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CHICKPEAS: SITUATION AND OUTLOOK

Pulses, including chickpeas, are increasingly being used in health-conscious diets to promote well-being and reduce the risk of illness. Canada is a significant producer of both desi and kabuli chickpeas, with production concentrated in south-western Saskatchewan and south-eastern Alberta. The introduction of chickpeas to these regions has contributed to the diversification of crop production. This issue of the *Bi-weekly Bulletin* examines the situation and outlook for chickpeas.

WORLD

Production

During the past 10 years, world production has been variable, ranging from a low of 6.6 million tonnes (Mt) in 2000-2001 to a high of 9.5 Mt in 1998-1999. India accounted for 60-70% of world production during this period. Production in India was variable, which was the main reason for the large range in world production.

The two commercial types of chickpeas produced are desi and kabuli. Countries in the Indian sub-continent and Australia produced mainly the desi type, Canada produced both the kabuli and desi types, and the remaining countries produced mainly the kabuli type. On average, world production consisted of about 75% desi type and 25% kabuli type. Production of the kabuli type is more dispersed and therefore less variable than for the desi type.

WORLD: CHICKPEA SUPPLY AND DISPOSITION

	2000 -2001	2001 -2002	2002 -2003	2003 -2004p	2004 -2005f
Harvested Area (kha)	9,200	10,700	9,800	10,600	10,200
Average Yields (t/ha)	0.72	0.79	0.70	0.82	0.77
	.....thousand tonnes……..….....				
Carry-in Stocks*	400	100	400	100	400
Production:					
India	3,850	5,470	4,130	5,770	5,300
Pakistan	565	397	362	672	600
Turkey	548	535	650	600	600
Iran	160	269	290	255	240
Myanmar	84	119	194	200	170
Ethiopia	176	176	180	180	170
Mexico	234	326	235	240	150
Australia	150	258	136	178	131
Syria	65	60	89	87	75
Spain	46	53	73	65	60
Canada	388	455	156	68	55
United States	59	73	38	20	20
Others	290	304	337	325	329
Total Production	**6,615**	**8,495**	**6,870**	**8,660**	**7,900**
*Total Kabuli Production**	*1,940*	*2,220*	*2,020*	*1,810*	*1,660*
*Total Desi Production**	*4,675*	*6,275*	*4,850*	*6,850*	*6,240*
Total Supply	**7,015**	**8,595**	**7,270**	**8,760**	**8,300**
Total Use*	6,915	8,195	7,170	8,360	8,200
Carry-out Stocks*	100	400	100	400	100
Stocks-to-use Ratio (%)	1	5	1	5	1

* estimate, AAFC, September 2004
p: preliminary estimate; f: forecast, AAFC, September 2004
Source: FAO, India Department of Agriculture, Pulse Australia, USDA and Statistics Canada

Trade

World exports during the past 10 years were variable, but trending upwards. Exports ranged from a low of 313,000 tonnes (t) in calendar year 1995 to a high of 993,000 t in 2001. In 2002, the latest year for which world trade statistics are available, exports were 743,000 t. During the past 10 years, India was the largest importer of chickpeas, but imports were extremely variable, depending on the volume of production in India and price. Because of the variability in India's imports, there was large variability in total world imports. India and surrounding countries import mainly the desi type, while countries in North and South America, Europe, the Middle East and Africa import mainly the kabuli type.

CANADA

Production

Chickpea production at the commercial level in Canada started in 1995-1996 at about 1,000 t, but increased rapidly during the next six years to 455,000 t in 2001-2002. Saskatchewan accounted for at least 80% of Canadian production and Alberta for the balance. Production fell sharply in 2002-2003 due to lower seeded area and wet harvest conditions. Seeded area and production fell further in 2003-2004. The decrease in seeded area is due to the difficulty and high cost of controlling ascochyta blight, yield and quality losses during wet harvests, and price decreases.

