Currently, the acreage of pulse crops in western Canada is at a record high with gross sales over $650 million in 1999. This trend to increased pulse production will likely continue, even with improved cereal grain prices, as farmers now know how to produce pulses, and pulses are required in economic, sustainable crop rotations.

Pulse Exports

Canada is a relatively important pulse exporter, especially for pea and lentil. In 1998, Canada exported about 23 % of the world's pulse exports, up from 5.7 % in 1989 (Figure 1.4). However, Canada's export of pea has increased from 177,500 tonnes in 1989 to 1,323,400 tonnes in 1998 (Figure 1.5), which comprised 41.8 % of the world's pea exports. Likewise, Canada's export of lentil increased from 87,500 tonnes in 1989 to 371,700 tonnes in 1998 (Figure 1.6), which comprised 50.4 % of the world's lentil exports.

Figure 1.4 *Tonnes of pulses exported in the world and by Canada, 1989 – 1998*

Figure 1.5 *Tonnes of dry pea exported in the world and from Canada, 1989 – 1998*

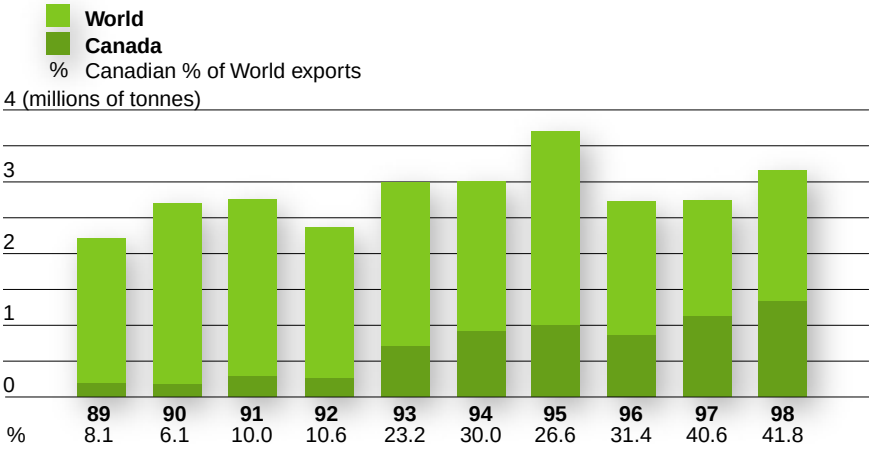
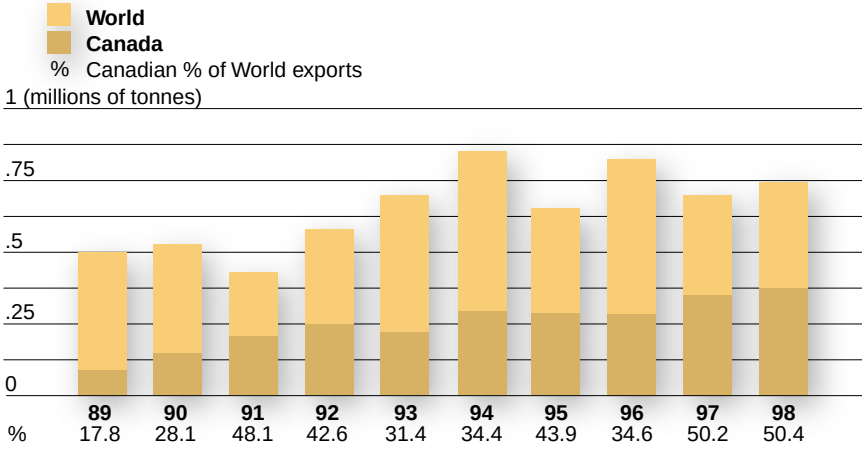


Figure 1.6 *Tonnes of lentil exported in the world and from Canada, 1989 – 1998*



Pulse Crops Research and Market Development Organizations

A/ Saskatchewan Pulse Growers

The Saskatchewan Pulse Growers was established in 1976. We have been active in promoting production and market development of pulse crops since our inception. In 1982, we held a plebiscite of all pulse growers in Saskatchewan to determine whether they were in favour of a compulsory check-off on all commercial sales of pulse crops in Saskatchewan. The vote was favorable and led to the establishment of the Pulse Crop Development Plan in 1984. The mandate of the Saskatchewan Pulse Crop Development Plan is to provide for the effective development of the Saskatchewan pulse crop industry.

