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## India

### Grain and Feed

### Pulse Situation and Outlook

### 2007

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**Report Highlights:**

Although India is the world's largest producer of pulses (beans, peas, and lentils), demand for pulses has been outstripping domestic supply, making India a growing importer of pulses. With annual production relatively stable at around 14 million tons, India should continue as a net importer of pulses for several years. Although the government of India (GOI) has recently commissioned a Food Security Mission aimed at increasing production of food grains, including pulses, a significant increase in pulse production appears unlikely given existing production constraints, such as inadequate irrigation, shortage of quality seeds, and stagnant productivity. Thus, there is potential for exports of U.S. pulses to India, provided prices are competitive.

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Includes PSD Changes: No  
Includes Trade Matrix: No  
Trade Report  
New Delhi [IN1]  
[IN]

## Country Situation and Outlook

### Introduction

With a growing population and rising consumer incomes, domestic pulse consumption is growing, estimated at around 16 million tons per annum. With no significant breakthrough in domestic production and rising domestic prices, imports are increasing, reaching around 2.8 million tons in IFY 2006/07. Yellow dry peas, chickpeas and mung beans now account for a major share of imports. The share of U.S. pulses in India's import balance although relatively small, has also grown significantly from less than 0.2 percent in 2003 to 3 percent in 2006 (Table 1).

**Table 1: Indian Pulse Imports from the U.S.**

Calendar Year (CY)	CY 2003	CY 2004	CY 2005	CY 2006
Imports from the U.S. (million \$)	0.77	0.98	10.75	21.19
Imports from all countries (million \$)	527.05	392.06	496.87	696.59
U.S. Share	0.15	0.25	2.16	3.04

Source: U.S. Bureau of Census; Directorate General of Foreign Trade, Ministry of Commerce, GOI

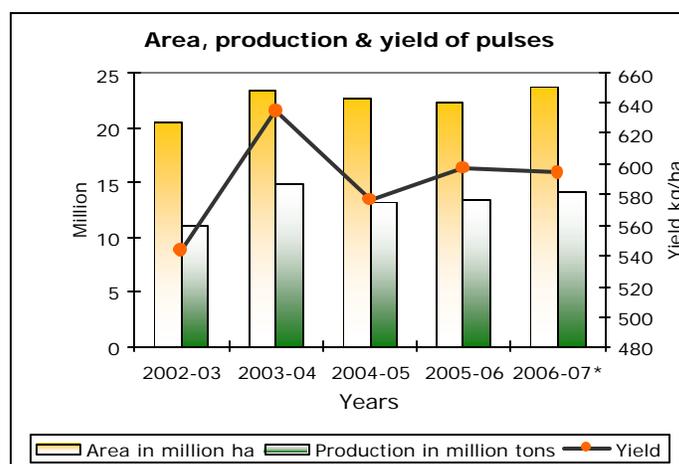
### Production Trend

Although India's total food grain production jumped by 24 percent to 216.1 million tons during Crop Year (July-June) 2003/04 to 2006/07, pulse production registered negative growth during the corresponding period (Table 2 & Chart 1). Pulses, on average, occupy around 18 percent of the total food grain planted area but account for only 7 percent of total grain production. Pulses are a predominantly rain fed crop with area in the past fluctuating between 20 to 24 million hectares and production between 13 to 14 million tons. Almost 60 percent of annual production is in the *rabi* (winter) season and 40 percent in the *kharif* (monsoon) season. *Desi* chickpeas (*gram*) accounts for almost 60 percent of the total pulse production, followed by pigeon peas (*tur*). Other major pulse crops grown are black matpe (*urd*), mung beans, lentils (*masur*), and dry peas (*muttar*) and small quantities of black eye beans, kidney beans. Pulse yields in India are very low due to lack of irrigation and poor input use levels (quality seeds) and are roughly one third of the U.S. pulse yield (Table 3).