Chickpeas have contributed to the diversification of crop production in Saskatchewan and Alberta and are valuable in crop rotations which help to control weeds, diseases and insects, and improve soil texture and fertility. The

production of chickpeas has also contributed to the expansion of the pulse crops handling, marketing and processing industry, which increased employment opportunities in rural areas.

Kabuli chickpeas, also known as garbanzo beans, have a larger, cream-coloured seed with a thin seed coat. The desi type has a smaller, darker coloured seed with a thick seed coat. Included in kabuli chickpea production are the large kabuli type with the seed size mostly 8-9 millimetres (mm) and a seed weight of about 410-490 grams/1000 seed, and the small kabuli type, which have a more uniform seed size of about 7 mm and a seed weight of about 265 grams/1000 seed. Yields of the desi and small kabuli types are about 20% higher than of the large kabuli type.

Kabuli chickpeas are best adapted to the Brown soil zone and desi chickpeas to the Dark Brown and Brown soil zones. Both soil zones are located in south-western Saskatchewan and south-eastern Alberta, where production problems of seedling blight, ascochyta blight and late maturity are less common. Chickpeas are relatively drought tolerant due to the long tap root. They are not well adapted to high moisture areas, saline soils, soils which are slow to warm in the spring and wet or waterlogged soils. Length of maturity depends on available heat and moisture, but is in the range of 100-115 days for the desi type and 110-125 days for the kabuli type. Chickpea production works well in rotation with cereal grains such as spring or durum wheat. Nitrogen fertilizer is usually not required since chickpeas possess the ability to fix nitrogen from the air in nodules on the roots where it is used for plant growth. To maximize the nitrogen fixation ability, chickpea seed should be inoculated with the chickpea strain of nitrogen-fixing inoculants.

The stage of crop development should be closely monitored nearing harvest, as weathered seed and dark seed discolouration (green, brown, black) makes the seed less desirable to most processors and consumers. Kabuli chickpea colour is especially important because buyers prefer a yellowish-cream colour. Early fall frost can result in green discolouration of immature kabuli chickpea seed, which will reduce the value of the crop. Other important factors affecting visual quality are levels of admixture, seed size and seed uniformity. The use of conveyors instead of augers when handling chickpeas will reduce mechanical damage. The Canadian chickpea harvest generally occurs during the period from late-August to early October.

CANADA: CHICKPEA SUPPLY AND DISPOSITION

August-July crop year		**2000 -2001**	**2001 -2002**	**2002 -2003**	**2003 -2004p**	**2004 -2005f**
Seeded Area (kha)		295	486	221	63	57
Harvested Area (kha)		283	467	154	63	50
Average Yields (t/ha)		1.37	0.97	1.01	1.08	1.10
		.....thousand tonnes……..….....				
Carry-in Stocks		15	30	140	60	20
Production:						
Large Kabuli		155	185	55	23	25
Small Kabuli		38	115	31	15	19
Desi		195	155	70	30	11
Total Production		**388**	**455**	**156**	**68**	**55**
Imports		5	12	9	3	5
Total Supply		**408**	**497**	**305**	**131**	**80**
Exports:						
Asia		119	94	71	35	18
Europe		20	19	9	16	10
United States		3	4	4	6	5
South America		1	1	1	3	4
Central America		1	1	1	3	1
Africa		15	4	3	4	1
Middle East		16	21	10	3	1
Total Exports		**179**	**147**	**104**	**75**	**40**
Total Domestic Use		*199*	*210*	*141*	*36*	*35*
Total Use		**378**	**357**	**245**	**111**	**75**
Carry-out Stocks		**30**	**140**	**60**	**20**	**5**
Stocks-to-use ratio (%)		8	39	24	18	7
Harvested Area (kac)		699	1,154	381	156	124
Yield (lbs/ac)		1,200	840	900	960	980
Average producer price*						
Large Kabuli	$/t	672	529	518	507	550
	$/lb	0.305	0.240	0.235	0.230	0.250
Small Kabuli	$/t	518	353	353	309	330
	$/lb	0.235	0.160	0.160	0.140	0.150
Desi	$/t	331	353	342	231	287
	$/lb	0.150	0.160	0.155	0.105	0.130

