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PULSE CROPS IN THE MIDDLE EAST AND NORTH AFRICA

Exports of Canadian pulse crops (lentils, dry peas, chick peas, dry beans, and fababeans) to the Middle East and North Africa grew 792% over a 10 year period to reach 306,000 tonnes (t) in 2000. Although Canadian exports fell 44% to a modest 171,000 t. in 2001, they are expected to rebound. Canada's exports were valued at $171.1 million in 2000, and $91.6 million in 2001. Despite a growing population, domestic production in the Middle East and North Africa fell 24% between 1991 and 2001, partly as a result of a far-reaching drought. As a result, imports by this region increased 113% between 1990 and 2000, to reach over 1.0 million tonnes (Mt). This issue of the *Bi-weekly Bulletin* examines the demand for pulse crops in the Middle East and North Africa, and highlights Canada's exports to this region.

INTRODUCTION TO PULSES

Pulses are the edible dry seeds of leguminous plants. Pulse crops include **dry beans**, **dry peas**, **chick peas**, **broad beans** (which include **fababeans**), **lentils**, **pigeon peas**, **lupins**, **vetches** and **cow peas.** Pulses are of special nutritional and economic importance due to their contribution to the diets of millions of people worldwide. They have a high protein content (two to three times higher than most cereals), are a valuable source of energy, and provide many essential minerals such as calcium and iron. The use of pulses as food is concentrated in developing countries, which account for about 90% of global human pulse consumption. Per capita consumption of pulses is also high among vegetarians, as a source of protein. In low income countries, pulses contribute about 10% of the daily protein and about 5% of the energy in the diets of people.

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 the Middle East, North Africa, Latin America, and the Indian subcontinent. 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 among trading countries, 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.

MIDDLE EAST AND NORTH AFRICA

Geography

The area referred to as the Middle East and North Africa comprises the following countries: Afghanistan, Algeria, Bahrain, Cyprus, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, Turkey, United Arab Emirates (UAE), and Yemen. Collectively, these countries occupy approximately 1.26 billion hectares, or 9% of the world's land. Only about 89 million hectares (Mha), or 7% is considered arable, and 460 Mha are used for agricultural purposes. Most of the countries are arid, and agricultural production is highly dependent upon rainfall.

Population

In 2000, there were 403 million people, or 6.7% of the world population in this region. Only 12.3% of the region's population was employed in agriculture, as compared to 21.8% of the world's population. The population grew 25.5% since 1990, compared to the world growth rate of only 15.3%. Islam is the main religion in this region.

Economy

Over the last three years, the economic situations in the Middle East and North Africa have been shaped to a very large extent by sharp fluctuations in oil prices. The oil price collapse of 1998 severely depressed the economic prospects for many of the oil-exporting countries, and severe droughts, combined with a devastating earthquake in Turkey, reduced growth prospects for the non-oil-producing countries. The recovery of oil prices in 2000, however, has helped the

NUTRITIVE VALUE OF CERTAIN PULSE AND OTHER FOODS

	CALORIES	CALCIUM	IRON	PROTEIN
	/100g	.....mg/100 g.....		%
Kidney Beans	341	137	6.7	22.1
Chick Peas	358	149	7.2	20.1
Lentils	346	56	6.1	24.2
Wheat Flour	370	16	1.0	10.9
Rice Flour	360	10	0.9	6.7
Beef	198	11	2.3	19.0
Eggs	163	50	2.5	12.4
Milk	360	1,235	0.9	36.0

Source: FAO, 2001

Canada

region's economic forecast. In 1999, real gross domestic product (GDP) growth in the region was only 0.8%, but in 2000 it was estimated at 4.7% and is expected to be about 4.1% in 2001. The current crises in Afghanistan and Israel may dampen this growth, but offsetting support will be provided by a reduction in oil production, which should lead to higher oil prices.

Water Availability

Drought is a recurring phenomenon in the region and causes sharp annual fluctuations in crop production. Since 1999, yields have been reduced by a wide-reaching drought which covers Algeria, Libya, Morocco, Tunisia, Afghanistan, Iran, Iraq, Jordan, and Syria. Yields have also been reduced in Turkey and Yemen.