**Table 2: Agricultural Production Trend**

Crop Year-> July-June	2003/04	2004/05	2005/06	2006/07 <sup>1</sup>
Grain Production (Million Tons)				
Total	213.2	198.4	208.6	216.1
Rice	88.5	83.1	91.8	92.8
Wheat	72.2	68.6	69.4	74.9
Coarse Cereals	37.6	33.5	34.1	34.3
Pulses	<b>14.9</b>	<b>13.1</b>	<b>13.4</b>	<b>14.2</b>
Non-grain Production (Million Tons)				
Oilseeds <sup>2</sup>	25.2	24.4	28	23.9
Sugarcane	233.9	237.1	281.2	345.3
Cotton <sup>3</sup>	13.7	16.4	18.5	22.7
Growth Rate <sup>4</sup> (Percent)				
All Crops	16.1	-0.3	8.5	5.2
Food Grains	16.4	-3.5	4.7	4.2
Non-food Grains	15.6	3.7	12.4	6.3

Source: Ministry of Agriculture, Government of India.

**Chart 1: Area, Production and Yield of Major Pulses in India**

Source: Directorate of Economics and Statistics, Ministry of Agriculture, GOI

**Table 3: Area, Production and Yield of Pulses in India Vs the U.S.**

	INDIA			USA		
	Area (Million ha)	Production (Million tons)	Yield (Kg/ha)	Area (Million ha)	Production (Million tons)	Yield (Kg/ha)
2002/03	20.50	11.13	<b>543</b>	1.03	1.74	<b>1,864</b>
2003/04	23.46	14.91	<b>635</b>	0.82	1.38	<b>1,753</b>
2004/05	22.76	13.13	<b>577</b>	0.92	1.54	<b>1,814</b>
2005/06	22.39	13.39	<b>598</b>	1.20	2.13	<b>1,865</b>
2006/07	23.76	14.11	<b>594</b>	1.26	1.91	<b>1,598</b>

Source: Directorate of Economics and Statistics, Ministry of Agriculture, GOI and National Agricultural Statistics Service, USDA

<sup>1</sup> Fourth advance estimates released on July 19, 2007

<sup>2</sup> Nine major oilseeds (groundnut, mustard/rapeseed, sesame, safflower, linseed, niger seed, castor seed, soybean and sunflower).

<sup>3</sup> Million bales of 170 kg each

<sup>4</sup> Growth rate based on Index of Agricultural Production with base triennium ending 1993-94 = 100.

Madhya Pradesh, Uttar Pradesh, Maharashtra, Andhra Pradesh, and Karnataka together account for over 70 percent of the country's total pulse production, with Madhya Pradesh alone contributing around 24 percent. (Annexure 2).

Pulse production has failed to respond to the steady increase in the minimum support prices established by the government (Table 4) due to competition from other crops such as wheat and rice and the high risk involved in pulse cultivation.

**Table 4: Minimum Support Prices (MSP) for Pulses**

Crop Year	2003-04	2004-05	2005-06	2006-07	2007-08
	MSP in Rupees per 100 Kg				
Pigeon pea	1,360	1,390	1,400	1,410	1,550
Mung beans	1,370	1,410	1,520	1,520	1,700
Black matpe	1,370	1,410	1,520	1,520	1,700
Chickpeas	1,400	1,425	1,435	1,445	1,600
Lentil	1,500	1,525	1,535	1,545	1,700

Source: Ministry of Agriculture, GOI.

### Consumption

Despite large imports, India's per capita pulse consumption has been declining due to stagnant production and a rising population (Table 5). Various pulse varieties are consumed according to regional preferences. Lentils are consumed primarily in northern and eastern India, but are not preferred in the south. Green peas are a minor pulse in India which is consumed in most parts of the country due to their low price and are used in dhal, snack foods, and restaurants. U.S. green pea imports are confined to niche markets due to their higher price. Meanwhile, yellow peas domestic output is small, but domestic and imported peas are consumed in most regions of the country. These are popular in Uttar Pradesh, eastern India (West Bengal, Bihar, Orissa, and Assam), and southern India. Imported peas serve as a low-cost substitute for desi chickpeas and pigeon peas when making besan and dhal, respectively.