* Saskatchewan, No.1 CW grade
p: preliminary estimate; f: forecast, AAFC, September 2004
Source: Statistics Canada, AAFC

Marketing

All of the chickpeas produced in Canada are sold on the open market to dealers, mainly in Saskatchewan, who buy, clean and ship chickpeas to domestic and export consumers. There is also some dehulling and splitting of desi chickpeas in Saskatchewan. Some chickpeas are grown, under production contracts, which guarantee a price for part of the production, and others are sold on the spot market. Chickpeas are shipped mainly bagged in containers, although some are also shipped bulk in containers or bulk inside the hold of ships.

Domestic Use

Domestic use consists of food, feed, seed, dockage and waste. Only small volumes of low quality chickpeas are used for livestock feed, however nutritional analysis indicates that they make an excellent feed for hogs, cattle and poultry.

Exports

Canadian chickpea exports had been increasing, in line with the increase in production, and Canada became the world's third largest exporter in 2000 and 2002. Since then, exports have decreased as production has fallen, and Canada became the fifth largest exporter in the world. The main markets by region, with the leading countries in brackets, are Asia (India, Bangladesh, Pakistan), Europe (Spain, Italy, Portugal, France, Belgium, Greece), the Middle East (United Arab Emirates, Jordan, Saudi Arabia, Lebanon), Africa (Algeria, Morocco, Egypt), South America (Colombia, Brazil, Trinidad and Tobago), and the US. Exports to Asia are mainly of the desi type, although exports of the kabuli type are also significant. Exports to the other regions of the world are mainly of the kabuli type.

Prices

Canadian prices are largely determined in the international market because Canada exports most of its production. Although prices of the large kabuli type are higher than the desi type, they are also more volatile. Prices of the large kabuli type increase as the size of the seed increases from 7 mm, to 8 mm, to 9 mm and to 10 mm. The producer receives a weighted

average price for kabuli chickpeas based on the percentage of various sized seed. The price of the small kabuli type is generally higher than for the desi type, but lower than the weighted average large kabuli type price. Since there is no futures market for chickpeas, prices are negotiated directly between producers and dealers based on supply and demand factors for each type of chickpea.

Organizations

The Canadian Grain Commission (CGC) administers quality standards for chickpeas. The grades are No.1, 2 and 3 Canada Western (CW) Kabuli, and No.1, 2 and 3 CW Desi. Chickpeas which do not meet the listed grade standards are graded Sample CW. The major quality concerns in chickpea grading are damage due to heating and peeling, split or broken seed, seed discolouration, as well as foreign material. For further information, or to access the Official Grain Grading Guide, please visit the CGC website: (www.grainscanada.gc.ca)

The Canadian Special Crops Association (CSCA) *(www.specialcrops.mb.ca)* establishes trade rules for domestic trade and serves as a forum for exporters, dealers and brokers involved in the industry of trading Canada's pulse and special crops, including chickpeas. The website includes a section where buyers can submit a request for prices.

Pulse Canada (*www.pulsecanada.com*) is an industry organization, with the CSCA and provincial pulse growers' organizations as members. It is involved in market development and market access, coordination of scientific research and development, and policy issues. The website contains information on pulse crops, markets, and health and nutrition.

UTILIZATION

More than 90% of chickpeas are consumed in the countries where they are produced. Chickpeas are used almost exclusively for human consumption. The desi type seed must be dehulled and is used whole or split or milled. In India and surrounding countries, the desi chickpeas are used whole, shelled and split to produce dhal, or ground into a fine flour called *besan*. Besan is used in many ways for cooking, including mixed with wheat flour to make roti or chapatti, and for making sweets and snacks. Chickpeas are also used as a vegetable. In the Middle East, consumption is based on a popular dish known as "hummus" which is produced from mashed chickpeas mixed with oil and spices. The kabuli types are used mainly in salad bars and vegetable mixes. They are also used in preparing a wide variety of snack foods, soups, sweets, and condiments. Smaller size kabuli chickpeas are also milled for flour. Kabuli chickpeas are substituted for desi chickpeas if the price is competitive

Healthy Diet

Pulses, including chickpeas, are increasingly being used in health-conscious diets to promote general well-being and reduce the risk of illness. They are low in sodium and fat, high in protein, and are an excellent source of both soluble and insoluble fibre, complex carbohydrates, vitamins (especially B vitamins) and minerals (especially potassium, phosphorus, calcium, magnesium, copper, iron and zinc). Chickpeas are an inexpensive, high quality source of protein.

