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PULSE CROPS IN SOUTH ASIA

Exports of Canadian pulse crops (dry peas, chick peas, lentils, and dry beans) to South Asia grew 16,367% over a 10 year period from only 6,000 tonnes (t) in 1991 to reach 988,000 t in 2001 and to value $276 million (M). The Canadian share of this region's import needs climbed from less than 1% in 1990 to 68% in 2000. Although the population grew 21% between 1990 and 2000, domestic production in South Asia only increased 2% during the same time period. Despite the strong growth in population and limited production growth, imports by this region decreased by 7% over 10 years to 1.1 million tonnes (Mt) in 2000, according to the Food and Agriculture Organization (FAO), of the United Nations. As a result, there has been a sharp decrease in per capita consumption. This issue of the *Bi-weekly Bulletin* examines the demand for pulse crops in South Asia, and highlights Canada's exports to this region.

INTRODUCTION TO PULSES

Pulses are the edible dry seeds of leguminous plants. Pulse crops produced and/or consumed in South Asia include **chick peas, dry beans** (including **mung beans** and **kidney beans**), **pigeon peas**, **urd** (also known as **black matpe), lentils**, **cow peas,** and **broad beans** (which include **fababeans**).

The use of pulses as food is concentrated in developing countries, which account for about 90% of global food pulse consumption. In low income countries, pulses contribute about 10% of the daily protein and about 5% of the energy requirements in human diets. Per capita consumption of pulses is also high among vegetarians, as a source of protein, and a high percentage of people in South Asia, specifically in India, are vegetarians.

World Production and Trade

Pulse crops are grown throughout the world, but there is a concentration of production in India, China, Canada, Australia, Brazil, and Nigeria, which collectively accounted for 51% of the 51.5 Mt of pulse crops produced in 2001. Pulses are consumed on every continent, but import demand is driven by countries in South Asia, Middle East, North Africa, and Latin America. Canada is the leading exporting country, and had 2.7 Mt of exports in 2000, or 32% of the world's 8.5 Mt trade. Imports are much more widely spread out, with Spain and India leading the importing nations. India is the leading import market for food pulses, while Spain's main import is feed peas.

SOUTH ASIA

Geography

The area referred to as South Asia comprises the following countries: Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. Collectively, these countries occupy approximately 449 million hectares (Mha), or 3% of the world's land. India is by far the largest country with 329 Mha.

About 195 Mha, or 43% is considered arable, and 224 Mha are used for agricultural purposes. Most of the countries have a temperate to subtropical climate, and agricultural production is highly dependent upon the monsoon.

Population

In 2000, there were 1.3 billion people, or 22% of the world population in this region. Over 25.5% of the region's population was employed in agriculture, as compared to 21.8% of the world's population. The population grew 21% since 1990, compared to the world growth rate of only 15.3%. While most world religions are practised in this region, Pakistan, Bangladesh, and Maldives are predominantly Muslim; India and Nepal are predominantly Hindu; and most people in Sri Lanka and Bhutan are Buddhist.

SOUTH ASIA: POPULATION

	1990	2000	Change
	.....millions.....		
India	845.0	1,009.0	19%
Pakistan	109.8	141.3	29%
Bangladesh	110.0	137.4	25%
Nepal	18.1	23.0	27%
Sri Lanka	17.0	18.9	11%
Bhutan	1.7	2.1	23%
Maldives	0.2	0.3	35%
Total	**1,101.8**	**1,332.0**	**21%**

Source: FAO, May 2002

While South Asia is home to some of the smallest and poorest countries in the world, it also contains the world's most populous democracies and a very large middle class population.

Economy

Despite rapid economic growth during the 1990s, South Asia's countries still have among the lowest per capita incomes in the world. For the region, Gross National Income (GNI) per capita has increased from US$410 in 1996 to US$440 in 2000. With the exception of Pakistan, the GNI per capita has increased in each country.

Canada

India is by far the largest country, in terms of population, area and Gross Domestic Product (GDP). For 2002, India's GDP is expected to grow by 6%, due to a moderate pickup in domestic demand as well as a rebound in global markets.