This region has 6.7% of the world's population, 6.5% of the world's arable land, 11.3% of its irrigated land, but only 1.5% of its renewable freshwater resources. The region relies heavily on surface and underground water, and agriculture is the main user of renewable freshwater. Persistent dryness over several years has pushed the use of irrigation to its limits. For example, two years of drought have nearly depleted Iraq's water reserves for irrigation purposes. Water levels in the two main rivers that feed the irrigation systems in that country are at their lowest levels since 1930.

Agricultural Production

The main crops produced in the Middle East and North Africa are forage crops such as clover and alfalfa, wheat, sugar beets, tomatoes, and sugar cane. Due to the many different climatic zones across the region, and within many of the individual countries, nearly all food stuffs, including cereals, oilseeds, pulses, fruits and vegetables, and nuts are produced. Many countries are self-sufficient in many crops.

Many **pulse crops**, including **lentils**, **chick peas,** and **dry peas** were first domesticated in the Middle East over 7000 years ago. Production of **pulse crops** in the Middle East and North Africa has fallen 24% over the past ten years, from 4.0 Mt in 1991 to 3.0 Mt in 2001, because of decreased yields due to a drought and substitution of other corps, especially in Turkey. Increased production in Syria, Yemen, Afghanistan, Lebanon and Libya was more than offset by decreased production in Turkey, Morocco and Iran. By crop, there was a 32% decrease in **chick pea** production, a 25% decrease in **broad bean** production, a 26% decrease in **lentil** production, and a 9% increase in **dry bean** production during the same time period. Production of **dry peas** fell 54% to 43,000 t, while production of **cow peas** decreased 28% to only 7,000 t. Production of **vetches** remained stable, growing 1% to 228,000 t, while **lupin** production increased 93% to 19,000 t.

Agricultural Trade

The Middle East and North Africa region is a large net importer of agricultural commodities. Annually these countries import about US$30 billion of agricultural goods, and export about US$10 billion. In 2000, this region imported 7% of the world's agricultural products, but 18% of the world's pulse crops (based on value).

Imports of total pulse crops increased 113% between 1990 and 2000 to reach over 1.0 Mt. This increase in imports was led by Turkey, whose imports increased from 14,000 t in 1990 to 175,000 t in 2000. Imports also increased by more than 100% for Egypt, Morocco, Algeria, UAE, Yemen and Tunisia. Only a few countries, Iraq, Iran, Oman, and Bahrain, imported less pulse crops in 2000 than in 1990.

By crop, **lentils**, **broad beans**, **chick peas,** and **dry beans** were the most important imported pulse crops. Imports of each of these pulse crops increased between 1990 and 2000. Imports of **dry peas** increased 79% to 41,000 t. Limited amounts of **cow peas** are also imported by the region. It is possible that the data under represents actual imports by crop, as a couple of countries, UAE and Libya, specifically, do not report imports by crop, rather all imports are amalgamated under total pulses.

Between 1990 and 2000, imports of **lentils** increased 121% to 398,000 t. Increased imports by Turkey, Morocco, Algeria, Iran, Egypt, and Jordan more than offset decreased imports by Iraq. In 2000, Egypt and Turkey were the two largest importing nations of lentils in the world, while Canada and Turkey were the two largest exporting nations. In 2000, the Middle East and North Africa countries collectively imported 38% of the world's total lentil imports.

In this region, Turkey, Egypt, Algeria, Morocco, and Saudi Arabia are the main importers of lentils. As Turkey's domestic production decreased, their imports increased to meet their re-export needs. Turkey, Egypt, and Saudi Arabia primarily import **red lentils**. Turkey and Egypt import whole lentils, as both countries have domestic processing facilities for splitting the lentils, while Saudi Arabia typically imports split lentils. Algeria mainly imports **large green lentils**, while Morocco and Egypt prefer **small green lentils**. Canada is an important supplier of lentils, but so are Australia, Turkey, and India.

