

# Canada



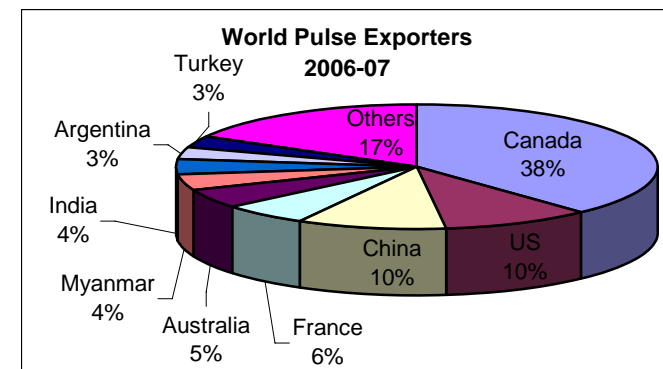
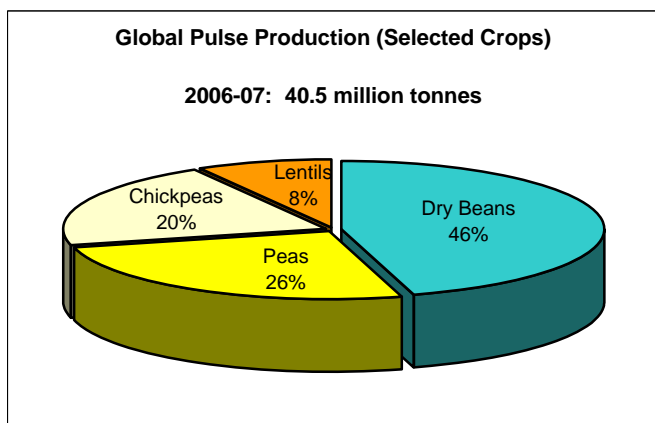
and the

# Global Pulse Industry

## Global pulse production and trade

'Pulses' are the edible seed of legumes including crops such as pea, bean, lentil and chickpea. Global production of these crops has remained steady over the past 10 years at around 40 million tonnes per year.<sup>1</sup> At over 18 million tonnes in 2006, bean production accounted for the largest share of the world's pulse production followed by peas, chickpeas and lentils.

Over the last 10 years international pulse trade has averaged 7.4 million tonnes. In this period, peas accounted for 43% of world pulse trade on average, followed by beans (32%), lentils (15%) and chickpeas (10%).



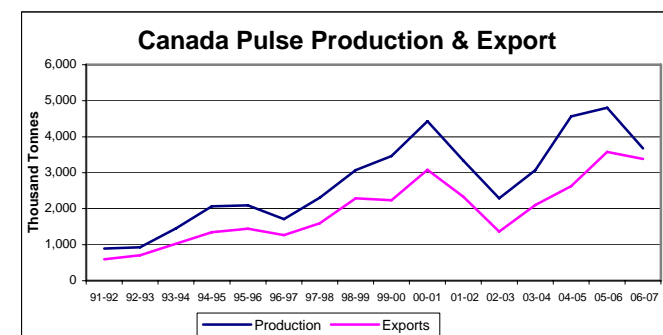
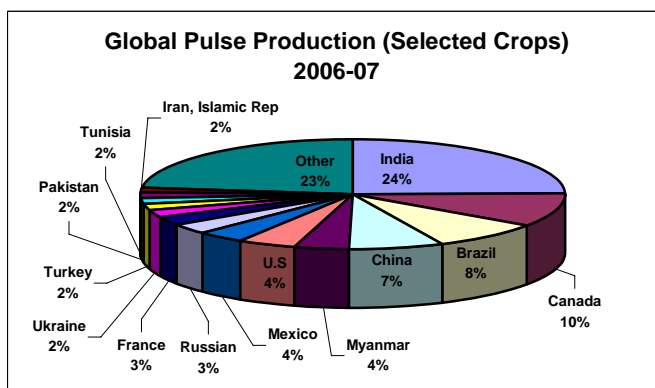
Source: FAO

Source: FAO

## Canada's pulse production and exports

India is the world's largest pulse producer, followed by Canada. Brazil is a large bean producer, but produces virtually no other pulses, while countries like Canada, China, the U.S. and Mexico produce some of all the pulses. Turkey produces large amounts of lentils and chickpeas, but very few peas or beans. France and Russia produce peas.

In 2005, Canada's pulse crop reached a record 4.8 million tonnes, a 500% increase from the early 1990s, with near record area and yields. The rise of pulse production in Canada has been driven by a combination of market opportunity and new technologies that have improved Canadian farmers' ability to grow and harvest pulses. For example, world class breeding programs have led to new varieties better suited to Canada's climate and soil conditions.