South Asia is in a period of transition as it strives to implement effective economic, political, social and legal structures to support sustained growth. The International Monetary Fund (IMF) and World Bank have arranged several billion dollars worth of assistance to the region, with the IMF prescribing such measures as cuts in subsidies, deregulation, anti-poverty efforts and increased privatization. Many countries in South Asia are recipients of ongoing food aid through the United Nations World Food Programme.

Most countries in South Asia have an agrarian based economy. Agriculture is largely of a subsistence nature, although in India more modern agricultural farming practices also take place. Reliance on manufacturing sectors or service sectors varies across the countries, with Sri Lanka relying heavily on exported merchandise and Maldives relying heavily on incoming tourists.

All seven countries in South Asia are members of the South Asian Association for Regional Cooperation (SAARC), which was created in 1985 to help promote economic and social development, plus economic cooperation in the region. The work of SAARC has been repeatedly postponed because of tensions between the two dominant forces, India and Pakistan.

Water Availability

Irrigation is relied on heavily throughout the region. With approximately 83 Mha of arable land under irrigation, more than 40% of regional crops are produced with the assistance of irrigation, compared to 20% globally.

In many parts of South Asia, the monsoon season brings the only major rainfall of the year. If there is too much rainfall, flooding may occur, and if there isn't enough rainfall, there may be drought. Irrigation, then, becomes an essential tool to produce the food crop.

Due to the water shortages faced by this region, the amount of crops under irrigation is impressive. Currently the World Bank has outstanding commitments of about $20 billion in water projects worldwide to help overcome water shortages. About 20% of this financing is invested in projects in South Asia.

Agricultural Production

The main crops produced in South Asia include sugar cane, rice, wheat, forages, fruits and vegetables and tea. While South Asian countries used to be dependent on food imports, many countries, such as India have become self sufficient in many crops and usually have an exportable surplus.

There are two crops produced in South Asia. The summer crop (*kharif*) is harvested between September and December, while the winter crop (*rabi*) is harvested between March and May. Pulse crops are grown in both seasons, with beans, urd, pigeon peas, and cow peas grown during the summer crop, and chick peas, dry peas and lentils grown during the winter crop.

SOUTH ASIA: PULSE CROPS PRODUCTION

	1991	1998	1999	2000	2001
	.....thousand tonnes.....				
TOTAL PULSES [1/]					
India	*14,265*	13,249	14,957	13,417	11,271
Pakistan	*990*	1,162	1,061	900	740
Bangladesh	*522*	519	414	383	381
Nepal	*164*	196	211	221	226
Other	*52*	30	27	27	27
Total [2/]	***15,993***	**15,156**	**16,670**	**14,948**	**12,645**
CHICK PEAS					
India	*5,356*	6,132	6,801	5,082	3,391
Pakistan	*562*	767	698	565	397
Other	*57*	74	24	23	24
Total [2/]	***5,975***	**6,973**	**7,523**	**5,670**	**3,812**
DRY BEANS					
India	*3,529*	2,750	2,690	2,630	2,570
Other	*214*	238	182	191	202
Total [2/]	***3,743***	**2,988**	**2,872**	**2,821**	**2,772**
LENTILS					
Nepal	*73*	114	132	137	143
Bangladesh	*157*	163	165	128	126
India	*851*	805	938	1,054	1,050
Other	*28*	36	38	36	33
Total [2/]	***1,109***	**1,118**	**1,273**	**1,355**	**1,352**
DRY PEAS					
India	*605*	712	700	700	700
Other	*100*	106	107	95	95
Total [2/]	***705***	**818**	**807**	**795**	**795**

[1/] includes chick peas, pigeon peas, dry beans, dry peas, cow peas, and other pulses.
[2/] includes India, Pakistan, Bangladesh, Nepal, Sri Lanka, Bhutan, and Maldives

Source: FAO, May 2002

Production of **pulse crops** in South Asia fell 21% between 1991 and 2001, mainly due to a drought in 2001 in both India and Pakistan. In reality, production of pulse crops has remained fairly steady throughout the past decade, ranging from a low of 12.6 Mt in 2001 to a high of 16.7 Mt in 1999. Pulses are grown under non-irrigated conditions with virtually no use of inputs.

