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2005 Outlook of the U.S. and World Wheat Industries, 2004-2013

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Abstract

This report evaluates the U.S. and world wheat markets for the 2004-2013 period using the Global Wheat Policy Simulation Model. This analysis is based on a series of assumptions about general economic conditions, agricultural policies, weather conditions, and technological change.

Both the U.S. and world wheat economies are predicted to improve for the next nine years. World demand for both common and durum wheat are expected to grow faster than world production, resulting in gradual increases in prices of the wheat varieties. However, the higher price levels experienced in 2002 and 2003 due to weather conditions will not be maintained in the short term. World trade volumes of both classes of wheat are expected to expand, but trade volume of durum wheat may grow faster than that of common wheat.

Keywords: common wheat, durum wheat, production, exports, consumption, ending stocks

Highlights

Total world wheat trade is projected to increase by 16.0% from 85.5 million metric tons in 2004 to 99.2 million metric tons in 2013. Prices for durum and common wheat are expected to be lower than either the 2002 or 2003 levels, but to increase gradually for the 2004-2013 period.

Production of all wheat classes in the United States is predicted to increase for the 2004-2013 period. The largest increase in production occurs for U.S. hard red winter (HRW) wheat, followed by hard red spring wheat (HRS). Exports of common wheat are predicted to increase slightly for the 2004-2013 period, while exports for durum wheat will fall slightly due to competition other exporting countries.

Production of both Canadian western red spring (CWRS) and Canadian western amber durum (CWAD) wheat is predicted to increase for the 2004-2013 period. However, CWRS wheat production will grow faster than CWAD wheat production. CWRS wheat exports are projected to increase faster than CWAD wheat exports. Common and durum wheat production in the European Union (EU) is predicted to increase 1.9% and 5.4%, respectively, from the 2002-2004 average to 2013. Exports of both wheat classes are predicted to increase. The main reason for the increase is the abnormally low export level during 2002-2003.

Australia's wheat production is predicted to grow 43.7% over the 2004-2013 period; much of that increase is due to the small crop in 2002. Wheat exports also are expected to increase from 16.9 million metric tons in 2004 to 21.2 million metric tons in 2013. Argentinian wheat production is projected to increase 23.1% from 16.0 million metric tons in 2004 to 17.2 million metric tons in 2013. Wheat exports are expected to increase from 10.0 million metric tons in 2004 to 17.2 million metric tons in 2013.

The Former Soviet Union (FSU), China, and India have gone from major importing countries to exporting countries during the past 10 years. Wheat production in India has increased 40-50% since the 1980s. Most of the increase has been due to increases in yields. China's production peaked in 1997 and has been decreasing since. China has been lowering its carry-over stocks to limit imports. Production in the FSU remained below the 1980s level until 2001 and 2002, when production increased 15% and 25%, respectively, above this level. Production fell in 2003 to 85% of the 1980s level before recovering in 2004. India and the FSU are expected to remain exporters of wheat, while China is expected to become an importer in the future.

Most importing countries are predicted to increase their imports for both common and durum wheat. Among those countries, import demand for common wheat in Brazil and Venezuela will grow faster than in other countries. Import demand for durum wheat in Algeria is predicted to grow faster than that for common wheat. Import demand for common wheat in Morocco, Egypt, and Mexico is expected to be strong for the period.

Import demand for both common and durum wheat is largely based on an optimistic prediction of income growth (2.5% to 6% annually) in developing and developed countries; these figures were provided by Global Insight. However, if the predicted income growth is not realized, import demand could grow slower than predicted and estimated prices could be lower.

2005 Outlook of the U.S. and World Wheat Industries, 2004-2013

Won W. Koo and Richard D. Taylor*

INTRODUCTION

This report evaluates the U.S. and world wheat industries for the 2004-2013 period using the Global Wheat Policy Simulation Model developed by Benirschka and Koo. The outlook projection is based on an assumption that current farm and trade policies adopted by wheat exporting and importing countries will not change. Assumptions associated with macroeconomic variables, such as GDP growth rates, interest rates, inflation rates, exchange rates, and consumer price indices in the United States and other countries, are based on forecasts prepared by Global Insight. Average weather conditions and historical rates of technological change are also assumed to prevail during the projection period.

Wheat is a differentiated product. Substitution among wheat classes is imperfect, and consumer preferences differ among countries, suggesting that wheat characteristics are an important determinant of trade flows. The Global Wheat Policy Simulation Model is a partial equilibrium model that distinguishes wheat into common and durum wheat. U.S. common wheat is further divided into four classes: hard red winter (HRW), hard red spring (HRS), soft red winter (SRW), and white wheat.

The model contains seven exporting countries and regions [Argentina, Australia, Canada, the United States, the European Union (EU), India, and the Former Soviet Union (FSU)] and 12 importing countries and regions [Algeria, Brazil, China, Egypt, Japan, Mexico, Morocco, South Korea, Taiwan, Tunisia, Venezuela, and a Rest of the World region]. India became an exporter in 2000 by drastically reducing ending stocks from 21.5 million tons in 2000 to 5.5 million tons in 2004. The FSU became an exporting region in 2001 and is projected to continue to export wheat throughout the forecast period. The model simulates production, consumption, stocks, and exports or imports for wheat classes over a nine-year period. The model is solved for a set of equilibrium wheat prices in which demand for each wheat class equals supply for every year. The model is linked to the Food and Agricultural Policy Research Institute (FAPRI) model and uses the predicted prices of all agricultural commodities, except wheat, from the model. The model uses 2003 as the base year of the simulation.

Wheat is widely produced across the world. Total world wheat production has increased from 521 million tons in 1986/87 to 524 million tons in 2004/05. The EU (137 million tons) was the largest producer of wheat in 2004, followed by China (90 million tons) and the United States (64 million tons). Other major wheat-producing countries are the FSU, Canada, Australia, Turkey, India, and Argentina. These nine countries produce about 74% of the wheat in the world. Because of the concentration of wheat production in a few countries, a large volume of wheat is traded in the world market. The total quantity of wheat traded in the world market was 99 million tons in 2004, which is about 15% of wheat produced in that year. Major exporting countries are the United States, Canada, Australia, the EU, and Argentina.

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The world wheat market has changed dramatically in the past decade. Farm support policies in exporting and importing countries have encouraged production, resulting in increasing stocks, although recent weather problems in various countries have resulted in decreases in production. As world trade decreased during the early 1980s due to a depressed world economy, major exporting countries expanded the use of export subsidies or export promotion programs to maintain their grain market shares.

The Uruguay Round of GATT negotiations, which became effective in 1995, has affected trade flows of wheat. In addition, past financial crises in several Asian countries, including South Korea, Thailand, Indonesia, and Taiwan, also have affected the world wheat market. Import demand for wheat within those countries has fallen substantially, resulting in depressed wheat prices in the world market. The average export price of wheat at the Gulf ports decreased from \$5.02 per bushel in 1996/97 to \$3.30 per bushel in 2001/02; it increased to \$3.62 in 2003 due to weather conditions in the United States, Canada, and Australia, and then fell to \$3.22 in 2004.

WORLD WHEAT INDUSTRY

World wheat trade is dominated by a few exporting countries: the United States, Canada, Australia, the EU, and Argentina. These countries handle over 80% of wheat traded in the world market. Even though exporting countries compete with each other, the world wheat market is not perfectly competitive. Australia and Canada use wheat boards to market their grain, while the EU relies on export subsidies to increase its market share. In addition, some countries use credit guarantees and long-term preferential trade agreements to promote their exports.

Wheat Classes

Wheat varieties are highly differentiated in terms of their agronomic and end-use attributes. Based on criteria such as kernel hardness, color, growth habitat, and protein content, wheat is divided into several classes. Color and hardness refer to physical properties of the wheat kernel. Based on the color of the outer layer of the kernel, common wheat varieties are described as white, amber, red, or dark, while the hardness of the kernel is used to characterize them as hard or soft. Most wheat varieties grown today belong to the broad category of common or bread wheat, which accounts for approximately 95% of world wheat production. The remaining 5% of world wheat production is durum wheat used to produce pasta and couscous. Common wheat is further divided into hard red spring, hard red winter, and soft wheat.

Growth habitat is an important agronomic feature of wheat varieties. Winter wheat is planted in late summer or fall and requires a period of cold winter temperatures for heading to occur. After using fall moisture for germination, the plants remain in a vegetative phase or dormancy during the winter and resume growth in early spring. In contrast to winter wheat, spring wheat changes from vegetative growth to reproductive growth without exposure to cold temperatures. In temperate climates, spring wheat is sown in spring. Since yields tend to be higher for winter wheat than for spring wheat, spring wheat is produced primarily in regions where winter wheat production is infeasible, where frozen soil kills the wheat plants, or where winters are too warm. Countries with mild winters, such as Argentina and Brazil, produce spring wheat but plant in the fall rather than in the spring.

Wheat Production

Because of differences in soil types and climates, wheat produced in one country generally differs from that produced in other countries. The United States produces hard, soft, and durum wheats. Hard wheat produced in the United States is further divided into hard red winter (HRW) and hard red spring (HRS) wheat, and soft wheat is divided into soft red winter (SRW) and white wheat. SRW wheat is produced in the Corn Belt and Southern states. HRS and durum wheat are grown in the Northern Plains, mainly North Dakota, which produces about 80% of durum wheat and 60% of HRS wheat produced in the United States. HRW wheat is grown primarily in the Central Plains, particularly Kansas and Oklahoma. White wheat, a type of soft wheat, is grown in the Pacific Northwest, Michigan, and New York. Average U.S. wheat production for the 2000-2004 period was 57.6 million tons, with 23.8 million tons of HRW, 12.7 million tons of HRS, 10.6 million tons of SRW, 7.4 million tons of white wheat, and 2.5 million tons of durum wheat (Table 1).

Table1. Wheat Production by Class, 2000 to 2004 Average Production							
Country/Class	2000	2001	2002	2003	2004	Average	Share
Argentina							
Common	16,230	15,500	12,300	13,500	16,000	14,706	3.0
Australia							
Common	23,766	24,299	10,132	26,231	21,500	21,186	4.4
Canada							
All	25,004	20,586	16,200	23,546	25,890	22,245	4.6
Common	19,357	17,394	13,772	19,355	21,545	18,285	3.8
Durum	5,647	3,192	2,428	4,191	4,346	3,961	0.8
EU							
All	105,310	113,553	124,483	106,449	136,725	117,304	24.1
Common	95,832	104,553	115,283	98,249	127,325	108,248	22.3
Durum	8,900	9,000	9,200	8,200	9,400	8,940	1.8
United States							
All	60,759	53,019	46,710	63,590	63,737	57,563	11.8
HRW	23,033	20,845	16,882	28,928	29,124	23,762	4.9
HRS	13,670	12,947	9,564	13,605	13,548	12,667	2.6
SRW	12,830	10,807	8,736	10,320	10,309	10,601	2.2
White	8,238	6,145	6,347	8,108	8,097	7,387	1.5
Durum	2,988	2,275	2,177	2,629	2,659	2,546	0.5
Other Producers							
All	255,206	252,640	250,546	248,594	259,754	253,348	52.1
Total World							
All	486,276	479,597	460,371	481,909	523,606	486,352	100.0

Table1. Wheat Production by Class, 2000 to 2004 Average Production

Source: FAO Stat, International Grains Council, Canadian Wheat Board, ERS-PS&D

The majority of Canadian wheat is produced in Saskatchewan, southwestern Manitoba, and southeastern Alberta. Canada primarily produces a hard red spring wheat (Canadian

Western Red Spring (CWRS) and durum wheat. Average Canadian wheat production for the 2000-2004 period included 18.3 million tons of CWRS and 4.0 million tons of durum wheat (Table 1).

The EU produced an annual average of 108.2 million tons of soft wheat and 8.9 million tons of durum wheat during the 2000-2004 period. France accounted for 35% of soft wheat production in the EU in 2004. Germany and the United Kingdom are also major producers. The majority of durum is produced in Italy, Greece, and France. Italy accounted for nearly 60% of EU durum production in 2004, followed by Greece (22%) and France (13%). With the addition of the ten Eastern European countries in 2003, the EU production increased about 14%.

Australia primarily produces a winter wheat which is similar to HRW wheat in terms of quality and characteristics. Australian average wheat production amounted to 21.2 million tons for the 2000-2004 period. Wheat production is concentrated in the eastern Australian states of New South Wales and Victoria.

Argentina produces a wheat with characteristics of both soft and hard wheat. Argentina's average wheat production amounted to 14.7 million tons for the 2000-2004 period.