Indian consumers are price sensitive buyers and higher prices of pulses relative to substitute foods have contributed to the decline in pulse consumption despite rising incomes. In the case of middle and low income consumers, relatively high pulse prices appear to shift consumption toward lower cost cereals and vegetables. Among higher income consumers, a shift away from pulses may be due to preferences for vegetables, fruit, dairy products, and meat, as opposed to price.

The average growth rate for pulse production and consumption during the period 2003 through 2006 was estimated at -1.96 percent and +3.41 percent respectively. Thus, India will have to import large quantities of pulses in the coming years to bridge the supply/demand gap.

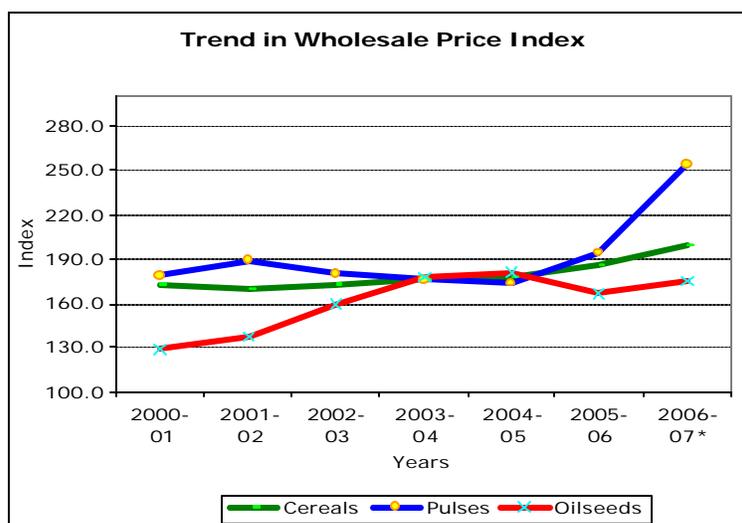
**Table 5: Net availability of food grains (per annum) in India from 2001-2006**

	Rice	Wheat	Other Cereals	Cereals	Pulses	Per Capita Foodgrains
Kilograms per capita per year						
2001	69.5	49.6	20.5	141.0	10.9	151.9
2002	83.5	60.8	23.1	167.4	12.9	180.4
2003	66.2	65.8	17.1	149.1	10.6	159.7
2004	71.3	59.2	25.3	155.8	13.1	168.9
2005	64.7	56.3	21.7	142.7	11.5	154.2
2006 <sup>5</sup>	72.3	56.0	22.1	150.4	11.8	162.3

Source: Directorate of Economics and Statistics, Ministry of Agriculture, GOI

### Rising prices a cause of concern to the government

The production shortfall and rising international prices have caused domestic pulse prices to rise sharply in recent years. From 2003 through 2006, the wholesale price index (WPI) of pulses rose by 45.6 percent while the WPI for cereals rose by only 12 percent (Chart 2 and Annexure 1). Most of the increase in pulse prices is accounted by chickpeas, black matpe, and mung beans, whereas the price increase in pigeon peas and lentils were smaller.

**Chart 2: Pulses prices rising sharply**

Source: Ministry of Commerce & Industry, GOI

In order to contain the rising prices of pulses, the GOI took various policy decisions in recent years, which had only a marginal impact on prices. These include:

- The GOI recently launched a National Food Security Mission with the objective of producing an additional eight million tons of wheat, 10 million tons of rice and two million tons of pulses over the next four years.
- The GOI raised the minimum support price for the 2007/08 crop of pigeon pea to Rs. 1,550 per 100 kg and for mung beans to Rs. 1,700 per 100 kg from Rs. 1,410 and Rs. 1,520 respectively in 2006/07.