When comparing production figures for 2000 to 1990, total production has increased 2%. Increased production in India and Nepal more than offset decreased production in Pakistan, Bangladesh, and Sri Lanka. By crop, there was a 17% increase in **chick pea** production, a 35% decrease in **dry bean** production, a 40% increase in **lentil** production, and a 40% increase in **dry pea** production during the same time period. Production of **pigeon peas** increased 2% to 2.8 Mt. Production of **other pulses**, which includes **urd** increased 24% to 1.4 Mt.

Data Sources and Discrepancies

Due to different data collection methods and definitions for pulse classes, differences exist between the FAO and Statistics Canada marketing data used in this bulletin. FAO provides world trade data for over 200 countries and over 600 commodities. Statistics Canada provides Canadian trade data information based on customs declarations. Both agencies revise their numbers often as they receive new information. For the purpose of this bulletin, the FAO has been used to provide world trade data while Statistics Canada has been used to provide Canadian trade data. Caution should be used when comparing the two data sets.

Agricultural Trade

Typically South Asia has an annual positive trade balance of between US$1 billion and $2 billion for agricultural products. In 2000, however, South Asia had a smaller trade surplus of US$200 million for agricultural products, as they exported US$7.2 billion and imported US$7.0 billion of foodstuffs. The region imported less than 2% of the world's agricultural products, but 16% of the world's pulse crops (based on value).

Imports and Uses

Between 1990 and 2000 total imports decreased 7% to 1.1 Mt, and ranged from

a low of 624,000 Mt in 1991 to a high of 1.4 Mt in 1996. Decreased imports by India more than offset increased imports by Pakistan, Sri Lanka, and Bangladesh.

Since imported pulses are predominantly a food source for low and low-middle income classes, demand for pulses is price elastic. People will tend to consume less pulses and more grains or vegetables when pulse prices are relatively high, and will substitute readily between different pulse varieties based on price.

Imports of **dry peas** decreased by 16%, from 436,000 t in 1990 to 365,000 t in 2000. Decreased imports by India and Bangladesh more than offset increased imports by Pakistan, Sri Lanka, and Nepal. In 2000, the South Asian countries collectively imported 13.3% of world total dry pea imports. While India is the largest importer of dry peas in the region, Bangladesh and Pakistan also import substantial quantities.

The preferred variety of dry peas imported into India is yellow peas from Canada but green peas are also imported from Canada. Competition for the South Asian dry pea market comes from Australia with dun and yellow peas, the United States (US) with green peas, and France with both yellow and green peas.

Peas are consumed as split peas, whole peas and as flour. Peas are cooked and eaten as snack foods or used as fillers in traditional snacks such as *samosas*, and restaurants substitute dried peas for fresh peas in the off season. Split yellow peas and pea flour are increasingly being blended with similar looking, but more expensive, split chick peas and flour. They have also been blended with split pigeon peas.

Chick pea imports increased by 50% from 1990 to reach 297,000 t in 2000. A decrease in imports by India was more than offset by increased imports by Pakistan, Bangladesh, and Sri Lanka. Pakistan, India, Spain, and Bangladesh are consistently the world's largest importers of chick peas. In 2000, South Asian countries collectively imported 50% of the world's total chick pea imports.

South Asia is the primary destination for **desi** chick peas. A growing amount of **kabuli** chick peas are also imported by the subcontinent, typically as an alternative to desi chick peas, but larger calibre kabulis are also imported. Desis are imported from Canada and Australia, the main producers of desis, outside of India. For kabulis, most imports are 8-9 millimetres and are imported from Canada, Turkey and the US. Smaller calibre kabulis are imported from Iran and Turkey, while larger calibre kabulis, consumed mostly at weddings, are sourced from Mexico.

Desi chick peas are usually dehulled and either split or ground into flour called *basan*. Split desi chick peas can be consumed as a vegetable side dish, while the *basan* is used to prepare various snack foods. The hulls are used as cattle feed. Kabuli chick peas are canned, cooked, or eaten whole, and are primarily consumed in northern India.