Table 2 shows the historical harvested area, yields, and production of the major wheat producing countries/regions in the world, by decades. Harvested wheat area in India has increased 93% since the 1960s, followed by Australia (56%) and Argentina (23%). The wheat area for the EU increased 23% but the majority of that was due to the additional countries within the EU. Wheat area in the United States remained about the same, while wheat area in Canada fell 9% from the 1960s level. World wheat harvested area increased only 1% during the recent decades.

Yields increased 331% in China since the 1960s, and increased in India by 200%. The EU and Argentina had yield increases of 124% and 77%, respectively. The U.S. yields increased 55%, while Canadian yields increased 50%. The world wheat yield increased 115% during the five decades.

Total wheat production in India increased 476% since the 1960s, and increased in China by 309%. The EU production increased 180%, but a large share of that was due to the additional countries included in the EU. Australia and Argentina increased production by 121% and 116%, respectively. The United States and Canada increased production by 56% and 36%, respectively. China's production increases have fallen off during the 2000s due to substantially small harvested area. Figure 1 shows the changing levels of production.

	1960	1970	1980	1990	2000	% Change
Harvested Area		1	,000Ha			<u></u>
Argentina	5,023	4,625	5,629	5,320	6,187	23
Australia	7,691	8,735	10,954	9,620	12,005	56
Canada	11,187	9,198	13,101	12,109	10,143	-9
China	24,937	27,358	29,037	29,858	23,740	-5
EU	18,523	16,790	17,269	17,293	22,827	23
FSU	66,415	61,465	52,005	45,595	44,594	-33
India	13,675	19,554	23,170	25,122	26,457	93
U.S.	20,324	23,643	26,493	24,829	20,268	-0
World	212,479	220,997	229,639	223,086	214,824	1
Yield			MT/Ha			
Argentina	1.34	1.53	1.80	2.27	2.37	77
Australia	1.23	1.29	1.37	1.76	1.72	40
Canada	1.47	1.80	1.84	2.27	2.21	50
China	0.90	1.55	2.73	3.56	3.89	331
EU	2.34	3.22	4.44	5.43	5.23	124
FSU	1.03	1.43	1.51	1.59	1.77	73
India	0.89	1.35	1.85	2.43	2.68	200
U.S.	1.77	2.11	2.41	2.60	2.75	55
World	1.26	1.68	2.14	2.55	2.70	115
Production			1 000Mt			
Argentina	6,799	7,150	10,181	12,152	14,706	116
Australia	9,416	11,386	14,970	17,206	20,854	121
Canada	16,554	16,626	24,073	27,415	22,537	36
China	22,492	42,718	79,238	106,119	92,059	309
EU	43,293	53,877	76,796	93,467	121,115	180
FSU	68,322	87,914	78,057	72,530	79,535	16
India	12,326	26,607	42,959	61,177	71,004	476
U.S.	35,965	49,642	63,731	64,443	55,980	56
World	267,528	371,075	489,177	568,001	580,858	117

Table 2. Harvested Area, Yields, and Production for Major Wheat Producing Countries/Regions

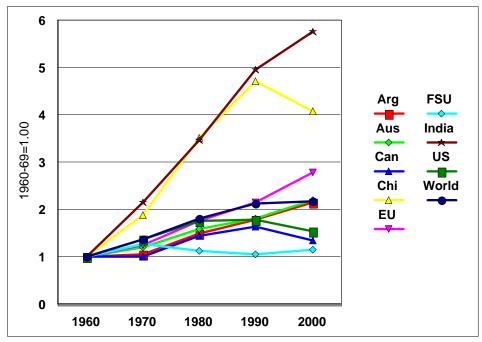


Figure 1. Wheat Production in Major Wheat Producing Countries/Regions

Different wheat classes have their preferred uses. Hard wheat flour has excellent bread baking properties; soft wheat flour is well-suited for cakes, cookies, and Asian noodles; and durum wheat is used for pasta products and couscous. However, since different types of wheat can be blended to produce flours with certain characteristics, some substitution among wheat classes is possible in flour milling.

Although wheat is used primarily for human consumption, it is also an excellent feed grain for poultry and livestock. Feed use of wheat tends to be highly variable and depends on the quality of the wheat crop and the price relationship between wheat and other feed grains. Generally, only lower quality wheat is used for feed, and differences among wheat classes are not important for feeding purposes. Wheat is a differentiated product only for human consumption.

Major importing countries include Algeria, Brazil, China, Egypt, Japan, Mexico, Morocco, South Korea, Taiwan, Tunisia, and Venezuela (Table 3). Most of these importing countries use various types of barriers to restrict the inflow of wheat to their countries. Until 1995, China had been the largest importer of wheat, followed by Brazil and Japan. However, China's wheat imports have been highly volatile, depending upon its domestic wheat production and import policies. China recently reduced wheat imports substantially, and changed from importing 12.0 million tons in 1995 to becoming a net exporter of wheat in 2001.

The EU and the United States are major exporters of wheat, but they also import considerable amounts of wheat. The United States imports wheat from Canada, while the EU imports wheat from the United States, Canada, Argentina, and Australia. The largest importer of wheat is Egypt, followed by Brazil and Japan (Table 3).

Table 3. Wheat In	nports by Co	ountry, 200	<u>10 to 2004 A</u>	Average Im	ports		
Country	2000	2001	2002	2003	2004	Average	Share
Algeria	5,600	4,572	6,079	3,933	4,300	4,897	3.9
Brazil	7,201	7,002	6,721	3,779	4,800	5,901	4.7
Egypt	6,050	6,944	6,316	7,290	7,490	6,818	5.4
Japan	5,911	5,371	5,118	5,288	5,250	5,388	4.3
Korea	3,127	3,857	3,929	3,302	3,875	3,618	2.9
Mexico	2,361	2,623	2,564	3,193	3,600	2,868	2.3
Morocco	3,534	2,922	2,518	2,341	2,050	2,673	2.1
United States	2,449	2,586	2,586	2,531	544	2,139	1.7
Other	55,173	50,637	56,826	56,669	56,648	55,191	44.0
Total World	135,702	122,277	122,584	122,375	124,563	125,500	100.0

Table 3. Wheat Imports by Country, 2000 to 2004 Average Impo
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Sources: United Nations, International Wheat Council, Canadian Wheat Board, ERS-PS&D

Wheat Exports

The major wheat exporting countries (the United States, Canada, the EU, the FSU, Australia, and Argentina) supply approximately 80% of the wheat traded in the world market. The United States is the largest exporter, followed by Canada and Australia (Table 4). The United States leads in exports of HRW and SRW wheats; an average of 27.5 million metric tons of all wheat classes was exported annually from 2000 to 2004, of which 10.6 million metric tons were HRW and 6.8 million metric tons were HRS. The United States competes with the EU for market share of SRW wheat. Major U.S. and EU markets for SRW wheat include China, West Asia, and North Africa.

Canada is the leader in exports of HRS and durum wheat. The United States also exports HRS and durum wheat and competes with Canada. The EU competes with the United States and Canada for market share of durum wheat exports. Major U.S. markets for HRS wheat include Southeast Asia and East Asia, including Japan and South Korea. Major Canadian markets for HRS wheat include China and the East Asian markets. The United States, Canada, and the EU compete intensely for the North African durum markets.

Australia and Argentina compete with the United States in exporting HRW wheat. Major U.S. markets for HRW wheat include China and East Asia. Argentina exports HRW wheat mainly to South America and West Asia. Australia's major markets are the North African countries, China, and West Asia.

Table 4. Wheat Exports by Class, 2000 to 2004 Average Exports							
Country	2000	2001	2002	2003	2004	Average	Share
Argentina/Common	11,265	10,063	6,752	8,990	9,990	9,412	7.5
Australia/Common	15,856	16,333	8,860	17,958	16,925	15,186	12.1
Canada							
All	16,746	16,272	9,403	15,774	15,492	14,737	11.7
Common	13,269	13,147	6,850	12,533	12,300	11,620	9.3
Durum	3,477	3,125	2,553	3,241	3,192	3,118	2.5
EU							
All	19,851	3,516	6,019	5,019	10,500	8,981	7.2
Common	18,976	2,666	5,119	4,919	9,500	8,236	6.6
Durum	875	850	900	100	1,000	745	0.6
United States							
All	28,903	26,182	23,215	31,298	27,896	27,499	21.9
HRW	10,696	9,498	8,410	14,152	10,260	10,603	8.4
HRS	6,178	5,906	7,049	7,076	8,029	6,847	5.5
SRW	4,899	5,443	2,858	3,946	3,538	4,137	3.3
White	5,606	4,001	4,028	5,035	5,307	4,795	3.8
Durum	1,524	1,334	871	1,089	762	1,116	0.9
Other Producers							
All	52,484	53,835	51,938	36,532	38,652	46,688	37.2
Total World							
All	135,702	122,277	122,584	122,375	124,563	125,500	100.0
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Table 4. Wheat Exports by Class, 2000 to 2004 Average Exports

Sources: United Nations, International Wheat Council, Canada Wheat Board, ERS-PS&D

RECENT CHANGES IN THE WORLD WHEAT INDUSTRY

Figure 2 shows the recent price trend for U.S. wheat. The price levels have varied from a high of \$5.64 per bushel in 1995 for durum wheat to a low of \$2.20 per bushel in 1998 for SRW wheat. The prices for all of the wheat classes have recovered from the lows of 1998-1999 to the \$3.25 to \$4.00 range in 2002 and 2003, before falling to the \$2.75 to \$3.50 range. Prices respond to changes in supply and demand. Therefore, major changes or shocks must have taken place in the world wheat industry to affect prices to this extent.

Figure 3 shows the world wheat production for the last 10 years. An index was created on the basis of the average of 1985 through 1994 production levels. The index was set at 1.00 for those years. World wheat production grew during the mid-1990s, peaking in 1997 with an 18% increase over the 1984/94 levels. Wheat production then slowly fell until it was only 3% above the 1985/94 levels. Prices responded to increased world production in 1996 and 1997. Then, with a small drop in production (from 1.09 to 1.03) in 2002 and 2003, prices increased about 40% from the low levels in 1999. This shows an unusual degree of price sensitivity. The large increase in production in 2004 reduced prices again by about 12%.

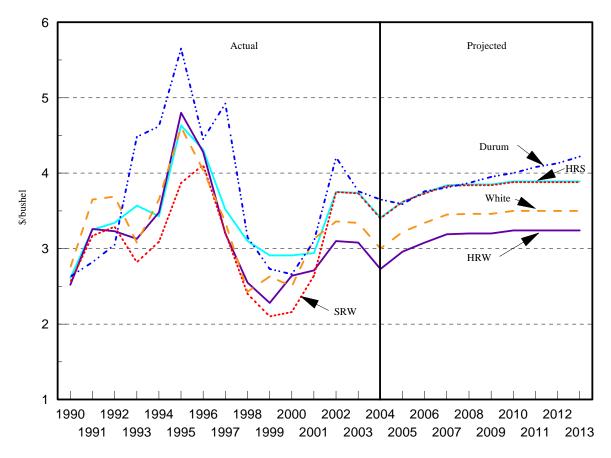


Figure 2. Actual and Projected Farm Wheat Price, by Class

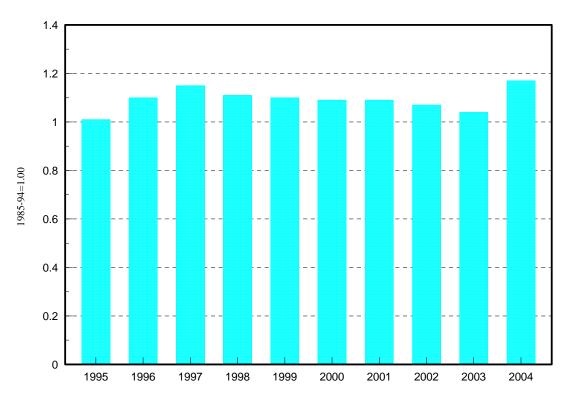


Figure 3. World Wheat Production, 1995 to 2004

Figures 4 and 5 show wheat production for the major exporting countries. Both Argentina and Australia had increased their production by 70% to 80% by 1999. In 2002, Argentinian production fell 30% below the long-term average and Australian production fell 60% below its long-term average. Both countries' production increased in 2003, and Argentine production increased another 18% for 2004, while Australian production fell 11%. The Canadian and U.S. wheat production levels remained near the long-term average until 2001, when Canadian and U.S. wheat production fell by 23% and 12%, respectively, from the long-term average. In 2002, Canadian wheat production was 40% less than the long-term average, and the U.S. wheat production was 28% less. Both countries' production returned to the long-term average in 2003, but U.S. production fell slightly in 2004.