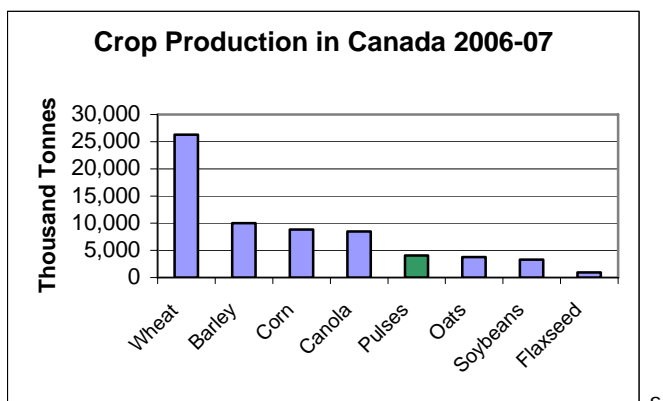


Source: FAO

Source: Statistics Canada

Relative to other crops, pulses have become the fifth largest crop produced in Canada in terms of volume after wheat, barley, canola and corn. Pulses are now seeded on approximately 7% of arable land.

<sup>1</sup> UN Food & Agriculture Organization (FAO). Excluded from the figures are crops like pigeon peas, broad beans and cow peas which are produced in significant quantities in Asia. Also excluded are lupins which are primarily produced in Australia and the EU. These crops account for an additional 20 million tonnes per year globally.



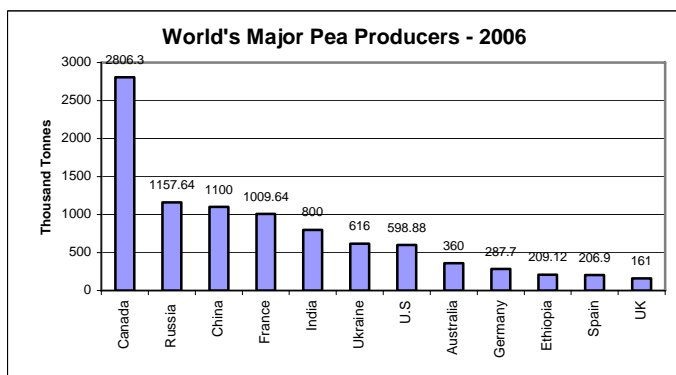
Source: Statistics Canada

With the rise in pulse production, Canada is now the world's largest exporter of peas and lentils and a world leader in chickpea and bean exports.

In 2006, the Canadian pulse industry was valued at over \$1 billion, with the following percentage of sales for each crop: peas 47%, lentils 28%, beans 18% and chickpeas 7%.

### Peas

Canada is the world's largest producer and exporter of yellow and green field peas. In 2006, Canada produced 2.8 million tonnes of peas, more than double that of the next largest producing country, Russia. The largest export market for Canadian food peas is South Asia (e.g. India, Bangladesh, Sri Lanka) as well as South and Central American countries. The largest feed market for Canadian peas is the European feed industry.



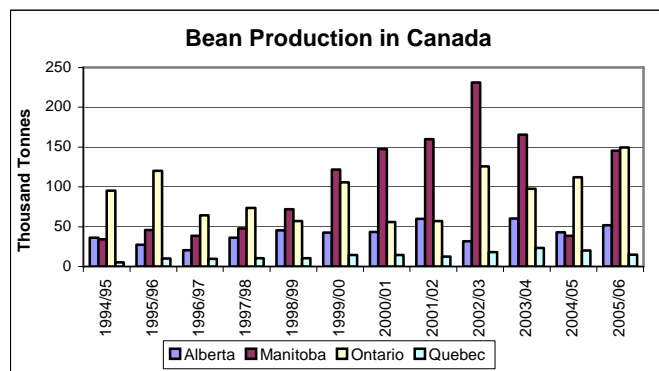
Source: UN FAO

Another very important market for Canada's peas is the domestic feed market, which has used an average of 550,000 tonnes annually over the last five years. Saskatchewan produces approximately 75% of all peas grown in Canada, followed by Alberta with 20% of production and Manitoba with 5%.

### Beans

Bean production has a long tradition in Southern Ontario. Over the last 20 years, however, production has grown, particularly in the fertile Red River valley of Manitoba and irrigated regions of southern Alberta. Quebec also produces 10-20,000 tonnes of dry beans each year.

Canada produces many types of beans: Navy (white pea), Pinto, Kidney, Black, Cranberry (Romano), Great Northern, and Small Red, among others. About 70% of Canada's bean crop is exported each year. Major export destinations include the U.S., the UK and Italy.