Imports of **lentils** increased 53% to reach 192,000 t in 2000. Increased imports were led by Sri Lanka, Pakistan, and Bangladesh, but India and Bhutan also increased their imports. In 2000, the South Asian countries collectively imported 19% of the world's total lentil imports.

In this region, Sri Lanka, Bangladesh, and Pakistan are the main importers of lentils. **Red** lentils are preferred by all countries in this region. India imports lentils and after splitting them, re-exports some supplies to Sri Lanka and Pakistan which don't have sufficient domestic splitting capacity. Sri Lanka also buys split red lentils directly, primarily from Turkey. Canada's red lentils face competition from Australia, Turkey, and Syria. Some green lentils, specifically **large green** varieties are imported from Canada and Turkey and can be split and mixed with pigeon peas.

Lentils are the main staple of the diet in Pakistan and Sri Lanka. Across the region, lentils are generally served along with rice in a dish called *dal*. *Dal*, garnished with onions and spices is offered at all establishments ranging from roadside eateries to five star hotels.

Dry bean imports decreased by 36% from 1990 to 116,000 t in 2000. The bean market is a low priced market served by Myanmar and China. Most dry beans consumed in South Asia are eastern classes such as mung beans. Very few beans of the classes grown in North America are consumed in South Asia, so there is a very limited market for Canadian dry beans.

Consumption

Although the population grew 21% between 1990 and 2000, aggregate consumption did not change, remaining at 15.7 Mt. As a result, per capita consumption in South Asia fell 10% between 1989 and 1999 to 11.2 kilograms per person per year. Over the past 30 years, per capita consumption has fallen 19%. Increased per capita consumption by Sri Lanka and Bangladesh was more than offset by decreased consumption in India, Pakistan, Nepal, and Maldives.

Per capita consumption of pulses has declined mainly because production has failed to keep pace with population growth. As well, relative prices of pulses

SOUTH ASIA: PULSE CROPS IMPORTS

	1990	1997	1998	1999	2000
	.....thousand tonnes.....				
TOTAL PULSES [1/]					
Pakistan	*76*	112	188	194	372
India	*861*	1,084	629	269	353
Bangladesh	*184*	103	108	233	233
Sri Lanka	*44*	118	119	122	122
Other	*11*	15	6	20	18
Total [2/]	***1,176***	**1,432**	**1,050**	**838**	**1,098**
DRY PEAS					
India	*282*	282	257	146	137
Bangladesh	*147*	49	70	118	118
Pakistan	*3*	3	30	43	85
Other	*4*	17	20	21	25
Total [2/]	***436***	**351**	**377**	**328**	**365**
CHICK PEAS					
Pakistan	*26*	20	21	15	165
India	*160*	381	110	11	64
Bangladesh	*5*	20	22	55	55
Other	*7*	14	15	17	13
Total [2/]	***198***	**435**	**168**	**98**	**297**
LENTILS					
Sri Lanka	*36*	83	77	74	74
Bangladesh	*26*	33	14	60	60
Pakistan	*2*	15	34	37	37
India	*12*	5	22	31	21
Other	*0*	1	0	0	0
Total [2/]	***76***	**137**	**147**	**202**	**192**
DRY BEANS					
Pakistan	*21*	42	63	67	58
India	*154*	115	97	39	43
Other	*5*	4	6	14	15
Total [2/]	***180***	**161**	**166**	**120**	**116**

[1/] includes dry peas, chick peas, lentils, dry beans, broad beans, pigeon peas, and other pulses