Since chickpeas are high in fibre, low in sodium and fat, and are cholesterol free, they are an excellent heart healthy food that may be beneficial to the prevention of coronary and cardiovascular disease.

Eating chickpeas may help lower blood cholesterol levels due to their high content of soluble fibre and vegetable protein.

Chickpea consumption can be beneficial in the management of type-2 diabetes because they have a low glycemic index of 55 or less, indicating that their effect on blood glucose is less than that of many other carbohydrate containing foods. Chickpeas also have other health effects, such as reducing blood lipids, that may help some serious complications of diabetes.

Flour made from chickpeas is gluten free and is a very nutritious option for people with celiac disease.

Chickpeas fit well in vegetarian diets as they are a good source of iron and protein, and complement the amino acid profile of cereal grains and nuts.

Insoluble dietary fibre consumption can be beneficial to a healthy colon and has been associated with reducing the risk of colon cancer. In addition, diets high in fibre have demonstrated beneficial effects on weight loss because they deliver more bulk and less energy.

Chickpeas are an excellent source of the B vitamin folate which is an essential nutrient. In addition, folate consumption during pregnancy has been shown to reduce the risk of neural tube defects.

OUTLOOK: 2004-2005

World

World production is forecast to decrease by 9% from 2003-2004 to 7.9 Mt, with decreases for both the desi and kabuli types. Total supply is expected to decrease by 5% to about 8.3 Mt. The world production forecast for 2004-2005 is preliminary as seeding in the countries of the Indian sub-continent does not occur until October and November, the

WORLD: CHICKPEA EXPORTS AND IMPORTS

calendar year	**1998**	**1999**	**2000**	**2001**	**2002**
	.....thousand tonnes…….....				
EXPORTS					
Mexico	111	155	159	207	143
Iran	62	33	19	124	140
Canada*	12	21	133	149	125
Turkey	158	102	50	154	105
Australia	165	127	307	267	94
United States	10	23	35	30	23
Other	66	49	50	62	113
Total	**584**	**510**	**753**	**993**	**743**
IMPORTS					
India	110	11	64	517	218
Pakistan	21	15	165	106	182
Spain	41	56	59	69	58
Bangladesh	22	55	29	38	57
UAE	37	25	27	32	35
Algeria	37	38	37	70	34
Saudi Arabia	20	13	19	25	23
Italy	19	18	18	23	22
Jordan	18	19	18	22	21
Tunisia	18	19	18	20	19
United Kingdom	15	12	16	16	18
Sri Lanka	15	12	14	13	17
United States	12	12	12	11	12
Portugal	9	7	10	12	12
Turkey	21	8	7	14	11
France	12	9	13	13	11
Lebanon	9	7	9	17	10
Colombia	10	9	8	10	10
Other	60	59	65	83	78
Total	**506**	**404**	**608**	**1,111**	**848**

The difference between imports and exports is attributed to the timing of delivery and international classification differences.

Source: FAO, except * which is Statistics Canada, Sept. 2004

Australian harvest occurs in November and December and information about the crop in the Middle East is limited.

Canada

Area seeded in Canada decreased by 8%. Production is forecast to decrease by 19% to 55,000 t, as increases for the large and small kabuli types are more than offset by a decrease for the desi type. Supply is expected to decrease by 39% to 80,000 t because of lower carry-in stocks. Exports are expected to decrease due to the lower supply. Carry-out stocks are forecast to decrease to a low level. Lower world supply is expected to support prices of all types of chickpeas.