The Vision of the Saskatchewan Pulse Growers is:

"The Saskatchewan Pulse Industry will be the world's preferred supplier of peas, lentils, chickpeas and beans."

Our Mission Statement is:

"To maximize grower profitability and sustainability."

1/ We provide innovative, professional and accountable leadership to our stakeholders, including producers, processors, exporters, researchers, governments and industry partners.

2/ We are committed to supporting pulse research and variety development.

3/ We influence relevant government policy and pulse industry practices.

4/ We liase and cooperate with other stakeholders in national and international market development.

5/ We provide services and information to Saskatchewan growers to enhance their profitability.

The Board of Directors of the Saskatchewan Pulse Growers is a producer-elected Board, which controls the direction of the organization and administers the Saskatchewan Pulse Crop Development Plan. Through funding from a non-refundable check-off, the Board generates funds for, research, extension and development of the pulse industry. The budget of the Board for 2000 is approximately $2.8 million.

B/ Canadian Special Crops Association

The Canadian Special Crops Association is a trade organization representing firms involved in the merchandising of Canadian special crops. It was formed in 1987 and has been active in various aspects of the industry ever since.

The objectives of the Association are:

1/ To encourage the merchandising of Canadian special crops.

2/ To acquire and distribute information with respect to special crops and to encourage the establishment and maintenance of uniformity in the business, customs and regulations among persons engaged in the trade.

3/ To promote objects and measures for the advancement of trade and commerce respecting Canadian special crops and to fairly adjust, settle and determine controversies and misunderstanding between persons engaged in the said trade, or to submit them to arbitration.

C/ Pulse Canada

Pulse Canada is a national organization serving the interests of pulse growers and the pulse trade involved in the marketing of peas, beans, lentils, chickpeas and fababeans. Directors from the Saskatchewan Pulse Growers, the Alberta Pulse Growers Commission, the Manitoba Pulse Growers Association, the Ontario Bean Producers Marketing Board, the Ontario Colored Bean Growers Association and the Canadian Special Crops Association provide guidance and funding for projects approved by the eight-member Board of Directors. The Government of Canada also provides funding for specific projects related to expanding trade opportunities. Reports and other information developed by Pulse Canada are distributed to the industry through the member organizations.

Pulse Canada was established to conduct market development and market promotion activities in feed and food markets around the world. Where market access is restricted by tariff, tax or phytosanitary issues, Pulse Canada works with Canadian and foreign governments to remove pulse trade barriers. Pulse Canada has also taken a leadership role in the coordination and expansion of pulse quality and pulse component research on a national and international scale. Additional information about Pulse Canada is available through the web page at www.pulsecanada.com

D/ Canadian Grain Commission

The Canadian Grain Commission (CGC) serves the pulse industry of Canada through the work of two divisions. The Industry Services Branch (ISB) offers full grading services on all pulse grains covered by the Grain Act - peas, lentils, beans, fababeans and, since August 1999, chickpeas. In addition to grading, ISB prepares physical grade standard for peas and photographic colour evaluation guides for lentils. The CGC also provides 'letters of analysis' covering a wide range of quality specifications on pulse shipments and investigates any customer complaints on cargoes of pulse grains.

The Grain Research Laboratory (GRL) includes pulses in its ongoing quality assurance programs, such as the harvest survey and grain safety monitoring. The current harvest survey of protein content covers peas, lentils and some chickpeas, and may expand to include white beans grown in Ontario and Manitoba. Present intentions are for the GRL to have a research scientist dedicated to pulse quality research.

E/ Canadian International Grains Institute

The Canadian International Grains Institute (CIGI) provides educational programs and technical activities in support of market development and promotion of world markets for pulses and their value-added products. Resources are available to provide technical support in the use of pulses as both food and feed ingredients. At the request of Pulse Canada, CIGI has coordinated technical programs in the feed area and will be offering a food pulse program in 2000. Working in collaboration with the Grain Research Laboratory, research on pulse quality will be a new initiative undertaken by CIGI in 2000.