



USA Grain Exports - Where to, how much?

Posted by [Doug Low](#) on March 5, 2008 - 10:59am in [The Oil Drum: Europe](#)

Topic: [Supply/Production](#)

Tags: [climate change](#), [corn](#), [grain exports](#), [wheat](#) [[list all tags](#)]

This post looks at the role the USA plays in global grain (wheat, corn, sorghum) and soybean (soya bean) trade, since the USA is to a large extent the world's breadbasket and there are concerns over this role in the light of the current corn-to-ethanol expansion. The article begins by looking, very briefly, at how similar concerns were raised about 20 years ago, due to the potential effects of global warming on US grain production.

In 1990, Martin Parry published the book [Climate Change and World Agriculture](#). Table 1.2 from the book gives an excellent summary of the major role the USA played in cereal exports in 1988:

Table 1.2: Major net cereal exporters, 1988 (million tonnes)

USA	98	Thailand	6
France	27	Denmark	2
Canada	23	United Kingdom	1
Australia	15	SouthAfrica	1
Argentina	10	New Zealand	-

The data is best described by Parry:

In 1988 three countries accounted for 80 percent of all traded cereals (USA, Canada and France), with over one-half exported by the USA alone (including well over a half of the world's traded maize and three-quarters of its soya beans).

The main concern back in 1991, and the gist of Parry's book, was that climate change in the long-term could alter global crop-growing patterns, potentially with negative consequences. One of the many papers that Parry references is: Smith, J.B., and Tirpak, D., *The Potential Effects of Global Climate Change on the United States*, Report to Congress (Washington DC: US EPA 1989). A summary is given in Adams, R.M. (and 9 others), "Global climate change and US Agriculture", *Nature*, vol. 345:219-224 (1990).

It was this paper, rather than Parry's book, that discussed in some detail what climate change might do to the USA's ability to grow, and therefore export, cereals. This paper, plus data from the UN Food and Agriculture Organisation, showed that:

1. The USA exported grains to over 100 countries.
2. Climate models were suggesting that a few decades from now, the USA grain-growing regions would become hotter and drier.

The implications of a hotter, drier USA were that it might be exporting considerably less grains in future, and in the worst-case scenario, none at all. The USA suffered severe summer droughts in

1987 and 1988, and climate models were indicating that these hot, dry summers that were rare events then (especially two years in a row) would become the norm in the future. Parry described the effects of the two droughts on wheat stocks:

In addition, it should be noted how sensitive world food security remains to variations of weather. In a good year world food production now exceeds demand by about 20 per cent, but a relatively short run of poor years can eliminate this excess supply. To illustrate, in 1987/88 world wheat and coarse grain stocks [maize/corn, sorghum and barley] stood at 353 million tonnes (mt), the equivalent of about 78 days supply, but fell to 248 mt (54 days) in 1988/89 largely as a result of the 1988 drought and heatwave in the US Corn Belt and Great Plains. Stocks of wheat in the USA alone fell from 49 million tonnes in 1986/87 to 34 in 1987/88 and to 17 in 1988/89. What happens to food stocks in North America thus also affects world food stocks and prices.

So 20 years ago, the USA was responsible for over 50% of the global grain trade. The rest of the post concentrates on the here and now, and there will be no more discussion of climate change.

WHEAT

The US Dept of Agriculture provides three useful summaries of the wheat trade. [Wheat - Overview and Features](#)

The United States is a major wheat-producing country, with output typically exceeded only by China, the European Union, and, sometimes, India. During the early 2000s, wheat ranked third among U.S. field crops in both planted acreage and gross farm receipts, behind corn and soybeans. Presently, almost half of the U.S. wheat crop is exported.

The U.S. wheat sector enters the 21st century facing many challenges, despite a strong domestic market for wheat products. U.S. wheat harvested area has dropped off 28 million acres, or nearly one-third from its peak in 1981, because of declining returns compared with other crops and alternative options under government programs. Despite rising global wheat trade, U.S. share of the world market has eroded in the past two decades.

[Wheat: Background](#) and [Wheat: Trade](#). Some of the introductory in this latter text is quaint/dated, in as much as wheat prices are reaching record prices but the text states: "The diversity of exporting countries provides significant stability to world wheat trade and prices". It did, until a year or so ago.

Since 1975/76 (the international trade year is July-June), U.S. wheat exports have fluctuated sharply, reaching a high of over 48 million metric tons in 1981/82 and dropping to less than 23 million in 2002/03. In 1981, the U.S. share of global exports peaked at about 45 percent. Over the last 10 years, U.S. wheat exports have exceeded 30 million metric tons only twice, and the U.S. share of global exports has fluctuated between 25 and 30 percent since 1990. Increased planting flexibility in U.S. farm legislation and low returns relative to some competing crops has led to a decline in U.S. wheat area, limiting export potential.

... The United States is the world's leading wheat exporter. In most years, the United States, Canada, Australia, the EU-25, and Argentina account for about 80 percent of world wheat exports.

... While wheat exports are dominated by a handful of nations, many countries import large amounts of wheat. While the EU-25, Japan, and South Korea are among the largest wheat importers, most imports are by developing countries with limited production potential. Population growth in Egypt, Brazil, Algeria, Indonesia, Iraq, Nigeria, Mexico, and other developing countries importing smaller amounts of wheat will be crucial to future expansion of world wheat trade.

The USDA table [World wheat supply and disappearance](#) shows that the area planted with wheat globally has been relatively static for the last 20 years, in the range 212-231 M hectares.