Imports of **broad beans** increased by 837%, increasing from 24,000 t in 1990 to 228,000 t in 2000. Leading this gain were Egypt's imports, which increased from 500 t in 1990 to 172,000 t in 2000. Egypt and Italy were the two largest importing nations, while Australia, the United Kingdom (UK), and China were the largest exporting nations. In 2000, the Middle East and North Africa countries collectively imported 47.3% of world

MIDDLE EAST AND NORTH AFRICA: PULSE CROPS PRODUCTION

	1991	1998	1999	2000	2001p
			thousand tonnes		
TOTAL PULSES [1/]					
Turkey	*1,972*	1,580	1,409	1,389	1,389
Egypt	*544*	587	379	429	513
Iran	*576*	566	440	447	439
Syria	*109*	299	127	193	193
Morocco	*457*	272	169	127	162
Other	*336*	368	373	346	346
Total [2/]	***3,994***	**3,672**	**2,897**	**2,931**	**3,042**
CHICK PEAS					
Turkey	*855*	600	560	540	560*
Iran	*266*	249	165	160	158
Other	*198*	255	161	181	179
Total [2/]	***1,319***	**1,104**	**886**	**881**	**897**
BROAD BEANS					
Egypt	*466*	523	307	354	439
Morocco	*204*	108	55	33	60
Other	*188*	159	159	146	148
Total [2/]	***858***	**790**	**521**	**533**	**647**
LENTILS					
Turkey	*640*	540	380	380	440*
Syria	*50*	154	43	73	80*
Iran	*86*	95	63	78	75
Other	*83*	56	37	37	37
Total [2/]	***859***	**845**	**523**	**568**	**632**
DRY BEANS					
Turkey	*214*	242	247	247	250*
Iran	*188*	183	183	180	178
Other	*57*	64	68	73	73
Total [2/]	***459***	**489**	**498**	**500**	**501**

1/ includes broad beans, chick peas, cow peas, dry beans, dry peas, lentils, lupins, and vetches.

2/ includes Afghanistan, Algeria, Bahrain, Cyprus, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Saudi Arabia, Syria, Tunisia, Turkey, and Yemen.

p: preliminary

Source: FAO except *, which is AAFC, February 2002

total broad bean imports. While Egypt is the largest importer of broad beans, Saudi Arabia and Morocco also import substantial quantities. Egypt imports **broad beans**, from Australia, Canada, China, the UK, and Syria, while Saudi Arabia imports broad beans from India, Canada, Syria, and UAE.

Chick pea imports increased by 26% from 1990 to 2000 to reach 118,000 t. A decrease in imports by Iraq was more than offset by increased imports by Turkey, Jordan, and Algeria. Australia, Mexico, and Canada were the largest exporting nations, while Pakistan, India, Spain, and Bangladesh led the imports. In 2000, the Middle East and North Africa countries collectively imported 20% of the world's total chick pea imports.

Most countries in the Middle East and North Africa import **kabuli** chick peas, which are grown in all chick pea producing countries, except for the Indian subcontinent and Australia, which tend to produce **desi** chick peas. A very popular dish in the Middle East, *hommus*, is produced from mashed chick peas mixed with oil and spices.

Dry bean imports increased by 91% from 1990 to 2000 to reach 100,000 t. Increased imports were led by Algeria, Morocco, Turkey, and Tunisia. China, Myanmar, and the United States were the largest exporters, while the UK and Japan were the largest importers. In total, the Middle East and North Africa countries collectively imported 6% of the world's total dry bean imports. **Great Northern** beans, or large white beans are very popular in North Africa and the Middle East, although smaller amounts of other types of beans are also imported.