<sup>5</sup> Provisional

- In early 2007, the government banned futures trading in two pulses (pigeon pea and black matpe).
- In order to contain spiraling prices of essential commodities, the Centre had restored the powers of state governments for imposing stock limits for pulses under the Essential Commodities Act, 1955. In August 2006, the GOI imposed stocks limits on pulses under the "Removal of (Licensing requirements, Stock limits and Movement Restrictions) on Specified Foodstuffs (Amendment) Order, 2006". The Order barred wholesale dealers from keeping stocks above 200 tons and 5 tons for retailers.
- On June 27, 2006, the GOI notified the ban on exports of pulses, with the exception of *Kabuli gram* following reports of crash in market prices.
- Effective June 8, 2006, the GOI exempted pulse imports from the 10 percent import duty.

## Marketing

Of the roughly 13.5-14 million tons of pulses produced in India, about 85 percent are sold through commercial marketing channels while the balance is kept by farmers for seed and food use. Several layers of intermediaries in the marketing chain result in high margins with a wide spread between producer and consumer prices. Commission agents/brokers typically take 1 to 1.5 percent, while retail markup is much higher (40 to 50 percent over wholesale prices), which covers the costs of transportation from the wholesalers, storage at warehouses, cleaning, packaging, etc. There is a range of retail markups with the government stores having the lowest markup and some of the private supermarkets having the highest.

Mandis are networks of delivery points located near production areas and are important market outlets for farmers. Relatively high volumes of pulses are traded in mandis, especially in wholesale markets in or near all major cities (major ones include Washi near Mumbai, Naya Bazaar in Delhi, Postha in Calcutta, and Govindappa Naiken Street in Chennai). A wholesale market will have 50 to 200 wholesale traders who deal in all types of domestic and imported pulses. Daily volumes range from 10 to 20 tons per wholesaler. Wholesalers typically sell to retailers a minimum of one bag (50 kg or 100 kg). Retailers may add value by cleaning or sorting the product to remove foreign material (e.g. stones) and inferior quality pulses. Most pulses (split or whole) are sold loose to customers while sales in consumer packs (mostly 0.5 and 1 kg. bags) are limited mostly to urban markets. Some supermarket chains, particularly in south India, sell fast-moving pulses such as *urd* (black matpe) dhal and *tur* (red gram) dhal in 2 and 5 kg packs, with small discounts on larger sizes.

## Trade

India continues to be a major global importer of pulses in the world. As per official Indian government data, the value of pulse imports grew by 71 percent from \$497.2 million to \$851.2 million during IFY 2003/04 to 2006/07 and in quantity terms from 1.3 million tons to 2.8 million tons (Table 6). Peas, pigeon peas and chickpeas were among the major pulses imported followed by mung beans, black matpe, lentils, and kidney beans. Imports of pulses from the U.S., mostly dry green peas, witnessed significant growth during the last 4 years (Table 6), reaching a record 177,000 tons, valued at \$48.4 million in U.S. FY 2006/07, making India the largest market for U.S. pulses. However, Canada continues to be the largest supplier of pulses (mostly yellow peas, green peas, and chickpeas to India on account of larger production, lower prices, and ability to ship pulses in bulk. Most of the U.S. pulse exports to India are in containers. Myanmar, because of its geographic proximity to India and the ability to grow the type of pulses (black gram, red gram, green gram and Kidney beans) that Indians demand, is the second largest supplier, supplying mostly tropical

legumes such as black matpe, mung beans, and pigeon peas. The recent political turmoil in Myanmar had some impact on pulse shipments from that country.

The recent significant increase in the price of imported pulses in general, and from North America in particular, and high freight costs have further added to the cost of imported pulses despite a 12 percent appreciation of the Indian rupee against U.S. dollar during the past year. For instance, the price of green and yellow peas imported from Canada and the U.S. have increased to over \$500 a ton in recent months, \$100-150 a ton more than a year ago. At such high prices there is import resistance, which could dampen pulse imports in the coming months, leading to further shortages and higher domestic prices for pulses.