Wheat exports have followed the same trend as production in major exporting countries. Argentinian and Australian exports increased by more than 50% from 1997 through 2001, while exports for Canada, the United States, and the EU fell to about 80% of the long-term average. In 2002, Australian exports were only 80% of the long-term trend, while exports for Canada, the United States, and the EU were 45%, 66%, and 83%, respectively. During this time, world exports did not change substantially.

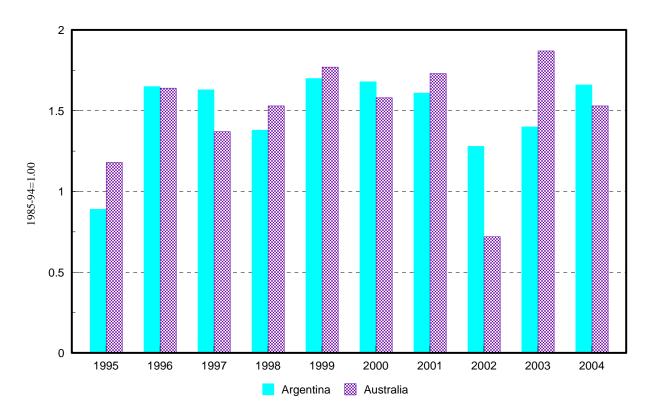


Figure 4. Wheat Production in Argentina and Australia

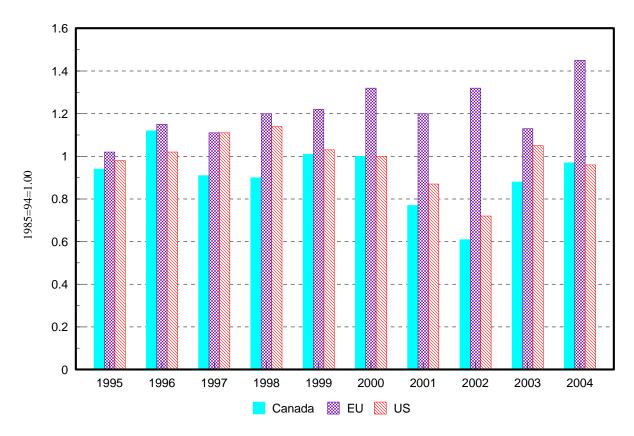


Figure 5. Wheat Production in Canada, the EU, and the United States

Wheat exports from India and the FSU increased dramatically in 2001 and 2002, which made up for the shortfall from other countries. Figure 6 shows the wheat production in China, the FSU, and India for 1995 through 2004. Both India and China increased wheat production during the time period.

China's production peaked in 1997 at 29% more than the long-term average, and India's production peaked in 2000 at 49% more than the long-term average. The FSU production remained less than the long-term average until 2001, when it grew to 13% larger than the long-term average. In 2002, the FSU wheat production increased again to 22% over the long-term trend. China's production has been falling since 1997. In 2004, the level was only 97% of the long-term trend.

Figure 7 shows exports for China, the FSU, and India. The bars above zero indicate imports, while bars below zero are exports. During the late 1980s and early 1990s, these countries imported about 28 million metric tons of wheat. Currently, they export about 5 million metric tons of wheat. The FSU exported 11 million metric tons of wheat in 2001 and 22 million metric tons of wheat in 2002. In 2003 and 2004, the FSU exported a very small amount of wheat. India went from a small importing country to a large exporting country in 2000 and has continued to export wheat throughout the 2001-2004 time period. China continues to export a small amount of wheat.

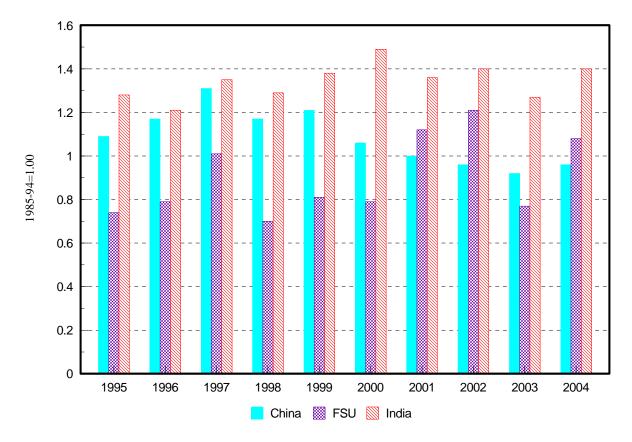


Figure 6. Wheat Production in China, the FSU, and India

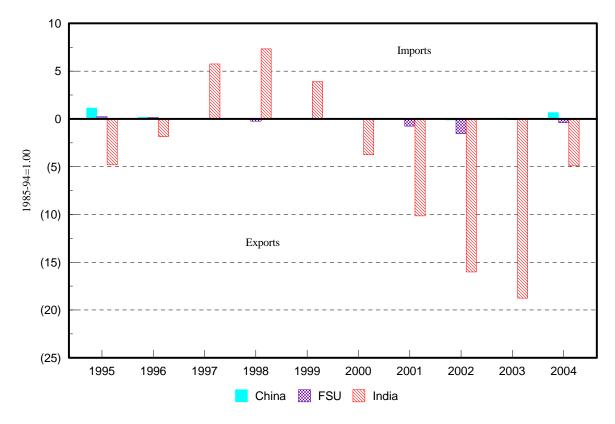


Figure 7. Wheat Exports for China, the FSU, and India

Figure 8 shows the ending stocks for China, India, and the FSU. China's ending stocks increased in 1999 to about 200% of the long-term average. Since then, the ending stocks have fallen to about 82% of the long-term average. China has been utilizing its ending stocks to support domestic consumption. In the near future, with smaller production, China will have to resume buying wheat. India's ending stocks increased by 220% of the long-term average in 2001. Since that time, India has exported large amounts of wheat, reducing its ending stocks. The FSU ending stocks are near the long-term trend.

China's wheat production has declined 6% since the 1985-94 average; there has also been a 22% decrease in the area harvested. The FSU wheat production has increased less than 1%, while the harvested area has decreased 5%. India's production has increased 33% since 1994, and the harvested area has increased 9%. Of these countries, only India has had a large increase in wheat production during the past 10 years.

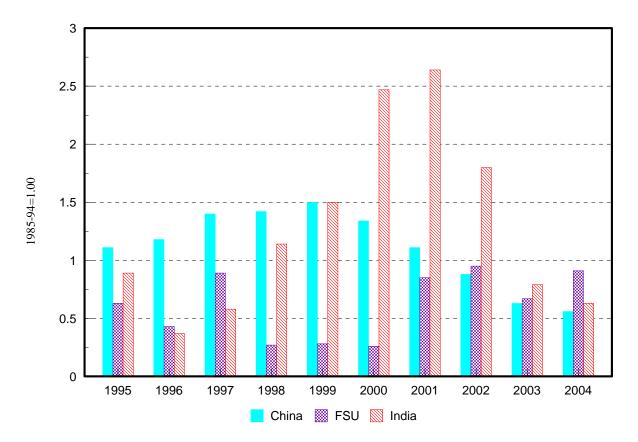


Figure 8. Ending Stocks for China, the FSU, and India

World wheat exports have not varied much during this period. The large increases in exports by India and the FSU have been absorbed by the rest of the world, reflected both in lower exports by Canada and the EU and in higher imports by the rest of the world. Figure 9 shows the imports for the rest of the world less India, China, and the FSU. Imports grew by 34% in 1999 and were 21% above the long-term average in 2004, growing about 3% per year. Table 5 compares wheat exports by major exporting countries in 1990 and 2004. The United States has been the largest exporter of wheat for the 1990-2004 period. Exports of wheat increased 5.1% from 28.1 million metric tons to 29.5 million metric tons. Canada was the second largest wheat exporter, followed by Australia. However, Canadian wheat exports were reduced by 30%, from 22.1 million metric tons to 15.4 million metric tons. The EU decreased its exports significantly from 18.6 million metric tons to 10.5 million metric tons.

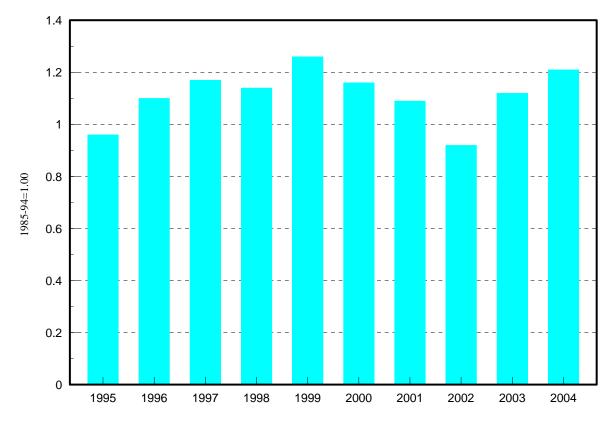


Figure 9. World Imports without China, the FSU, and India

Table 5. Wheat Exports by the Major Exporting Countries, 1990 and 2004							
	1990	2004	Percentage Change				
Argentina	5,592	9,990	78.6				
Australia	11,790	16,925	43.6				
Canada	22,130	15,492	-30.0				
China	(9,406)	(7,000)	NA				
EU	18,635	10,500	-43.7				
FSU	(14,649)	9,620	NA				
India	100	1,480	1380.0				
United States	28,117	29,543	5.1				
World	120,012	124,563	3.8				

Sources: United Nations, International Wheat Council, Canada Wheat Board, ERS-PS&D

OUTLOOK FOR THE WORLD WHEAT INDUSTRY

Total world wheat trade for the five major exporters is projected to increase 16.0% from 85.5 million metric tons in 2004 to 99.2 million metric tons in 2013. Trade of all wheat classes is expected to increase for the 2004-2013 period. Common wheat production in Australia is predicted to increase faster than in other countries, and durum wheat production in Canada is predicted to increase faster than other durum producing countries.

Figure 10 shows 13 years of historical prices and nine years of forecasted prices. During the previous 13 years, HRS wheat price varied between \$2.54 per bushel in 1990 to \$4.61 per bushel in 1995. For the most part, prices followed U.S. and world wheat production patterns. From 1994 through 1996, decreased production in the United States and Argentina increased prices. By contrast, increased world production following this period lowered prices until 2000-2001. Smaller crops in the EU (2001) and in Canada and Australia (2002) increased prices. All wheat prices except durum are expected to level off in 2008 and remain at that level throughout the forecast period.

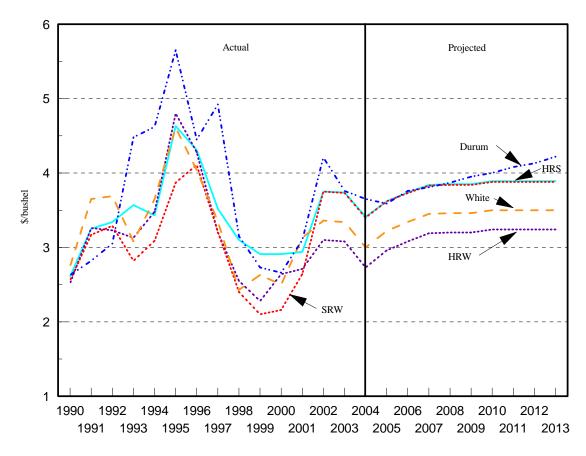


Figure 10. Actual and Projected Farm Wheat Price, by Class

United States

Table 6 shows wheat production, consumption, exports, and ending stocks in the United States. By 2013, total U.S. wheat production is expected to grow 18.1% above the 2002-2004 average, but will still be much lower than production during the late 1990s. The largest increases in production occur for U.S. HRW wheat (20.8%), followed by HRS wheat (18.0%) and white wheat (15.4%). Production of durum wheat is expected to increase 14%. Changes in production of different classes of wheat over the 2003-2013 period are shown in Figure 11. For all classes of wheat, production is expected to increase throughout the forecast period.