MIDDLE EAST AND NORTH AFRICA: PULSE CROPS IMPORTS

	1990	1997	1998	1999	2000
			.....thousand tonnes.....		
TOTAL PULSES [1/]					
Egypt	*73*	123	164	328	263
Turkey	*14*	136	155	88	175
Algeria	*115*	135	123	113	160
UAE	*30*	75	75	75	75
Saudi Arabia	*50*	67	57	65	65
Other	*197*	240	211	232	284
Total [2/]	***479***	**776**	**785**	**901**	**1,022**
LENTILS					
Turkey	*0*	81	79	65	141
Egypt	*68*	77	78	78	77
Algeria	*47*	44	49	58	72
Morocco	*0*	5	10	20	41
Saudi Arabia	*14*	19	18	14	14
Other	*51*	40	40	43	53
Total [2/]	***180***	**266**	**274**	**278**	**398**
BROAD BEANS					
Egypt	*1*	29	56	227	172
Saudi Arabia	*17*	19	7	26	26
Morocco	*0*	3	2	12	16
Other	*6*	19	15	13	14
Total [2/]	***24***	**70**	**80**	**278**	**228**
CHICK PEAS					
Algeria	*28*	40	27	20	37
Tunisia	*4*	20	18	19	18
Jordan	*11*	17	18	19	18
Saudi Arabia	*11*	18	20	12	12
Other	*39*	291	150	35	33
Total [2/]	***93***	**386**	**233**	**105**	**118**
DRY BEANS					
Algeria	*19*	35	33	19	37
Morocco	*9*	5	3	8	10
Israel	*1*	11	9	10	9
Turkey	*13*	43	48	12	5
Other	*11*	30	39	42	39
Total [2/]	***53***	**124**	**132**	**91**	**100**

1/ includes broad beans, chick peas, cow peas, dry beans, dry peas and lentils.

2/ includes Afghanistan, Algeria, Bahrain, Cyprus, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, Turkey, UAE, and Yemen.

Source: FAO, February 2002

Consumption

The Middle East and North Africa is an extremely diversified market. Despite a growing population, aggregate consumption actually fell 1% between 1990 and 2000, to 3.7 Mt of total pulse crops. Part of this decrease can be explained by falling domestic production due to the persistent drought over the last few years.

Traditional Middle Eastern and North African cooking is based on grains, fresh vegetables, and pulses. For many people in this region, meat is a luxury and is only used in small amounts, cooked with vegetables, and served with or over rice. Therefore, pulse crops become a main dietary source of protein. Pulse crops are consumed in traditional dishes such as *hommus* (chick peas), *falafel* (chick peas), *ful* (fababeans and eggs), and soups made with lentils, chick peas or dry beans.

The canning sector uses about 12 to 15% of available pulse crops in the region. Major canners and exporters are based in Egypt, Iran, UAE, and Kuwait. Canned products are produced under local or foreign labels and are exported internationally.

Muslims celebrate Ramadan during the ninth month of the lunar year. This holy period lasts for 30 days and is characterized by total abstention from eating and drinking from dawn until dusk during the festival. Daytime fasting is accompanied by praying and reading of the Koran. After sunset, the daily fast is broken by feasting. The cornerstone of these meals are traditional dishes prepared with pulse crops. The holiday Eid al Fitr marks the end of the Ramadan season, and features large feasts.

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** has grown 440% since 1991 to reach 2.8 Mha in 2001, while **total exports** grew 616% between 1990 and 2000 to reach 2.7 Mt. Dry peas, lentils and chick peas lead both these increases. In 2001, exports fell 6% to 2.6 Mt, primarily due to a decrease in lentil exports to Turkey.

During the same time period, **exports** to the Middle East and North Africa increased 792% to 306,437 t in 2000. Exports for 2001, however, are disappointing at 171,469 t, or 44% behind 2000. There was a large decrease in lentil imports by Turkey, as policy changes in Turkey made it less feasible to import large quantities of lentils for re-export to its trading partners. There was also a smaller decrease in dry pea imports by Algeria and Morocco. In 2000, Canadian sales of pulse crops to this region accounted for 11% of Canadian pulse exports, but 30% of the Middle East and North Africa pulse imports.

Constraints to Canadian Exports

While the Middle East and North Africa imported 18% of the world's imports in 2000, only 30% of that was of Canadian origin. Sales to most countries in this region are difficult due to numerous trade barriers, including import permits, labelling requirements, and trade agreements that exist with other countries, specifically the European Union (EU).

Due to the region's proximity to Europe, and the many trade agreements that exist, Canadian exports find great competition. Cyprus and Turkey have entered into customs unions with the EU and are preparing for EU membership. Free trade agreements have been made between the EU and Egypt, Israel, Jordan, Morocco, and Tunisia, while negotiations continue with Lebanon, Palestinian Authority, and Syria. Efforts to establish a Euro-Mediterranean

partnership for the creation of a free trade area by 2010 are intensifying. There are also plans for the creation of an Arab Free Trade area.