Another factor which could affect pulse imports from the U.S. as well as from Canada in future is the fumigation requirement for the import of pulses. Effective January 1, 2004, pulse (chickpeas, peas) imports from all origins to India were subject to fumigation by methyl bromide at the port of loading to protect domestic production from stem and bulb nematode, pea cyst nematode, and bruchids, per the Plant Quarantine Regulation of Import into India Order, 2003. In the U.S., methyl bromide is being phased out due to environmental concerns, making it difficult and costly to fumigate pulses with methyl bromide at the port of origin. Unless the fumigation requirement is removed or the waiver extended, pulse exports from North America to India will be in jeopardy, which could further exacerbate the Indian pulse supply situation leading to a further significant rise in domestic pulse prices.

Table 6: Pulse Imports by Type and Origin - India

Type	IFY	2002/03	2003/04	2004/05	2005/06	2006/07
	Country	Metric Ton				
Peas	CANADA	320,644	363,740	451,297	646,659	862,419
	FRANCE	271,182	131,075	72,297	32,266	106,965
	AUSTRALIA	81,875	74,410	59,927	32,084	106,841
	U S A	6,214	2,586	4,914	51,544	136,943
	UKRAINE	31,154	510	14,486	30,680	121,096
	Other	158,734	127,695	51,951	16,836	54,313
	<b>Total</b>	<b>869,803</b>	<b>700,017</b>	<b>654,872</b>	<b>810,069</b>	<b>1,388,577</b>
Pigeon pea	MYANMAR	-	282,443	221,001	202,341	223,779
	TANZANIA	-	15,573	10,600	20,563	10,988
	MALAWI	-	489	1,043	107	8,013
	MOZAMBIQUE	-	0	1,988	3,067	3,557
	PAKISTAN	-	2,269	1,899	1,399	0
	Other	-	14,145	8,143	1,359	191
	<b>Total</b>	<b>0</b>	<b>314,919</b>	<b>244,674</b>	<b>228,835</b>	<b>246,528</b>
Chickpea	AUSTRALIA	12,538	44,476	13,917	58,350	74,882
	IRAN	57,026	32,208	56,455	30,509	0
	MYANMAR	35,459	62,550	21,725	17,597	25,710
	PAKISTAN	75	25,683	425	122,316	22
	CANADA	59,810	50,055	10,251	4,986	7,982
	Other	52,646	44,269	30,103	47,998	18,722
	<b>Total</b>	<b>217,553</b>	<b>259,239</b>	<b>132,875</b>	<b>281,756</b>	<b>127,318</b>
Mung bean	MYANMAR	21,257	130,652	43,399	55,600	303,764
	IRAN	428	10,740	18,893	6,743	4,635
	CHINA	4,710	16,367	890	3,018	12,133
	MOZAMBIQUE	0	348	2,234	0	259
	PANAMA	0	735	0	0	0
	Other	8,874	47,094	18,550	9,630	11,622
	<b>Total</b>	<b>35,270</b>	<b>205,936</b>	<b>83,965</b>	<b>74,990</b>	<b>332,414</b>
Black matpe	MYANMAR	21,257	130,652	43,399	55,600	303,764
	IRAN	428	10,740	18,893	6,743	4,635
	CHINA	4,710	16,367	890	3,018	12,133
	PAKISTAN	771	13,799	7,978	2,415	0
	TANZANIA	213	5,682	4,491	4,011	496
	Other	8,555	28,510	8,315	3,204	10,702
	<b>Total</b>	<b>35,935</b>	<b>205,750</b>	<b>83,965</b>	<b>74,990</b>	<b>331,731</b>
Lentil	CANADA	24,305	10,339	6,678	21,054	32,321
	NEPAL	19,402	12,619	15,253	14,591	7,779