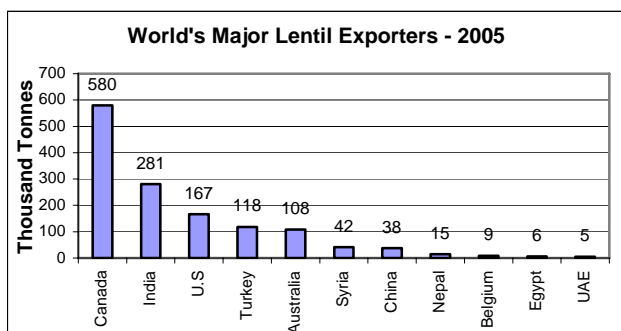


Source: Statistics Canada

### Lentils

Canada produces several types of lentils, including large, medium and small greens, as well as red lentils. Since the early 1990s, Canada has been producing between 400-600,000 tonnes of lentils each year (75% green, 25% red) and is the world's largest exporter ahead of other major players such as Turkey, Australia and India. In 2006, as a result of poor prices for green lentils, producers made a significant switch into red lentil production. The result was a 50-50 split between red and green lentil production in 2006. In 2007, 42% of lentils seeded were large green and 35% were red.

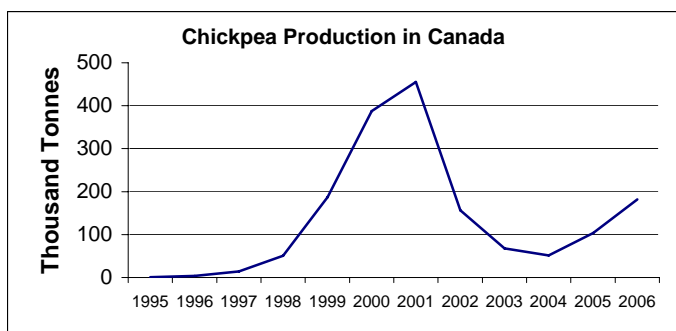
In 2005, Canada's lentil crop reached over 1.2 million tonnes making Canada, for the first time, the world's largest producer of lentils. In that same year, Canada exported a record 650,000 tonnes of lentils, accounting for approximately 60% of global trade in pulses. Saskatchewan produces over 95% of all the lentils grown in Canada each year. Since 2005, area seeded to lentils in Canada has declined due to lower prices.



Source: UN FAO (most recent trade data)

## Chickpeas

Canada's Chickpea production rose in the late 1990s peaking at 450,000 tonnes in 2001-02. However, a combination of disease problems and poor weather pushed producers away from planting chickpeas, and production dropped to 50,000 tonnes in 2004. Since then this area has crept back up as new varieties have been introduced that are resistant to key foliar diseases.



Source: Statistics Canada

## Processing in Canada

Processing of pulses in Canada has expanded following the increase in production. The industry has pulse cleaning, de-hulling and splitting operations, a number of canning facilities as well as milling operations producing pulse flours such as green and yellow pea flour, chickpea flour and certain bean flours (e.g. black, pinto, kidney).

Canada has pea fractionation facilities that are separating peas into fibre, starch and protein to be used in a host of food and industrial applications. Products are used domestically or exported around the world. Canada also has a facility that uses infrared technology to precook pulses to be used as ingredients.

## Canada's pulse industry partnerships

Canada's pulse industry has undergone significant development over the last 15 years as a result of the rapid rise in production. Five pulse grower groups represent producer interests in four provinces and

include the Alberta Pulse Growers Commission, the Saskatchewan Pulse Growers, the Manitoba Pulse Growers' Association, the Ontario Bean Producers' Marketing Board and the Ontario Coloured Bean Growers Associations (contact details below). The processors and exporters of Canadian pea, lentil, bean and chickpea are represented through membership in the Canadian Special Crops Association (CSCA).

In 1997, Canada's pulse grower associations and the CSCA established a national body, Pulse Canada, to help develop international markets, coordinate research and provide a voice for Canada's pulse industry. The member organizations provide funding based on program objectives that are established by industry committees and approved by the Pulse Canada Board of Directors.

The Government of Canada also provides funding under the Canadian Agriculture and Food International (CAFI) program, the Advancing Canadian Agriculture & Agri-Food (ACAAF) program and through the Science and Innovation and Business Risk Management pillars of the Agriculture Policy Framework.

## Pulse Canada focus

Pulse Canada's purview includes activities in policy, research (market, scientific), transportation, crop protection, marketing and communications.