OUTLOOK

Recent droughts in North Africa, the Middle East and the Indian subcontinent stimulated significant demand in heavy consumption markets, and may have led to abnormally high import levels. In 2001, there was a return to normal harvest in Turkey, and potentially there will be a drop in demand for imports.

Improved crop prospects in India, Turkey, Iran, and Syria, combined with uncertain economic climates in many traditional buying regions such as Pakistan, Algeria, Egypt, and South America have impacted world demand at this time. Given the current state of political transition in Afghanistan, and global economic uncertainty, foreign currency may become a scarce commodity for many countries in this region. Without foreign currency, it may be difficult for some countries in this region to import goods, specifically food, from the western world.

On a more supportive note, food aid shipments to Afghanistan have included record amounts of dry beans and lentils. There could be more food aid tenders to cope with scarcities stemming from disruptions in civil order, following two years of serious drought. It is unclear, however, if this will make up for the increased costs of doing business with Afghanistan and the surrounding region.

As well, it is expected that the Middle East and North Africa need to increase protein supply significantly over the next twenty years, due to an expanding population.

For the future, the US Senate's agriculture committee has proposed a version of a new Farm Bill, which includes support payments for dry peas, lentils and chick peas. Such subsidies, which never existed before for these crops, could invoke higher production of these crops in the US, increasing the competition faced by Canadian pulse crops. A decision by the US Congress concerning the final form of a new American Farm Bill is pending.

And finally, while there are debates concerning whether Ramadan results in more sales of pulse crops, it is certain that little business is done during this month. Thus, most shipments are usually accepted in the month prior to Ramadan, causing a spike in imports at that time. Last year Ramadan began on November 16, but because the dates for the month of Ramadan are calculated on the basis of the shorter lunar year, the festival moves ahead by approximately 12 days on the Gregorian calendar each year. For many years, there has been sufficient time between the Canadian harvest and the start of the Ramadan season for Canadian exporters to make large sales during the peak buying period prior to Ramadan. This window of opportunity is closing, and in the near future, Ramadan will occur at the same time as the Canadian harvest, or even before the harvest, making these sales more difficult.

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

CANADA: EXPORTS OF PULSE CROPS TO THE MIDDLE EAST AND NORTH AFRICA

	1991	1998	1999	2000	2001
	.....thousand tonnes.....				
TOTAL PULSES [1/]					
Algeria	*18*	58	59	63	59
Egypt	*5*	17	22	30	27
Morocco	*0*	13	27	41	24
Turkey	*0*	14	44	113	17
Other	*9*	26	30	59	44
Total [2/]	***32***	**128**	**182**	**306**	**171**
LENTILS					
Algeria	*10*	48	51	44	38
Egypt	*5*	14	15	24	22
Morocco	*0*	9	20	33	21
Turkey	*0*	12	42	105	17
Other	*3*	13	15	31	18
Total [2/]	***18***	**96**	**143**	**237**	**116**
DRY PEAS					
Algeria	*8*	5	5	7	5
UAE	*0*	1	2	5	4
Saudi Arabia	*0*	3	3	3	3
Morocco	*0*	3	6	6	3
Other	*6*	7	4	7	5
Total [2/]	***14***	**19**	**20**	**28**	**20**
CHICK PEAS					
Algeria	*0*	0	1	9	7
Egypt	*0*	0	1	2	3
Jordan	*0*	0	0	1	3
UAE	*0*	1	1	6	2
Other	*0*	1	0	9	4
Total [2/]	***0***	**2**	**3**	**27**	**19**
DRY BEANS					
Algeria	*0*	5	3	3	9
Saudi Arabia	*0*	3	2	2	2
Israel	*0*	0	1	1	1
Other	*0*	4	3	5	1
Total [2/]	***0***	**12**	**9**	**11**	**13**

1/ includes broad beans, chick peas, cow peas, dry beans, dry peas and lentils.

2/ includes Afghanistan, Algeria, Bahrain, Cyprus, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, Turkey, UAE, and Yemen.

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Market Analysis Division,
Marketing Policy Directorate,
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Agriculture and Agri-Food Canada.
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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