US FARM SECURITY AND RURAL INVESTMENT ACT OF 2002 (FSRIA)

Lentils, dry peas and small chickpeas were included, for the first time, under the loan program in 2002. The loan rate provides a floor return for small chickpea producers because if the market price is lower than the loan rate, the producer is eligible for a loan deficiency payment (LDP). This makes it easier for producers to obtain operating loans. The loan rate for small chickpeas was US$7.56 per 100 pounds (cwt) for crop years 2002 and 2003, and is US$7.43/cwt for 2004 to 2007. Small chickpeas are defined as those that "drop below a 20/64 screen" or less than 7.8 mm, which means the desi and small kabuli types. US production is nearly all the large kabuli type. There were no LDPs for crop year 2002, but for most of crop year 2003 the LDPs were US$1.56/cwt, but later in the year they gradually rose to US$2.56/cwt. For crop year 2004, the LDPs started at US$1.43/cwt, but gradually increased to the current rate of US$2.43/cwt. The base quality for the 2002 crop year was No.1 grade, but was lowered starting with the 2003 crop year to No.3 grade, which made it easier to qualify for LDPs. US seeded area for small chickpeas for 2002 and prior years is not available, but was estimated to have been very small. For 2003, the area was 2,428 ha and for 2004 2,671 ha. Although including small chickpeas under the loan program has encouraged additional seeding, small chickpea production in the US is still low. Small chickpeas are produced mainly in North Dakota, South Dakota and Idaho. Large chickpea production is mainly in California, Washington and Idaho.

Crop development has been later than normal due to cool weather through most of the growing period. The harvest has been delayed due to late crop development and by wet weather. Average yields are forecast to be near trend, but abandonment is expected to be higher than normal and average quality lower than normal due to wet weather and harvest delays.

India

Chickpeas in India are grown as a winter crop in the central and north-western parts of the country. Nearly all of the chickpeas produced in India are the desi type. Chickpeas are generally seeded in October and November and harvested mainly in March and April. Most of the rainfall in the chickpea growing areas occurs during the summer monsoon season, which normally lasts from early June to early October in the central parts of the country and mid-June to late September in the north-western parts. The monsoon rainfall provides moisture for the summer crops and a moisture reserve for winter crops, such as chickpeas. Chickpeas are generally grown without irrigation. In 2004, the monsoon rainfall has been lower than normal in most chickpea growing areas. Therefore, the chickpea areas will have below normal moisture reserves and will be dependent on winter rains. However, winter rainfall is much lower and less reliable than during the summer. Although there is a great deal of uncertainty about the 2004-2005 chickpea crop in India, production is expected to decrease. Lower production would increase imports of desi chickpeas. Imports of kabuli chickpeas would also increase, although prices would have to be competitive with the desi type. Therefore most of the imports of the kabuli type would be of the smaller size seed. In addition, imports of yellow peas would also increase because they are used as a cheaper substitute for desi chickpeas. Larger imports of desi and kabuli chickpeas, and yellow peas would strengthen Canadian prices for desi and kabuli chickpeas, as well as for yellow peas.

OUTLOOK: CANADA LONGER TERM

The main reason for the drop in seeded area since 2001-2002 has been the difficulty and high cost of controlling ascochyta blight. A second major reason is that the current varieties tend to grow until they are under stress, which could be drought or frost. The ideal growing conditions are moderate precipitation and normal to above normal temperatures from seeding to about the end of July and then drought for the maturing and harvest periods. Work is underway to develop varieties which are more resistant to ascochyta blight and mature earlier, making them more suitable for Canadian growing conditions. Work is also underway to develop larger kabuli chickpeas and desi chickpeas with light tan or tan seed colour, which is expected to increase market opportunities for Canadian chickpeas. When these varieties are developed, the seeded area is expected to increase significantly.

For periodic updates on the situation and outlook for chickpeas, visit the Market Analysis Division Website for "Canada: Pulse and Special Crops Outlook.

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