				% Change
	Average			(2002-2004) to
	(2002-2004)	2004	2013	2013
	1,000 n	netric tons		
Production				
Common	57,011	63,737	67,310	18.1
HRW	24,978	29,124	30,182	20.8
HRS	12,239	13,548	14,443	18.0
SRW	9,789	10,309	11,167	14.1
White	7,517	8,097	8,676	15.4
Durum	2,488	2,659	2,841	14.1
Consumption				
Common	30,482	32,659	35,723	17.2
Durum	2,250	2,259	2,624	16.6
<u>Exports</u>				
Common	26,826	30,591	27,502	2.5
Durum	417	816	403	-3.4
Carry-over				
Common	13,336	13,363	13,330	-0.0
Durum	747	716	923	23.6

 Table 6. Wheat Production, Consumption, Exports, and Carry-over Stocks

 in the United States

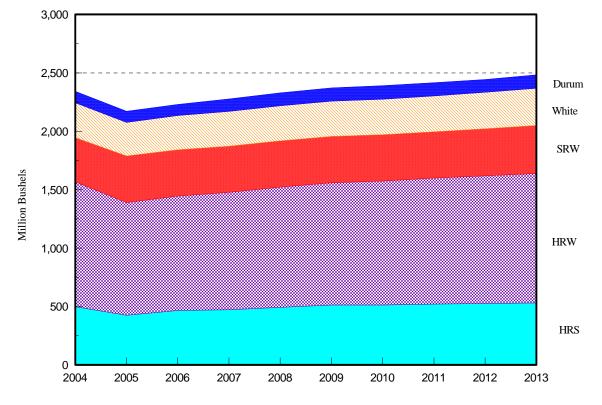


Figure 11. U.S. Wheat Production, 2004 to 2013

Total wheat harvested area is expected to increase from 50.5 million acres for the 2002-2004 average to 55.8 million acres in 2013, and average yield is predicted to increase from 42.0 bushels per acre to 44.3 bushels per acre. HRS wheat area is predicted to increase 1.4 million acres, and the U.S. durum area is expected increase 0.2 million acres.

Common wheat consumption is expected to grow faster than durum wheat consumption. U.S. wheat consumption is projected to grow 17.2% for common food and feed wheat (Figure 12) and 16.6% for U.S. durum wheat for the 2004-2013 period (Figure 13).

U.S. durum exports are projected to decrease 3.4% from 417 thousand metric tons in 2002-2004 to 403 thousand metric tons in 2013 (Table 6). Common wheat exports are predicted to increase gradually from 26.8 million metric tons in 2002-2004 to 27.5 million metric tons in 2013, although a continued weak dollar may increase exports slightly. Ending stocks are expected to remain constant for common wheat and increase for durum wheat (Table 6).

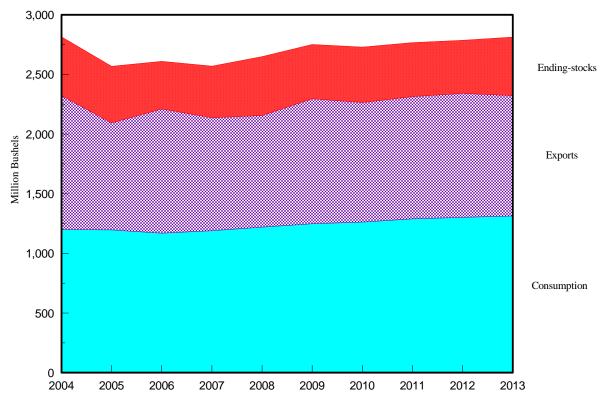


Figure 12. U.S. Common Wheat Utilization, 2004 to 2013

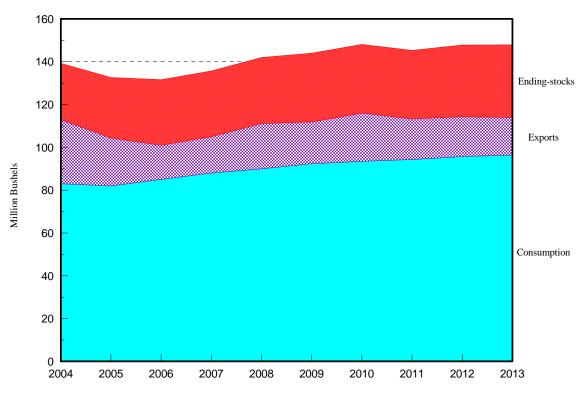


Figure 13. U.S. Durum Wheat Utilization, 2004 to 2013

Canada

The production and consumption of CWRS wheat in 2004 was larger than the three-year averages (Table 7). By 2013, CWRS and CWAD wheat production is predicted to increase 23.5% and 28.3%, respectively, from the 2002-2004 average. Total area for CWRS wheat is expected to increase from 7.9 million hectares in 2004 to 8.6 million hectares in 2013, while CWAD wheat area is expected to increase from the 2002- 2004 average of 1.8 million hectares to 2.0 million hectares in 2013.

Domestic consumption of CWRS and CWAD wheat is predicted to increase 10.1% and 5.3%, respectively, over the 2004-2013 period. Canadian WRS wheat exports are projected to increase 35.7% by 2013, and CWAD wheat exports are predicted to increase 20.9% from 3.0 million metric tons to 3.6 million metric tons in 2013.

Ending stocks are predicted to increase 20.8% for CWRS wheat and increase 18.6% for CWAD wheat for the 2004-2013 period.

	Average			% Change (2002-04) to
	(2002-2004)	2004	2013	2013
Production		,000 metric		2015
WRS	18,224	21,545	22,499	23.5
WAD	3,655	4,346	4,689	28.3
Consumption				
WRS	7,353	8,212	8,098	10.1
WAD	992	988	1,045	5.3
Exports				
WRS	10,561	12,300	14,331	35.7
WAD	2,995	3,192	3,621	20.9
Carry-over				
WRS	5,404	6,327	6,525	20.8
WAD	996	1,085	1,181	18.6

 Table 7. Wheat Production, Consumption, Exports, and Carry-over Stocks in

 Canada

Figure 14 shows changes in consumption, exports, and ending stocks of CWRS wheat in Canada from 2004 to 2013, and Figure 15 shows the trends for CWAD wheat. Consumption of CWRS and CWAD wheat increase gradually throughout the period.

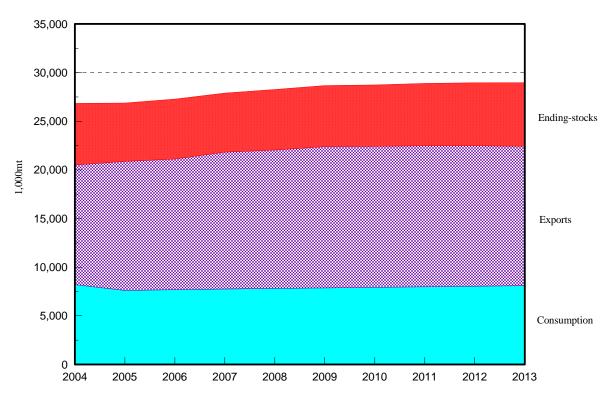


Figure 14. Canadian Western Red Spring Wheat Utilization, 2004 to 2013

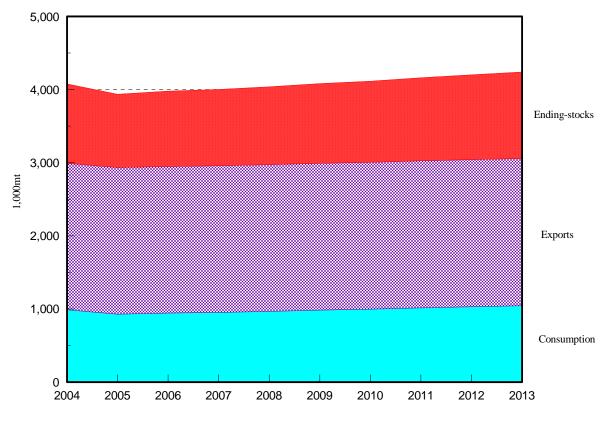


Figure 15. Canadian Western Amber Durum Wheat Utilization, 2004 to 2013

European Union

Table 8 presents production, consumption, exports, and ending stocks of common and durum wheat in the EU for the 2004-2013 period. Common wheat production in the EU is predicted to increase 1.9% from the 2002-2004 average by 2013, while durum wheat production is expected to increase 5.4%.

Domestic consumption of common wheat is projected to increase 2.4%, and consumption of durum wheat is predicted to increase 1.9% for the period. Compared to the 2002-2004 averages, exports of common wheat are predicted to increase 16.2% by 2013, while exports of durum wheat are expected to increase 69.1%. The exports of common and durum wheat will return to normal levels after the small crop and export levels in 2001 and 2003. Ending stocks are expected to increase for both classes.

the European emon				% Change
	Average			(2002-04) to
	(2002-2004)	2004	2013	2013
Production	1,00	0 metric ton	S	
Common	113,619	127,325	115,766	1.9
Durum	8,933	9,400	9,420	5.4
Consumption				
Common	105,555	108,042	108,087	2.4
Durum	8,119	8,096	8,277	1.9
<u>Exports</u>				
Common	6,513	9,500	7,566	16.2
Durum	667	1,000	1,127	69.1
Carry-over				
Common	13,944	17,591	16,418	17.7
Durum	1,212	1,715	1,910	57.6

 Table 8. Wheat Production, Consumption, Exports, and Carry-over Stocks in

 the European Union

Figures 16 and 17 show changes in consumption, exports, and ending stocks of common and durum wheat for the 2004-2013 period. For common wheat, production, exports, and ending stocks are expected to increase slightly. Production, consumption, exports, and ending stocks of durum wheat are also predicted to increase for the period.

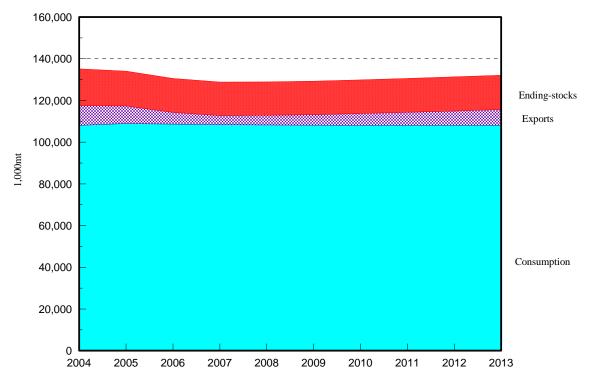


Figure 16. EU Common Wheat Utilization, 2004 to 2013

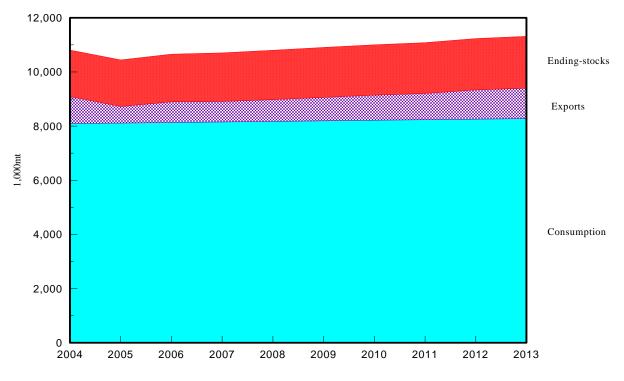


Figure 17. EU Durum Wheat Utilization, 2004 to 2013

Australia

Compared to the 2002-2004 average, Australia's wheat production is projected to grow 43.7% by 2013 (Table 9). In 2002, Australia had a very small crop, which lowered the average production. Yields are expected to increase gradually at the historical trend line, while wheat area is expected to increase 9.1%. Domestic wheat consumption is predicted to increase 7.3% from the 2002-2004 average of 5.9 million metric tons to 6.3 million metric tons in 2013. Wheat exports are also predicted to increase from the 2002-2004 average of 14.6 million metric tons to 21.2 million metric tons in 2013. Figure 18 shows changes in consumption, exports, and ending stocks for the 2004-2013 period.

				% Change
	Average			(2002-04) to
	(2002-2004)	2004	2013	2013
Production	19,288	21,500	27,721	43.7
Consumption	5,911	5,600	6,341	7.3
Exports	14,581	16,925	21,236	45.6
Carry-over	4,345	4,434	4,837	11.3

Table 9. Wheat Production,	Consumption,	Exports, and	Carry-over Stocks
in Australia (1,000 metric to	ns)		

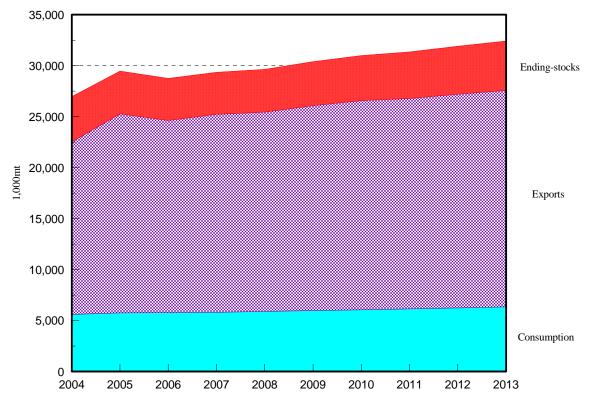


Figure 18. Australian Common Wheat Utilization, 2004 to 2013

Argentina

Argentinian wheat production is projected to increase 23.1% from the 2002-2004 average of 13.9 million metric tons to 17.2 million metric tons by 2013 (Table 10). Domestic wheat consumption is expected to increase 11.0% from 5.3 million metric tons to 5.9 million metric tons. Wheat exports are predicted to total 11.3 million metric tons in 2013, which is a 31.3% increase over the 2002-2004 average. Ending stocks are expected to decrease 9.4%. Figure 19 shows changes in consumption, exports, and ending stocks for the 2004-2013 period.