[2/] includes Bangladesh, Nepal, Sri Lanka, Bhutan, and Maldives

Source: FAO, May 2002

CANADA: PULSE CROP EXPORTS TO SOUTH ASIA

	1991	1998	1999	2000	2001
			.....thousand tonnes.....		
TOTAL PULSES [1/]					
India	*6*	310	240	386	714
Bangladesh	*0*	95	285	278	195
Pakistan	*0*	13	29	84	73
Other	*0*	2	3	6	6
Total [2/]	***6***	**420**	**557**	**754**	**988**
DRY PEAS					
India	*282*	302	226	317	610
Bangladesh	*147*	91	278	274	184
Pakistan	*3*	9	23	65	50
Other	*4*	0	0	0	0
Total [2/]	***436***	**402**	**527**	**656**	**844**
CHICK PEAS					
India	*0*	4	2	59	75
Pakistan	*0*	0	0	16	14
Bangladesh	*0*	2	6	5	11
Other	*0*	0	1	1	0
Total [2/]	***0***	**6**	**9**	**81**	**100**
LENTILS					
India	*0*	5	13	9	30
Pakistan	*0*	4	5	3	9
Sri Lanka	*0*	2	3	4	4
Other	*0*	2	0	1	0
Total [2/]	***0***	**13**	**21**	**17**	**43**

[1/] includes dry peas, chick peas, lentils, and dry beans
[2/] includes India, Bangladesh, Pakistan, Sri Lanka, Nepal and Maldives

Source: Statistics Canada, May 2002

to cereals have been rising and reducing the quantity demanded. In India, consumption is declining on a per capita basis at almost the same rate that the population is growing, due to the widespread availability of dairy products and increased meat and vegetable consumption.

Canadian Exports

Canada has shown the largest growth in pulse exports worldwide over the past 10 years, and is now playing a crucial supply role for many importing nations. **Seeded area,** which is primarily located in western Canada, has grown 440% since 1991 to reach 2.8 Mha in 2001. During the same period, **production** grew 294% to 3.9 Mt, while **total exports** grew 550% to reach 2.9 Mt. Dry peas, lentils and chick peas lead both these increases.

During the same period, **exports** to South Asia increased exponentially from 6,000 t in 1991 to 988,000 t in 2001. The main pulse crops exported to South Asia are dry peas, chick peas and lentils, while the main export markets are India, Bangladesh and Pakistan. In 2000, Canadian sales of pulse crops to this region accounted for 28% of Canadian pulse exports, and 68% of South Asian pulse imports.

Canada has been very successful in exporting **dry peas** to South Asia because they are consumed as a low-cost substitute for desi chick peas. Due to economies of scale and the ability to ship peas in bulk, as opposed to in bags and containers, Canada enjoys the role as a preferred supplier of dry peas to price sensitive consumers in the South Asia market.

OUTLOOK

After decreased yields in 2001, India's annual harvest of pulse crops is expected to increase 20% to 12.0 Mt in 2002, due to improved monsoons and increased area seeded. Chick pea production is forecast at 5.1 Mt, up 41% from last year, while dry pea production is expected to increase 25% to 7.0 Mt.

In the 2002 budget, India increased the import duty on all pulse crops from 5% to 10%, however, it is unlikely that this increase will be large enough to discourage imports.

Furthermore, several initiatives were announced this year in **India**, including higher support payments for chick peas and lentils and the removal of export restrictions for pulses. The government of India realizes it needs to reform its agricultural sector by encouraging the production of more oilseeds and pulse crops at the expense of grains. To date, offered support payments, which are at or near market prices, are not high enough to encourage extra production. For 2002, the government of India increased support payments by less than 10%, which is not expected to impact production as support payments remain below market prices.

Elsewhere, **Pakistan** is still in a drought situation which is impacting negatively on production. Therefore imports by Pakistan will likely be similar to last year.

Despite improved growing conditions and policy changes in India, South Asia will continue to be a major buyer of pulse crops. Production will have to increase very rapidly and continually to feed such a large, growing population and to improve per capita consumption rates.

For 2002, **Canadian** pulse production is forecast to increase due to improved yields. Exports are also expected to increase. Therefore, Canada will continue to be a preferred supplier to South Asia. With container service available to South Asian ports and the ability to service cost conscious consumers of pulses, especially dry peas, through its bulk handling facilities, Canada is well positioned to meet the future price and quality needs of the South Asian market.

For more information:
Deanna Gower
Market Analyst
Phone: (204) 983-8474
E-mail: gowerd@em.agr.ca

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500-303 Main Street
Winnipeg, Manitoba, Canada R3C 3G7
Telephone: (204) 983-8473
Fax: (204) 983-5524

Director: Maggie Liu
Chief: Fred Oleson

Editor: Gordon MacMichael

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