### Market Access

Since its inception, the mainstay of Pulse Canada's activities has been market access work. Ensuring that Canada's pulse producers have the best possible access to international markets has been key to the growth of the industry. Pulse Canada's work has been an important component of Canada's success in reducing tariff and non-tariff barriers in countries such as India, China, Thailand, South Korea and Algeria.

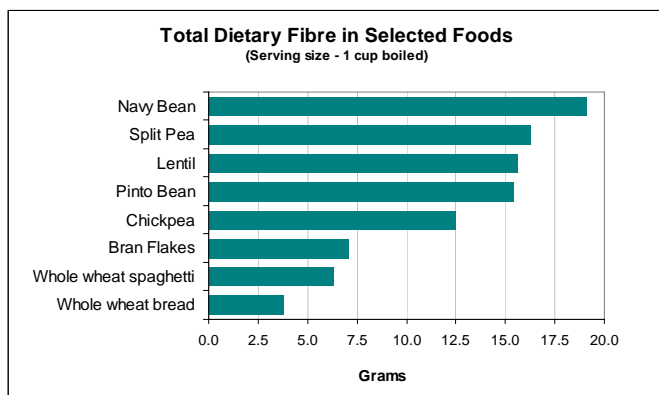
### Growth and Innovation

Market development work has also been a key element of Pulse Canada's mandate over the years. Each year, Pulse Canada has worked to create new feed markets where peas are not a traditional ingredient and attends key trade shows representing the Canadian pulse industry.

### *Healthy People*

A new initiative, the *Pulse Innovation Project*, is underway with \$3.2 million in funding from Agriculture & Agri-Food Canada's Science and Innovation program. The project's objective is to increase pulse utilization in North America, targeting the food processing industry to foster the expansion of new market opportunities for whole pulses and pulse components with a particular

focus on their associated nutrition and health benefits (e.g. functional foods).



Pulses are high in complex carbohydrates such as fibre and resistant starch, as well as protein, minerals, vitamins (e.g. folate) and phytochemicals. Pulses can offer many benefits for nutrition, health and chronic disease prevention.

#### *Animal Feed*

The Canadian pulse industry works to develop feed markets for pulses and to increase the relative value of pulses in animal feed. The industry undertakes market development activities and has developed a *Feed Pea Network* that is dedicated to cooperation between pea producers, traders, livestock producers and the research community. The vision is to enhance the value of Canadian peas in domestic and international feed markets.

#### Transportation

Weather delays, labour disruptions, equipment shortages and unpredictable schedules for movement from prairie to port have made it difficult for the Canadian pulse and special crops industry to be recognized as consistent and reliable suppliers.

Transportation is a priority for the industry given returns on other investments cannot be realized if transportation costs and inefficiencies fail to provide reliable delivery of product. By including transportation in its focus and actively working to become a solution provider, the industry will address all links within the value-chain and confront one of the biggest threats to the reputation and competitiveness of the pulse and special crops industry.

#### Environment

##### *Healthy planet*

Nitrogen is an essential nutrient for plant growth. While most agricultural production relies on commercial fertilizer, pulses have the ability to convert nitrogen from the air (78% of what we breathe) into a form available for plants. While commercial nitrogen is produced from natural gas and uses more energy to store, transport

and apply nitrogen to the field, nitrogen fixation by pulses can supply up to 90% of the plants requirements with the balance supplied by mineralization of nitrogen from the soil.

#### *Plant pulses, save energy*

With more than 1.4 million ha of peas planted in 2006, the pea crop is estimated to have 'fixed' 282,000 tonnes of nitrogen, equal to 613,000 tonnes of urea valued at \$280 million. With 25.6 gigajoules (Gj) of natural gas required to produce one tonne of urea, this equals a saving of nearly 15.7 million Gj of natural gas or more than \$115 million in natural gas costs. A full calculation of the savings would need to factor in storage, transport and application of fertilizer, and the additional savings from reduction in related reduction in GHG emissions.

Consideration would also need to be given to energy savings by inclusion of pulses through noted improvements in soil tilth (ease of cultivation), reduction in disease and insect pests through crop rotation (reduced pesticide use), and improvements in quality and yields of subsequent crops (higher yields, higher protein). Imagine the benefits if nitrogen fixing pulse crops constituted 25% of cultivated area in Canada!

#### *Reduced Risk Crop Protection*

Pulse Canada is working with industry and government partners so that Canadians benefit from timely access to lower risk crop protection products that ensure environmental protection and competitive Canadian agribusiness. By working with all elements of the pulse production chain, this work also ensures that Canada's pulse industry is prepared to meet global demand for, and to be seen as a reliable supplier of, safe food.

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