Argentina (1,000 metric tons)						
	Average			% Change		
	(2002-2004)	2004	2013	(2002-04) to 2013		
Production	13,933	16,000	17,158	23.1		
Consumption	5,306	5,480	5,887	11.0		
Exports	8,577	9,990	11,265	31.3		
Carry-over	1,193	1,290	1,081	-9.4		

Table 10. Wheat Production,	Consumption,	Exports, and	Carry-over Stocks in
Argentina (1.000 metric tons))		

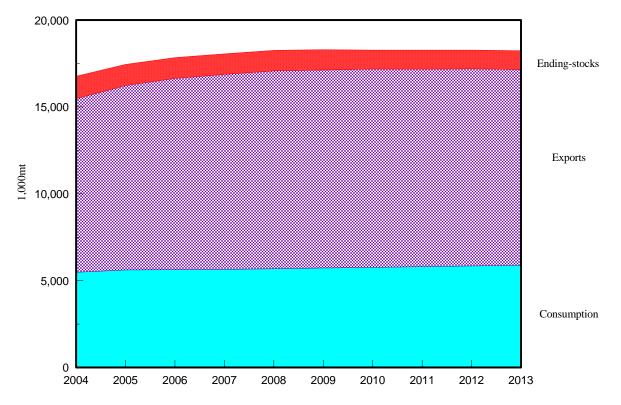


Figure 19. Argentinian Common Wheat Utilization, 2004 to 2013

Former Soviet Union

The FSU became an exporter of wheat in 2001 and is projected to continue exporting wheat. The FSU exported 4.6 million metric tons of wheat in 2001 and 21 million metric tons in 2002 but imported a small amount of wheat in 2003. In 2004, the FSU exported 9.3 million metric tons of wheat. By 2013, exports of common wheat could be 9.1 million metric tons and exports of durum wheat could be 430 thousand metric tons (Table 11).

	Average			% Change (2002-04) to
	Average (2002-2004)	2004	2013	2013
Production	72,034	73,038	82,041	13.9
Exports of Common	10,571	9,320	9,110	-13.8
Exports of Durum	300	300	430	43.3

Table 11. Wheat Production and	l Exports in th	e Former Soviet	Union
(1,000 metric tons)			

Importing Countries

Importing countries are grouped into the Asian region (China, Japan, Korea, and Taiwan), the African region (Algeria, Egypt, Morocco, and Tunisia), and Latin America (Mexico, Brazil, and Venezuela) (Table 12).

Major Importing C	<i>Junii 165, 1,000 m</i>			
				% Change
	Average			(2002-04) to
Wheat Class	(2002-2004)	2004	2013	2013
Asia				
China	6,780	7,000	5,289	-22.0
S. Korea	3,694	3,875	3,844	4.1
Japan	5,246	5,250	5,254	0.2
India	(1,158)	1,480	(4,223)	NA
Taiwan	1,080	1,080	1,131	4.8
North Africa				
Algeria				
Common	1,992	1,973	2,341	17.5
Durum	2,354	2,327	2,811	19.4
Morocco	1,885	2,050	2,332	23.7
Egypt	7,464	7,490	8,605	15.3
Tunisia				
Common	389	400	445	14.3
Durum	507	500	549	8.4
Latin America				
Brazil	4,474	4,800	5,610	25.4
Mexico	3,583	3,600	4,227	18.0
Venezuela				
Common	1,093	1,081	1,386	26.8
Durum	422	409	494	17.1

Table 12. Imports of Common and Durum Wheat by Major Importing Countries, 1,000 metric tons

Asian Importers

Asian imports of wheat are projected to decrease 27.8% between 2004 and 2013. The main reason for the decrease in Asian imports is the increase in exports by India, which offsets any import increase for wheat. China has been a net exporter of wheat during the past three years, but it is predicted to increase its imports to 5.3 million metric tons by 2013. China's increase is due to reduced tariffs on wheat. This decrease in tariffs is based on its trade negotiations with the United States and the EU under its membership in the World Trade Organization. Imports by Japan, Korea, and Taiwan are projected to increase 0.2%, 4.1%, and 4.8%, respectively, for the 2004-2013 period (Figure 20). Over the past 10 years, India has been either a net importer or net exporter of wheat, depending upon its production and carry-over stocks. From 1994 to 1996, India exported an average of 692 thousand metric tons per year. In 1997 through 1999, India's imports of wheat were 1.7 million metric tons per year. India exported an average of 1.2 million metric tons of wheat during 2002-2004; at the same time, the carry-over stock fell from 21.5 million metric tons in 2000 to 5.5

million metric tons in 2004. India appears to be exporting their carry-over stock. Historically, India has had a carry-over ranging from 5 to 7 million metric tons. India's current production levels will not sustain the recent export levels, but they will remain an exporter.

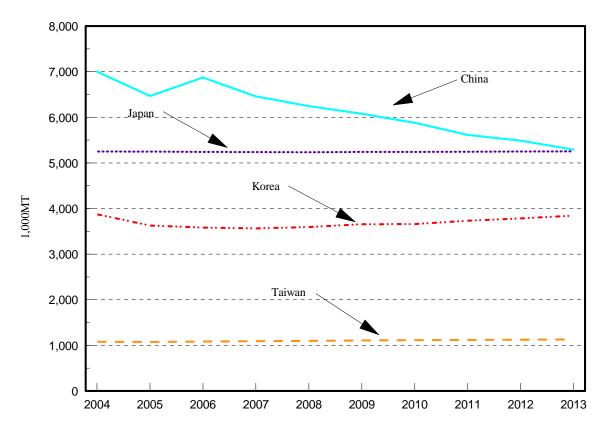


Figure 20. Common Wheat Imports by Major Asian Countries, 2004 to 2013

African Importers

North African imports of wheat are projected to increase 17.1% from the 2002-2004 average to 2013. Egyptian imports of common wheat are projected to increase 15.3%, from 7.5 million metric tons to 8.6 million metric tons. Algeria is expected to import both common and durum wheat. Algerian imports of common wheat are projected to increase 17.5% from 2.0 million metric tons for the 2002-2004 average to 2.3 million metric tons in 2013, and durum wheat imports are projected to increase 19.4%, from 2.4 million metric tons to 2.8 million metric tons. Algerian imports of both common and durum wheat in recent years have been lower than the long-term average; however, it is expected that imports will return to this level. Morocco's imports of common wheat are projected to increase 23.7%, from 1.9 million metric tons to 2.3 million metric tons to 0.45 million metric tons, from the 2002-2004 average to 2013. Its durum wheat imports are projected to increase 8.4% from the 2002-2004 average to 2013 (Figure 21).

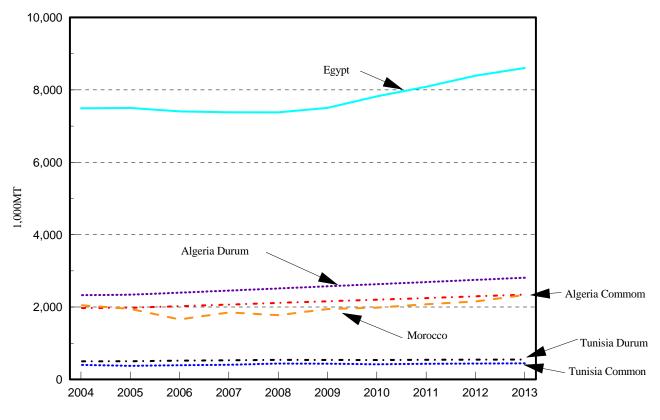


Figure 21. Common and Durum Wheat Imports by Major African Countries, 2004 to 2013

Latin America Importers

Mexican imports are projected to increase 18.0% from the 2002-2004 average of 3.6 million metric tons to 4.2 million metric tons by 2013. Venezuela is expected to import more common and durum wheat. Common wheat imports are projected to increase 26.8% from 1.1 million metric tons for the 2002-2004 average to 1.4 million metric tons in 2013, and durum wheat imports are projected to increase 17.1% (Figure 22). Brazilian imports are projected to increase to 5.6 million metric tons by 2013, which is an 25.4% increase above the 2002-2004 average.

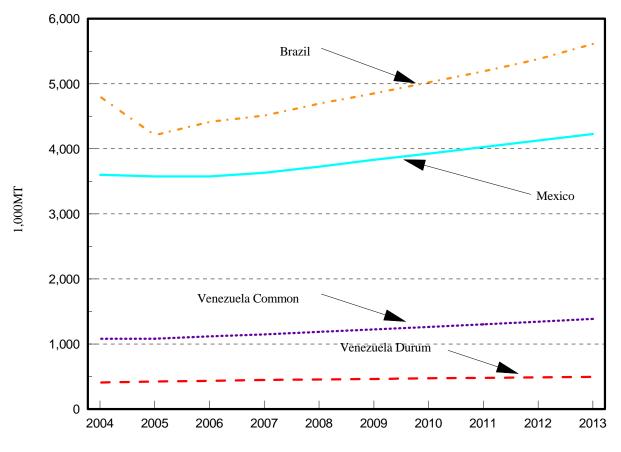


Figure 22. Common and Durum Wheat Imports by Latin American Countries, 2004 to 2013

CONCLUDING REMARKS

This report evaluates the U.S. and world wheat industries for the 2004-2013 period using the Global Wheat Policy Simulation Model, which is operational at North Dakota State University. The baseline projections are based on a series of assumptions about the general economy, agricultural policies, normal weather conditions, and technological changes. The baseline projections, therefore, could change significantly, depending upon changes in agricultural policies or weather conditions.

Import demand for both common and durum wheat is largely based on optimistic income growth (2.5% to 6% annually) in developing and developed countries, which was provided by Global Insight. However, if the predicted income growth is not realized, import demand could grow slower than predicted and estimated prices could be lower.

Prices for both common wheat and durum wheat are predicted to be higher than the 2004 levels, increasing gradually over the 2004-2013 period. The 2003 prices were much higher than in recent years due to unfavorable weather conditions. World wheat exports by the five major exporters is projected to increase 3.0% from 93.5 million metric tons in 2004 to 96.3 million metric tons in 2013. Durum wheat trade is expected to grow faster than common wheat trade. Because of the expected weak economic growth in South America, import demand in the region for common wheat

is expected to be lower for the next few years, but it is predicted to recover later in the forecast period.

All exporting countries are predicted to increase their production and exports of common wheat for the 2004-2013 period. World consumption of common wheat is expected to increase faster than world production, resulting in a gradual increase in the world price of common wheat. Production and exports of common wheat in the EU are predicted to return to normal levels during the forecast period. Production of common and durum wheat is predicted to grow faster in Canada than in other exporting countries.

Common wheat demand in Southeast Asian countries is predicted to grow for the 2004-2013 period. China has been a net exporter of wheat for the last two years, but will become an importer of wheat in the future. Over the past 10 years, India has been either a net importer or net exporter of wheat, depending on its production and carry-over stocks. India exported an average of 3.9 million metric tons of wheat during 2002-2004, but the carry-over stock fell substantially. India appears to be exporting their carry-over stock. The country's current production levels will not provide for large exports in the near future.

The FSU, China, and India have gone from major importing countries to exporting countries during the last 10 years. Wheat production in India has increased 40-50% since the 1980s. Most of the increase has been due to rising yields. China's production peaked in 1997 and has been decreasing since. In China, yields have been increasing, but area harvested is decreasing faster. China has been lowering the carry-over stocks to limit imports. Production in the FSU remained below the 1980s level until 2001 and 2002, when production increased 15% and 25% above this level. Production fell in 2003 to 85% of the 1980s level before increasing to 109% of the long-term average. The FSU exported large amounts of wheat in 2001 and 2002, but imported a small amount of wheat in 2003. India and the FSU are expected to remain exporters of wheat, while China is expected to become an importer in the future.

Egypt, the largest importer of common wheat in the North Africa region, is predicted to increase its imports of common wheat. Import demand for both common and durum wheat in other countries in the region is also expected to increase, except for Morocco.

Import demand for common wheat in Brazil, Venezuela, and Mexico is expected to be strong for the 2004-2013 period. Import demand for durum wheat in Venezuela is also predicted to be strong for the forecasting period.