	AUSTRALIA	21,826	10,832	0	0	11,252
	U S A	44	72	0	26	7,503
	CHINA	744	2,300	4,282	334	0
	Other	652	1,787	473	110	80
	<b>Total</b>	<b>66,973</b>	<b>37,949</b>	<b>26,686</b>	<b>36,115</b>	<b>58,936</b>
Kidney bean	CHINA	17,372	21,202	18,804	33,339	43,001
	MYANMAR	8,110	0	6,212	6,149	9,698
	PAKISTAN	175	12,130	0	0	0
	ETHIOPIA	2,552	2,443	1,923	2,367	2,804
	TANZANIA	1,196	1,694	0	124	75
	Other	2,010	3,543	277	45	1,054
	<b>Total</b>	<b>31,415</b>	<b>41,011</b>	<b>27,216</b>	<b>42,024</b>	<b>56,632</b>
Red Beans	Total	9,534	8,552	14,348	13,397	11,819
Other Beans	Total	0	228,607	163,484	173,521	219,662
Split pulses	Total	0	1,116	489	1,996	3,325
Other pulses	Total	0	154,553	154,318	207,144	45,418
<b>TOTAL PULSES</b>		<b>1,266,480</b>	<b>2,157,648</b>	<b>1,586,892</b>	<b>1,944,837</b>	<b>2,822,359</b>

Source: Directorate General of Foreign Trade, Ministry of Commerce and Industry, GOI

## Annexure 1: Wholesale Price Index of Food grains for 2006-07

Commodity	Weight	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07*
Food grains	5.01	173.8	172.4	174.3	176.3	177.5	187.0	205.9
(a) Cereals	4.41	173.0	170.1	173.5	176.3	177.9	185.8	199.3
Rice	2.45	167.5	167.0	166.0	168.8	168.2	174.5	179.6
Wheat	1.38	176.6	175.3	175.7	181.4	184.1	191.5	216.4
(b) Pulses	<b>0.60</b>	<b>179.6</b>	<b>189.2</b>	<b>180.6</b>	<b>176.6</b>	<b>174.4</b>	<b>194.9</b>	<b>253.9</b>
Chickpeas	0.22	139.2	170.3	149.7	142.5	137.1	157.0	208.0
Pigeon pea	0.13	150.3	142.6	157.5	172.8	179.3	170.8	182.1
Mung bean	0.11	186.9	205.6	208.0	195.9	187.4	219.2	302.8
Lentil	0.04	206.8	203.9	214.1	233.4	234.7	242.8	253.5
Black matpe	0.10	295.7	273.9	239.8	217.4	216.3	270.4	404.0
Food Articles	15.40	170.5	176.1	179.2	181.5	186.3	195.3	210.6
Non-Food Articles	6.14	146.5	152.9	165.4	186.3	187.6	179.1	187.9
Oilseeds	2.66	129.3	137.6	160.2	177.8	180.8	167.1	175.6
Edible oils	2.75	103.3	112.9	138.0	157.9	156.4	146.0	154.7

\*

Provisional

Source: Ministry of Commerce &amp; Industry, GOI

## Annexure 2: Area, Production and Yield of Pulses by State

State	2005/06			2004/05			percent Coverage Under Irrigation (2003/04)
	Area Million hectares	Production Million tons	Yield Kg/ha	Area Million hectares	Production Million tons	Yield Kg/ha	
Madhya Pradesh	4.28	3.23	754	4.52	3.43	759	30.7
Uttar Pradesh	2.75	2.23	811	2.80	2.38	847	23.2
Maharashtra	3.43	2.01	584	3.38	1.66	492	6.9
Andhra Pradesh	1.78	1.38	772	1.80	1.02	565	11.9
Karnataka	1.98	0.96	487	2.11	0.79	376	1.3
Rajasthan	3.44	0.90	261	3.57	1.34	375	5.0
Gujarat	0.78	0.55	704	0.71	0.48	675	11.7
Bihar	0.60	0.45	749	0.66	0.47	710	2.2
Chhattisgarh	0.95	0.45	477	0.93	0.37	395	3.1
Orissa	0.81	0.34	416	0.64	0.25	388	7.8
Tamil Nadu	0.53	0.18	337	0.60	0.25	410	7.8
West Bengal	0.22	0.17	785	0.23	0.17	740	4.7
Jharkhand	0.29	0.17	592	0.27	0.16	586	2.2
Haryana	0.19	0.12	622	0.18	0.15	793	31.9
Others	0.36	0.24		0.36	0.21		-
All India	22.39	13.38	598	22.76	13.13	577	13.6

Source: Ministry of Agriculture, GOI