References

- Benirschka, Martin, and Won W. Koo. *World Wheat Policy Simulation Model: Description and Computer Program Documentation*. Department of Agricultural Economics, North Dakota State University, Fargo, December 1995.
- Food and Agricultural Policy Research Institute. *FAPRI 2005: U.S. Agricultural Outlook.* Staff Report #1-2005, Iowa State University and University of Missouri-Columbia, January 2005.
- International Monetary Fund. International Financial Statistics CD-ROM. Washington, DC, January 2005.
- International Wheat Council. World Grain Statistics. London, United Kingdom, various issues.
- Statistics Canada. *Grain Trade of Canada*. Ottawa: Statistics Canada. Catalogue 22-201, annual, various issues.
- United Nations. FAO Production Yearbook, various years, Rome, Italy.
- U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service. Program Data (computer files), Washington, DC, 2005.
- U.S. Department of Agriculture, Economic Research Service. *Wheat Situation and Outlook Report*. Washington, DC, various issues.
- U.S. Department of Agriculture, Economic Research Service. PS&D View (computer files).

Appendix

World Wheat Policy Simulation Model (Common Wheat and Durum Wheat)

2005 Baseline Solution

United States - Nominal Market	Prices (U.S.	dollars/bushel)
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	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
HRW Wheat	3.69	3.22	3.53	3.69	3.83	3.85	3.85	3.90	3.90	3.90	3.90
Durum Wheat	3.80	3.69	3.63	3.80	3.85	3.91	3.99	4.04	4.12	4.17	4.26

United States - Nominal Farm Prices (U.S. dollars/bushel)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
HRS Wheat	3.74	3.41	3.62	3.74	3.84	3.85	3.85	3.89	3.89	3.89	3.89
HRW Wheat	3.08	2.73	2.96	3.08	3.19	3.20	3.20	3.24	3.24	3.24	3.24
SRW Wheat	3.73	3.40	3.62	3.73	3.83	3.84	3.84	3.88	3.88	3.88	3.88
White Wheat	3.34	3.00	3.22	3.34	3.45	3.46	3.46	3.50	3.50	3.50	3.50
Durum Wheat	3.76	3.65	3.59	3.76	3.81	3.87	3.95	4.00	4.08	4.10	4.14

United States - Wheat Area Planted (million acres)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
HRS Wheat	13.1	12.7	13.0	13.9	13.9	14.2	14.3	14.1	14.1	14.1	14.1
HRW Wheat	32.1	30.9	31.0	31.6	32.0	32.4	32.6	32.8	33.0	33.2	33.3
SRW Wheat	8.3	8.3	8.3	8.3	8.2	8.3	8.3	8.3	8.3	8.4	8.4
White Wheat	5.2	4.9	4.8	4.9	4.9	5.0	5.0	5.0	5.0	5.0	5.1
Durum Wheat	2.9	2.8	2.9	2.8	2.8	2.8	2.8	2.9	2.8	2.9	3.0
All Wheat	61.6	59.6	60.0	61.4	61.9	62.6	63.0	63.0	63.2	63.6	63.8

United States - All Wheat Seed Use (bushels/acre planted)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
All Wheat	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81

United States - Wheat Seed Use (million bushels)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	106.4	102.8	103.3	106.0	106.8	108.2	108.8	108.8	109.3	109.7	110.1
Durum Wheat	5.1	5.1	5.2	5.1	5.1	5.0	5.1	5.2	5.1	5.3	5.3
All Wheat	111.5	107.9	108.5	111.1	111.9	113.2	113.9	114.0	114.4	115.0	115.4

United States - Wheat Area Harvested (million acres)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Hard Red Spring	12.7	12.7	12.2	13.1	13.2	13.6	13.9	13.8	14.0	14.0	14.1
Hard Red Winter	25.4	25.6	23.9	24.5	25.0	25.4	25.6	25.8	26.0	26.1	26.3
Soft Red Winter	6.8	6.8	7.1	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.2
White	5.0	5.0	4.9	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.1
Durum	2.9	2.9	3.0	2.8	3.2	3.3	3.3	3.3	3.3	3.1	3.0
All Wheat	52.8	53.0	51.1	52.4	53.4	54.3	54.9	55.0	55.2	55.5	55.8

United States - Wheat Yield (bushels/acre harvested)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Hard Red Spring	39.30	39.20	34.75	35.58	35.73	36.20	36.81	37.00	37.26	37.51	37.56
Hard Red Winter	41.80	41.80	40.37	40.03	40.31	40.61	40.92	41.24	41.56	41.88	42.20
Soft Red Winter	55.70	55.70	56.45	56.18	56.45	56.48	56.46	56.47	56.46	56.47	56.67
White	59.60	59.50	58.46	59.16	59.76	59.88	60.35	60.61	61.14	61.88	61.97
Durum	33.70	33.70	32.17	33.56	32.96	33.85	34.17	34.66	34.75	34.89	34.80
All Wheat	44.25	44.19	42.51	42.55	42.67	42.92	43.23	43.48	43.74	44.07	44.33

United States - Wheat Production (million bushels)

	readenen	()								
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Hard Red Spring	499.9	497.8	425.4	466.5	472.2	492.2	512.3	512.2	520.8	525.7	530.7
Hard Red Winter	1062.9	1070.1	965.5	979.8	1005.7	1029.8	1047.4	1062.5	1079.3	1094.3	1109.0
Soft Red Winter	379.2	378.8	398.7	395.5	395.1	396.2	396.0	395.8	395.4	402.8	410.3
White	297.9	297.5	287.5	293.8	297.7	299.5	302.2	303.9	307.1	311.5	318.8
Durum	96.6	97.7	95.4	94.1	105.6	110.9	113.3	115.9	113.1	109.8	104.4
All Wheat	2336.5	2341.9	2172.6	2229.6	2276.3	2328.6	2371.3	2390.4	2415.8	2444.0	2473.1

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	463.0	516.0	491.0	474.2	398.6	431.8	493.5	454.6	463.9	452.2	444.1
Production	2239.9	2244.2	2077.2	2135.5	2170.7	2217.7	2258.0	2274.5	2302.7	2334.3	2368.7
Net Exports	1061.0	1124.0	897.7	1042.9	947.6	935.9	1049.0	1002.3	1025.8	1040.7	1010.5
Exports	1110.0	1134.0	#N/A								
Imports	49.0	10.0	#N/A								
Consumption	1127.0	1200.0	1196.2	1168.2	1189.9	1220.1	1247.8	1262.9	1288.7	1301.6	1312.6
Food	790.6	867.2	875.3	882.3	892.1	901.9	909.0	919.1	929.4	936.8	947.5
Seed	106.4	102.8	103.3	106.0	106.8	108.2	108.8	108.8	109.3	109.7	110.1
Feed	230.0	230.0	217.7	180.0	191.0	210.0	230.0	235.0	250.0	255.0	255.0
Carry-out Stocks	516.0	491.0	474.2	398.6	431.8	493.5	454.6	463.9	452.2	444.1	489.8

United States - Common Wheat Stocks-to-Use Ratio (percent) and Per Capita Food Use (bushels)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita Food Use	2.78	3.02	3.02	3.02	3.03	3.03	3.03	3.04	3.04	3.04	3.05
Stocks-to-Use Ratio	45.79	40.92	39.65	34.12	36.29	40.45	36.43	36.74	35.09	34.12	37.31

United States - Durum Wheat Supply and Utilization (million bushels)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	28.0	28.0	26.3	23.2	22.6	32.5	30.8	32.1	32.1	32.0	33.5
Production	96.6	97.7	95.4	94.1	105.6	110.9	113.3	115.9	113.1	109.8	104.4
Net Exports	14.0	30.0	16.4	14.0	5.0	21.2	19.6	22.5	19.0	12.6	7.6
Exports	40.0	35.0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	26.0	5.0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	83.0	83.0	82.0	80.8	90.7	91.5	92.3	93.5	94.3	95.7	96.4
Food	77.9	78.0	76.8	75.7	85.6	86.5	87.2	88.3	89.2	90.4	91.1
Seed	5.1	5.1	5.2	5.1	5.1	5.0	5.1	5.2	5.1	5.3	5.3
Feed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carry-out Stocks	28.0	26.3	23.2	22.6	32.5	30.8	32.1	32.1	32.0	33.5	33.9

United States - Durum Wheat Stocks-to-Use Ratio (percent) and Per Capita Food Use (bushels)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita Food Use	0.27	0.27	0.27	0.26	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Stocks-to-Use	33.73	31.69	28.31	27.98	35.90	33.67	34.82	34.32	33.89	34.98	35.13

United States - All Wheat Supply and Utilization (million bushels)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	491.0	544.0	517.3	497.5	421.2	464.4	524.3	486.8	496.0	484.1	477.6
Production	2336.5	2341.9	2172.6	2229.6	2276.3	2328.6	2371.3	2390.4	2415.8	2444.0	2473.1
Net Exports	1073.5	1085.5	914.1	1014.3	915.2	925.3	1039.8	986.4	1012.2	1016.7	972.2
Exports	#N/A										
Imports	#N/A										
Consumption	1210.0	1283.1	1278.3	1291.6	1317.9	1343.5	1369.0	1394.8	1415.4	1433.9	1454.8
Food	868.5	945.2	952.1	957.9	977.6	988.4	996.2	1007.4	1018.6	1027.2	1038.6
Seed	111.5	107.9	108.5	111.1	111.9	113.2	113.9	114.0	114.4	115.0	115.4
Feed	230.0	230.0	217.7	222.6	228.4	241.9	258.9	273.4	282.5	291.6	300.8
Carry-out Stocks	544.0	517.3	497.5	421.2	464.4	524.3	486.8	496.0	484.1	477.6	523.6

United States -	 All Wheat Stocks-to-Use Ratio (percent) and Per Ca	pita Food Use (bushels)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita Food Use	3.05	3.29	3.29	3.28	3.32	3.32	3.32	3.33	3.34	3.34	3.34
Stocks-to-Use Ratio	44.96	40.32	38.92	32.61	35.23	39.02	35.56	35.56	34.20	33.31	35.99

United States - Wheat Net Exports (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	28876	30590	24433	28384	25790	25472	28550	27278	27917	28324	27500
Durum Wheat	381	816	446	380	135	577	534	611	516	343	206

Canada - Nominal Wheat Export Prices (Canadian dollars/metric ton)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	209.65	171.52	184.66	190.08	194.37	192.69	190.18	190.50	188.60	186.90	185.41
Durum Wheat	225.12	206.09	197.66	204.11	203.15	203.81	204.81	204.97	206.50	207.01	210.05

Canada - Nominal Wheat Export Prices (US dollar/bushel)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Spring Wheat	4.06	3.51	3.86	4.06	4.22	4.25	4.25	4.30	4.30	4.30	4.30
Durum Wheat	4.35	4.22	4.14	4.35	4.41	4.49	4.57	4.63	4.71	4.76	4.87

Canada - Nominal Domestic Prices (Canadian dollars/metric ton)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Spring Wheat	181.67	157.99	173.38	181.67	188.77	189.96	189.96	192.32	192.32	192.32	192.32
Durum Wheat	193.68	188.47	185.34	193.68	195.76	198.88	202.01	204.09	207.22	209.30	213.46

Canada - Nominal Domestic Prices (US dollar/bushel)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Spring Wheat	3.51	3.23	3.63	3.88	4.10	4.19	4.24	4.34	4.39	4.43	4.46
Durum Wheat	3.75	3.86	3.88	4.13	4.25	4.38	4.51	4.61	4.73	4.82	4.95

Canada - Wheat Seed Use (metric tons/hectare harvested)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
CWRS Wheat	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
CWAD Wheat	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
All Wheat	0.10	0.11	0.10	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.09

Canada - Wheat Area Harvested (1000 hectares)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
CWRS Wheat	8452	8039	8102	8426	8583	8728	8780	8756	8752	8702	8646
CWAD Wheat	2015	1826	1913	1905	1924	1916	1915	1922	1922	1970	1991
All Wheat	10467	9865	10015	10331	10507	10644	10695	10679	10674	10671	10637

Canada - Wheat Yield (metric tons/hectare)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
CWRS Wheat	2.29	2.68	2.53	2.52	2.53	2.54	2.56	2.57	2.58	2.59	2.60
CWAD Wheat	2.08	2.38	2.27	2.29	2.30	2.31	2.32	2.33	2.34	2.35	2.36
All Wheat	2.25	2.62	2.49	2.48	2.49	2.50	2.51	2.52	2.54	2.55	2.56

Canada - Canadian Western Red Spring Wheat Supply and Utilization (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	4757	5127	6327	5995	6143	6051	6221	6254	6311	6394	6455
Production	19355	21545	20536	21273	21744	22208	22441	22482	22573	22544	22499
Net Exports	12533	12300	13265	13439	14082	14220	14532	14494	14502	14444	14331
Exports	12533	12300	#N/A								
Imports	0	0	#N/A								
Consumption	6684	8212	7603	7685	7754	7818	7876	7932	7987	8038	8098
Food	2921	2879	2526	2563	2595	2628	2662	2694	2728	2759	2791
Seed	804	847	843	858	873	878	876	875	870	865	865
Feed	2959	4486	4234	4264	4286	4312	4339	4362	4389	4415	4442
Carry-out Stocks	5127	6327	5995	6143	6051	6221	6254	6311	6394	6455	6525

Canada - Western Red Spring Wheat Stocks-to-Use Ratio (percent) Per Capita Food Use (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita Food Use	76.50	76.78	76.92	77.34	77.62	77.94	78.27	78.57	78.90	79.15	79.43
Stocks to Use Ratio	76.71	77.05	78.85	79.94	78.04	79.58	79.40	79.56	80.06	80.31	80.57

Canada - Canadian Western Amber Durum Wheat Supply and Utilization (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	968	935	1085	1001	1029	1041	1063	1089	1108	1135	1158
Production	4191	4346	4352	4354	4416	4417	4435	4470	4489	4619	4689
Net Exports	3241	3192	3507	3383	3452	3427	3425	3455	3446	3566	3621
Exports	3256	3200	#N/A								
Imports	15	8	#N/A								
Consumption	971	988	929	943	953	967	984	997	1015	1030	1045
Food	272	275	276	281	287	290	294	297	299	303	305
Seed	203	199	133	135	134	134	135	135	138	139	139
Feed	496	514	520	528	532	544	556	565	578	589	601
Carry-out Stocks	935	1085	1001	1029	1041	1063	1089	1108	1135	1158	1181

Canada - Western Amber Durum Wheat Stocks-to-Use Ratio (percent) Per Capita Food Use (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita Food Use	8.43	8.45	8.41	8.47	8.58	8.59	8.63	8.66	8.66	8.68	8.67
Stocks to Use Ratio	96.29	109.82	107.71	109.04	109.19	109.92	110.67	111.10	111.87	112.42	112.96

Canada - All Wheat Supply and Utilization (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	5725	6062	7412	6996	7172	7092	7285	7343	7418	7530	7614
Production	23546	25890	24888	25627	26160	26624	26875	26953	27062	27163	27188
Net Exports	15774	15492	16772	16822	17534	17647	17957	17948	17949	18010	17953
Exports	15789	15500	#N/A								
Imports	15	8	#N/A								
Consumption	7655	9200	8532	8629	8707	8785	8860	8929	9002	9069	9144
Food	3193	3154	2802	2844	2882	2918	2955	2992	3028	3062	3096
Seed	1007	1046	976	993	1007	1012	1010	1010	1008	1004	1004
Feed	3455	5000	4754	4792	4818	4855	4895	4928	4966	5003	5044
Carry-out Stocks	6062	7412	6996	7172	7092	7285	7343	7418	7530	7614	7706

Canada - All Wheat Stocks-to-Use Ratio (percent) Per Capita Food Use (kilograms)											
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita Food Use	99.01	96.90	85.33	85.81	86.20	86.53	86.90	87.23	87.56	87.83	88.11
Stocks to Use Ratio	79.19	80.57	81.99	83.12	81.45	82.92	82.88	83.08	83.65	83.96	84.28

Canada - Wheat Exports (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	12533	12300	13265	13439	14082	14220	14532	14494	14502	14444	14331
Durum Wheat	3241	3192	3507	3383	3452	3427	3425	3455	3446	3566	3621

European Union - Nominal Producer Prices (ECI	U/metric ton)
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	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	125.83	138.77	126.21	129.24	131.44	133.30	134.99	136.59	138.14	139.65	141.16
Durum Wheat	157.66	158.36	151.42	151.41	151.04	150.76	150.52	150.34	150.18	150.02	149.87

European Union - Wheat Area Harvested (1000 hectares)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	19182	20417	18921	18271	18044	17971	17957	17963	17978	17997	18018
Durum Wheat	2700	2800	3002	2992	2984	2986	2995	3003	3007	3032	3035
All Wheat	21882	23217	21923	21263	21028	20958	20951	20966	20985	21029	21052

European Union - Wheat Yield (metric tons/hectare)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	5.12	6.24	6.15	6.23	6.24	6.28	6.31	6.34	6.37	6.40	6.43
Durum Wheat	3.04	3.36	2.91	2.99	3.00	3.02	3.03	3.05	3.07	3.09	3.10
All Wheat	4.86	5.89	5.71	5.78	5.78	5.82	5.84	5.87	5.89	5.92	5.95

European Union - Common Wheat Supply and Utilization (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	15831	8411	17591	16639	16232	16066	16011	16029	16095	16190	16304
Production	98249	127325	116429	113901	112605	112870	113224	113833	114447	115109	115766
Net Exports	4919	9500	8466	5664	4346	4685	5067	5664	6260	6888	7566
Exports	9931	14000	#N/A								
Imports	5012	4500	#N/A								
Consumption	100759	108042	108916	108644	108424	108239	108139	108102	108092	108106	108087
Food	66193	73756	74292	74376	74434	74459	74555	74669	74806	74963	75086
Feed	34566	34286	34624	34268	33990	33780	33584	33433	33286	33143	33001
Carry-out Stocks	8411	17591	16639	16232	16066	16011	16029	16095	16190	16304	16418

European Union - Common Wheat Stocks-to-Use Ratio (percent) Per Capita Food Use (kilograms)

				N N	/			0 /			
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita Food Use	154.71	172.01	172.92	172.80	172.64	172.44	172.42	172.48	172.61	172.81	172.96
Stocks to Use Ratio	8.35	16.28	15.28	14.94	14.82	14.79	14.82	14.89	14.98	15.08	15.19

European Union - Durum Wheat Supply and Utilization (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	1000	920	1715	1717	1758	1791	1819	1839	1857	1875	1893
Production	8200	9400	8726	8943	8945	9009	9086	9164	9229	9357	9420
Net Exports	100	1000	612	770	757	805	868	928	972	1081	1127
Exports	1000	1500	#N/A								
Imports	900	500	#N/A								
Consumption	8088	8096	8112	8132	8156	8175	8197	8218	8238	8259	8277
Food	8088	8096	8112	8132	8156	8175	8197	8218	8238	8259	8277
Feed	0	0	0	0	0	0	0	0	0	0	0
Carry-out Stocks	920	1715	1717	1758	1791	1819	1839	1857	1875	1893	1910

European Union -	 Durum Wheat 	Stocks-to-Use Ratio	(percent) Per Ca	apita Food Use (kilograms	;)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita Food Use	18.90	18.88	18.88	18.89	18.92	18.93	18.96	18.98	19.01	19.04	19.07
Stocks to Use Ratio	11.37	21.18	21.16	21.62	21.95	22.25	22.43	22.60	22.76	22.93	23.08

European Union - All Wheat Supply and Utilization (1000 metric tons)

European ernen 7 m	mileat Gapp	ny ana oa		000 11100							
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	16831	9331	19306	18356	17990	17857	17830	17867	17952	18065	18198
Production	106449	136725	125155	122844	121549	121878	122309	122996	123676	124466	125187
Net Exports	5019	10500	9078	6433	5103	5490	5935	6592	7232	7969	8693
Exports	10931	15500	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	5912	5000	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	108847	116138	117028	116776	116580	116415	116337	116320	116330	116364	116364
Food	74281	81852	82404	82508	82590	82635	82752	82887	83044	83221	83363
Feed	34566	34286	34624	34268	33990	33780	33584	33433	33286	33143	33001
Carry-out Stocks	9331	19306	18356	17990	17857	17830	17867	17952	18065	18198	18328

European Union - All Wheat Stocks-to-Use Ratio (percent) Per Capita Food Use (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita Food Use	173.62	190.90	191.80	191.70	191.56	191.38	191.38	191.46	191.62	191.85	192.03
Stocks to Use Ratio	8.57	16.62	15.68	15.41	15.32	15.32	15.36	15.43	15.53	15.64	15.75

European Union - Wheat Net Exports (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	4919	9500	8466	5664	4346	4685	5067	5664	6260	6888	7566
Durum Wheat	100	1000	612	770	757	805	868	928	972	1081	1127

Australia - Nominal Wheat Export Prices (Australian dollars/metric ton)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
U.S. HRW	203.69	176.51	194.44	204.10	212.32	213.63	213.48	215.98	215.65	215.24	214.75
U.S. Durum	218.73	212.09	208.13	219.17	221.91	225.95	229.90	232.38	236.13	238.40	243.29

Australia - Nominal Domestic Prices (Australian dollars/metric ton)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	192.53	169.22	184.59	192.88	199.93	201.05	200.93	203.07	202.79	202.44	202.02

Australia - Wheat Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

		`	,,			,,				,	
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Area Harvested	13024	12200	12429	12523	12634	12724	12826	12932	13026	13112	13199
Yield	2.01	1.76	2.01	1.96	2.00	2.01	2.04	2.06	2.07	2.09	2.10
Production	26231	21500	25031	24556	25220	25524	26207	26671	26923	27347	27721

Australia - Wheat Supply and Utilization (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	3142	5459	4434	4193	4122	4108	4192	4316	4419	4552	4693
Production	26231	21500	25031	24556	25220	25524	26207	26671	26923	27347	27721
Net Exports	17958	16925	19517	18850	19425	19550	20100	20513	20641	20960	21236
Consumption	5956	5600	5754	5777	5810	5891	5982	6055	6150	6245	6341
Food	3231	2900	2819	2813	2816	2863	2921	2962	3022	3083	3144
Feed	3231	2900	2935	2964	2994	3027	3061	3093	3128	3162	3197
Carry-out Stocks	5459	4434	4193	4122	4108	4192	4316	4419	4552	4693	4837

Australia - Wheat Stocks-to-Use Ratio (percent) and Per Capita Food Use (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita Food Use	166.46	148.04	142.63	141.12	140.08	141.29	143.01	143.91	145.71	147.56	149.39
Stocks-to-Use Ratio	91.66	79.18	72.88	71.35	70.71	71.16	72.15	72.97	74.01	75.15	76.29

Argentina - Wheat Area	Planted an	nd Harves	ted (1000	hectares), Yield (r	netric ton	s/hectare)	, and Pro	duction (000 metr	ic tons)
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Area Planted	6300	6500	6509	6688	6771	6845	6842	6827	6842	6827	6805
Area Harvested	5700	6100	6174	6341	6419	6488	6485	6471	6485	6472	6451
Yield	2.37	2.62	2.62	2.62	2.63	2.63	2.64	2.64	2.65	2.65	2.66
Production	13500	16000	16154	16618	16858	17076	17105	17105	17178	17178	17158

Argentina - Wheat Supply and Utilization (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	1530	760	1290	1215	1192	1178	1180	1163	1084	1092	1075
Production	13500	16000	16154	16618	16858	17076	17105	17105	17178	17178	17158
Net Exports	8990	9990	10616	11013	11227	11389	11396	11425	11371	11352	11265
Exports	9000	10000	#N/A								
Imports	10	10	#N/A								
Consumption	5280	5480	5613	5628	5646	5684	5727	5759	5800	5843	5887
Carry-out Stocks	760	1290	1215	1192	1178	1180	1163	1084	1092	1075	1081

Argentina - Wheat Stocks-to-Use Ratio (percent) and Per Capita Consumption (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita	138.90	142.68	144.70	143.69	142.79	142.44	142.20	141.77	141.58	141.47	141.44
Consumption											
Stocks-to-Use Ratio	14.39	23.54	21.64	21.19	20.87	20.77	20.31	18.82	18.82	18.40	18.35

Algeria - Wheat Produc	tion (1000	metric to	ns)								
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	2060.00	1848.00	1870.18	1892.62	1915.33	1938.31	1961.57	1985.11	2008.93	2033.04	2057.44
Durum Wheat	910.00	752.00	763.28	774.73	786.35	798.15	810.12	822.27	834.60	847.12	859.83
All Wheat	2970.00	2600.00	2633.46	2667.35	2701.68	2736.46	2771.69	2807.38	2843.54	2880.16	2917.27

Algeria - Per Capita Wheat Production (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	60.29	52.99	52.57	52.18	51.81	51.47	51.16	50.87	50.60	50.34	50.08
Durum Wheat	26.63	21.56	21.46	21.36	21.27	21.19	21.13	21.07	21.02	20.97	20.93

Algeria - Per Capita Wł	neat Imports	s (kilogran	ns)								
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	47.72	55.46	55.63	55.80	55.96	56.13	56.30	56.47	56.64	56.81	56.98
Durum Wheat	65.07	65.41	65.74	66.07	66.40	66.73	67.07	67.40	67.74	68.08	68.42

Algeria - Wheat Imports (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	1664.00	1973.00	1978.92	2023.76	2068.80	2113.81	2158.74	2203.54	2248.61	2294.37	2340.61
Durum Wheat	2269.00	2327.00	2338.64	2396.39	2454.62	2513.02	2571.55	2630.15	2689.30	2749.50	2810.50
All Wheat	3933.00	4300.00	4317.55	4420.15	4523.42	4626.83	4730.29	4833.69	4937.91	5043.87	5151.11

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Area Harvested	2495	2750	2772	2782	2785	2787	2788	2788	2788	2788	2788
Yield	2.35	2.11	2.14	2.12	2.14	2.13	2.14	2.15	2.15	2.15	2.15
Production	5851	5800	5937	5908	5971	5944	5962	5981	5999	5990	5995

Brazil - Wheat Supply and Utilization (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	656	486	986	985	997	1003	997	993	1000	1009	1010
Production	5851	5800	5937	5908	5971	5944	5962	5981	5999	5990	5995
Net Imports	3779	4800	4209	4414	4510	4692	4850	5020	5189	5376	5610
Exports	1400	200	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	5179	5000	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	9800	10100	10147	10309	10475	10642	10816	10995	11179	11365	11554
Carry-out Stocks	486	986	985	997	1003	997	993	1000	1009	1010	1061
Drazii - wrieat Stocks-to	2003 2003	2004	2005 (and Per	2006	2007 2007	2008 2008	ams) 2009	2010	2011	2012	2013
Brazil - Wheat Stocks-to	-Use Ratio) (percent) and Per	r Capita C	consumpti	on (kiloar	ams)				
Per Capita	53.52	54.54	54.20	54.49	54.80	55.12	55.49	55.88	56.31	56.75	57.20
Consumption											
Stocks-to-Use Ratio	4.96	9.76	9.70	9.67	9.57	9.37	9.18	9.09	9.03	8.89	9.18
Brazil - Wheat Exports (1000 metri	c tons)									
Common Wheat	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013

China - Wheat Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Area Harvested	22000	21500	21562	21778	22075	22447	22827	23198	23592	23980	24361
Yield	3.93	4.19	4.13	4.15	4.17	4.19	4.21	4.23	4.26	4.28	4.30
Production	86490	90000	95042	95176	96292	97547	99214	100676	102805	105216	107397

China - Wheat Supply and Utilization (1000 metric tons)

Durum Wheat

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	62978	43293	38293	37942	37665	37310	36800	36364	35939	35516	35087
Production	86490	90000	95042	95176	96292	97547	99214	100676	102805	105216	107397
Net Imports	-1675	7000	6467	6872	6458	6246	5477	4878	3619	2088	789
Exports	2824	1000	#N/A								
Imports	3749	8000	#N/A								
Consumption	104500	102000	101860	102325	103106	104303	105127	105978	106847	107733	108616
Carry-out Stocks	43293	38293	37942	37665	37310	36800	36364	35939	35516	35087	34657

China - Wheat Stocks-to-Use Ratio (percent) and Per Capita Consumption (kilograms)

		N .	·			0000	,	0040	0011	0040	0040
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita Consumption	80.34	77.95	78.07	78.19	78.31	78.43	78.55	78.67	78.79	78.91	79.03
Stocks-to-Use Ratio	41.43	37.54	37.25	36.81	36.19	35.28	34.59	33.91	33.24	32.57	31.91

Egypt - Wheat Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Area Harvested	1038	1050	1057	1107	1150	1188	1206	1193	1186	1175	1170
Yield	6.26	6.24	6.24	6.27	6.27	6.28	6.29	6.30	6.32	6.32	6.37
Production	6500	6550	6589	6935	7212	7463	7586	7514	7492	7429	7456

Egypt - Wheat Supply and Utilization (1000 metric tons)

071	11.7				,							
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks		1316	1806	2046	2046	2046	2046	2046	2046	2046	2046	2046
Production		6500	6550	6589	6935	7212	7463	7586	7514	7492	7429	7456
Net Imports		7290	7490	7499	7404	7379	7377	7502	7819	8085	8391	8605
Exports		10	10	10	#N/A							
Imports		7300	7500	#N/A								
Consumption		13300	13800	14089	14339	14590	14840	15088	15334	15577	15820	16061
Carry-out Stocks		1806	2046	2046	2046	2046	2046	2046	2046	2046	2046	2046

Egypt - Wheat Stocks-to-Use Ratio (percent) and Per Capita Consumption (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita	191.86	195.42	195.94	195.94	195.94	195.94	195.94	195.94	195.94	195.94	195.94
Consumption Stocks-to-Use Ratio	13.58	14.83	14.52	14.27	14.02	13.79	13.56	13.34	13.13	12.93	12.74

India - Wheat Exports	(1000 metric	tons)									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	5642	1480	-1959	-2995	-3680	-4164	-4468	-4594	-4593	-4465	-4223
Durum Wheat	0	0	0	0	0	0	0	0	0	0	0
0.00	0	0	0	0	0	0	0	0	0	0	0

India - Wheat Supply and Utilization (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	15700	6900	5500	5555	5611	5667	5723	5781	5838	5897	5956
Production	65100	72060	71275	71225	71543	72098	72834	73726	74755	75908	77173
Net Imports	5642	1480	-1959	-2995	-3680	-4164	-4468	-4594	-4593	-4465	-4223
Exports	5650	1500	#N/A								
Imports	8	20	#N/A								
Consumption	68258	71980	73179	74165	75167	76206	77245	78262	79289	80314	81336
Carry-out Stocks	6900	5500	5555	5611	5667	5723	5781	5838	5897	5956	6015

India - Wheat Stocks-to-Use Ratio (percent) and Per Capita Consumption (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per Capita	65.22	67.78	67.94	67.91	67.89	67.91	67.94	67.96	67.99	68.02	68.05
Consumption											
Stocks-to-Use Ratio	10.11	7.64	7.59	7.57	7.54	7.51	7.48	7.46	7.44	7.42	7.40
	10.11	7.64	7.59		7.54	7.51		7.46			

Japan - Wheat Production (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	855.00	825.00	807.04	789.46	772.28	755.46	739.01	722.92	707.18	691.78	676.72

Japan - Per Capita Wheat Production (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	6.74	6.49	6.35	6.21	6.07	5.94	5.82	5.70	5.58	5.47	5.36

Japan - Per Capita Wheat Imports (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	41.62	41.30	41.27	41.21	41.19	41.16	41.24	41.29	41.38	41.50	41.64

Japan - Wheat Imports (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	5288	5250	5247	5241	5238	5233	5240	5240	5244	5249	5254

South Korea - Per Capi	ta Wheat In	nports (kil	ograms)								
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	68.01	79.33	74.20	72.93	72.12	72.36	73.22	72.98	74.14	74.92	75.86

South Korea - Wheat Imports (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	3302	3875	3625	3583	3563	3594	3655	3659	3732	3784	3844

Mexico - Wheat Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Area Harvested	620	500	502	504	506	507	508	509	511	513	515
Yield	4.68	5.00	5.05	5.08	5.11	5.13	5.16	5.19	5.22	5.25	5.28
Production	2900	2500	2540	2560	2582	2603	2622	2641	2666	2691	2717

Mexico - Wheat Supply and Utilization (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	420	513	513	565	566	560	554	549	543	537	531
Production	2900	2500	2540	2560	2582	2603	2622	2641	2666	2691	2717
Net Imports	3193	3600	3575	3575	3630	3726	3830	3924	4027	4127	4227
Exports	451	300	#N/A								
Imports	3644	3900	#N/A								
Consumption	6000	6100	6062	6134	6218	6334	6457	6571	6698	6824	6950
Carry-out Stocks	513	513	565	566	560	554	549	543	537	531	525

Mexico - Wheat Stocks-to-Use Ratio (percent) and Per Capita Consumption (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Stocks-to-Use Ratio	8.55	8.41	9.32	9.22	9.00	8.75	8.51	8.27	8.02	7.79	7.56
Per Capita	55.86	56.11	55.12	55.12	55.24	55.63	56.07	56.42	56.88	57.32	57.75
Consumption											

Morocco - Wheat Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Area Harvested	2989	3064	3067	3098	3110	3132	3135	3154	3166	3175	3184
Yield	1.72	1.80	1.60	1.70	1.65	1.69	1.67	1.68	1.68	1.69	1.68
Production	5147	5500	4907	5271	5123	5277	5251	5298	5308	5359	5353

Morocco - Wheat Supply and Utilization (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Carry-in Stocks	1143	2231	2881	2895	2910	2924	2939	2954	2969	2983	2998
Production	5147	5500	4907	5271	5123	5277	5251	5298	5308	5359	5353
Net Imports	2341	2050	1948	1657	1851	1775	1945	1983	2077	2155	2332
Exports	73	150	#N/A								
Exports	73	150	#N/A								
Consumption	6400	6900	6841	6914	6960	7037	7181	7266	7371	7499	7670
Carry-out Stocks	2231	2881	2895	2910	2924	2939	2954	2969	2983	2998	3013

Morocco - Wheat Stocks-to-Use Ratio (percent) and Per Capita Consumption (kilograms)													
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013		
Per Capita	204.22	216.62	211.37	210.32	208.50	207.64	208.75	208.16	208.15	208.80	210.63		
Consumption													
Stocks-to-Use Ratio	34.86	41.75	42.33	42.09	42.02	41.76	41.13	40.85	40.48	39.98	39.28		

Morocco - Wheat Exports (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	-2341	-2050	-1948	-1657	-1851	-1775	-1945	-1983	-2077	-2155	-2332

Former Soviet Union - Wheat Production (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
All Wheat	72029	73038	73987	74949	75923	76910	77910	78923	79949	80988	82041

Former Soviet Union - Per Capita Wheat Production (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
All Wheat	244.18	247.60	250.71	253.77	256.76	259.68	262.56	265.42	268.25	271.09	273.93

Former Soviet Union - Per Capita Wheat Imports (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	-4.00	-31.58	-23.09	-23.99	-23.80	-24.28	-24.85	-25.04	-25.61	-25.99	-26.76
Durum Wheat	0.00	-1.02	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07

Former Soviet Union - Wheat Net Imports (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	-1180	-9320	-8413	-8497	-8582	-8668	-8755	-8842	-8931	-9020	-9110
Durum Wheat	0	-300	-303	-306	-309	-312	-335	-359	-382	-406	-430
All Wheat	-1180	-9620	-8716	-8803	-8891	-8980	-9090	-9201	-9313	-9426	-9540

Tunisia - Wheat Production (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	900.00	1000.00	1010.00	1020.10	1030.30	1040.60	1051.01	1061.52	1072.14	1082.86	1093.69
Durum Wheat	700.00	700.00	707.00	714.07	721.21	728.42	735.71	743.06	750.49	758.00	765.58
All Wheat	1600.00	1700.00	1717.00	1734.17	1751.51	1769.03	1786.72	1804.58	1822.63	1840.86	1859.26

Tunisia - Per Capita Wheat Production (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	89.69	98.60	98.55	98.52	98.50	98.48	98.48	98.49	98.52	98.56	98.61
Durum Wheat	69.76	69.02	68.98	68.96	68.95	68.94	68.94	68.94	68.96	68.99	69.02

Tunisia - Per Capita Wheat Imports (kilograms)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	19.13	39.03	36.57	37.95	38.81	41.41	40.44	38.78	39.48	39.84	40.14
Durum Wheat	48.02	48.79	49.21	49.83	50.51	51.20	50.51	49.86	49.80	49.69	49.47

Tunisia - Wheat Imports (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	194	400	375	393	406	438	432	418	430	438	445
Durum Wheat	487	500	504	516	528	541	539	537	542	546	549
All Wheat	681	900	879	909	934	979	971	955	972	984	994

Taiwan - Per Capita Wheat Imports (kilograms) 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 Common Wheat 52.08 46.96 46.79 46.81 46.86 46.94 47.02 47.07 47.11 47.11 47.11

Taiwan - Wheat Imports (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	1190	1080	1076	1083	1091	1099	1107	1114	1120	1126	1131

Venezuela - Per Capita Wheat Imports (kilograms)											
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	43.79	41.42	41.43	42.12	42.60	43.29	44.02	44.66	45.40	46.10	46.88
Durum Wheat	15.74	15.67	16.21	16.34	16.61	16.64	16.62	16.74	16.73	16.76	16.72

Venezuela - Wheat Imports (1000 metric tons)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	1124	1081	1081	1117	1148	1186	1225	1261	1302	1342	1386
Durum Wheat	404	409	423	434	448	456	462	473	480	488	494
All Wheat	1528	1490	1504	1551	1596	1641	1687	1734	1782	1830	1880

Rest of the World - Wheat	Imports (100	0 metric tons)
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	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Common Wheat	52408	51506	45843	45706	42645	42672	46063	46663	48064	49366	50795
Durum Wheat	862	1672	1594	1565	1585	1606	1627	1648	1669	1691	1713