For USA planted acreage, production, yield per acre and weighted-average farm price, see [Summary \(2004/5-2007/8\)](#) and [Full Data \(1866/67-2007/8\)](#). The full data set shows that the area planted under wheat in the USA is now about two thirds what it was in the early 1980s, but has been stable at about 60 M hectares for the last seven years.

This USDA table, [World and U.S. wheat production, exports, and ending stocks](#) (units - bushels), compares US wheat production, exports, and ending stocks with world totals, 1988-2007. There is no clear long-term trend in wheat production, globally or in the USA. World wheat stocks peaked in 1999 and have been falling gradually since then, to about half their 1999 value in 2007. US wheat stocks peaked in 1998 at 949.751 M bushels, falling to 271.867 M bushels in 2007. This fall in stocks is the number one driver of increasing wheat prices.

In 2007, the USA produced 9.32% of global wheat supplies, was responsible for 30.69% of global wheat exports, but had only 6.74% of global wheat stocks.

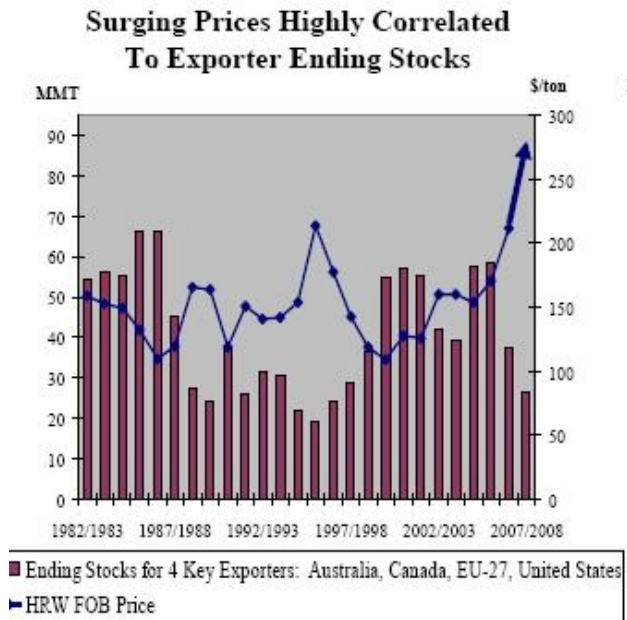
A comparison of the world's top 15 producers and consumers of wheat is available from the [USDA Foreign Agricultural Service](#) (In the 'Reports' box, select 'Grains and Pulses', then 'World Wheat Production, Consumption, and Stocks'. Units - metric tons). Wheat production for the USA increased from 49.3 M tons in the 2006/07 marketing year to about 56 M tons for 2007/08, and globally from 593.2 M tons in 2006/07 to 604 M tons in 2007/08. The table also shows global wheat consumption climbing to just under 620 M tons for the current marketing year, 2007/08. Note the table at the bottom 'Ending Stocks' (in metric tons) which also shows the big drop in global wheat stocks over the last two years.

Wheat exports for 2007/08 (July - June) can be found at the [USDA Foreign Agricultural Service](#) (In the 'Reports' box, select 'Grains and Pulses', then 'World Wheat, Flour, and Products Trade'). Global exports of wheat are expected to fall from 115 M tons last season to about 108 M tons this season (2007/08), but increase in the USA, from 25 M tons last season to 33 M tons this season.

For the last 4 years, the two biggest producers of wheat have been China and India, China a small net exporter, India a net importer. One of the biggest importers is Egypt, which imports almost half its wheat requirements.

This USDA table, [U.S. wheat exports by selected destinations](#), shows the destination for US wheat exports, 2000-2008 (note that the 'market' year is June-May). US wheat exports are dominated by Sub-Saharan Africa, Japan, Mexico, Egypt, the EU and more recently, Iraq. A full list of US wheat export destination countries, 1989-2008 [available here](#). The list is extensive.

Updates on global wheat production are available from the USDA monthly publication [Grain: World Markets and Trade](#) (Note: PDF, about 1.6 Mb). The February issue shows where global wheat stocks are currently headed:



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[Wheat prices in biggest one-day rise](#) (Financial Times, Mon 25 Feb)

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[In Price and Supply, Wheat Is the Unstable Staple](#) (NY Times, Wed 13 Feb)

[Wheat soars as stocks decline](#) (Financial Times, Sat 09 Feb)

CORN

Although many countries produce corn (maize), two are way ahead of all the others, the USA and China, with the USA producing twice as much as China during 2005/6. But in terms of global exports, the USA is THE leader, being responsible for about two thirds of global corn exports. An excellent summary is available at the [US Grains Council website](#).

Corn is the United States' largest crop, in terms of both volume and value... The United States grew 42 percent of the world's corn in during 2005/6, producing 282.3 million metric tons (11.1 billion bushels). Other major corn producing countries in 2006 included:

1. China - 139.4 million metric tons (5.5 billion bushels)
2. Brazil - 41.7 million metric tons (1.64 billion bushels)
3. European Union - 48.3 million metric tons (1.9 billion bushels)
4. Mexico - 19.5 million metric tons (767 million bushels)
5. Argentina - 15.8 million metric tons (622 million bushels)
6. India - 15 million metric tons (590.5 million bushels)

The United States is not only the world's top corn producer, but also the top exporter. On average, about 20 percent of U.S. corn is exported. During fiscal year 2006 (October-September), the United States exported 56 million metric tons (2.2 billion bushels) - accounting for 68 percent of world corn exports. During the same period, other major corn exporters included Argentina (10.7 million metric tons, or 421 million bushels) and China (3.7 million metric tons, or 145 million bushels).

Japan is the largest and most consistent importer of corn in the world. The United States satisfies nearly all of Japan's demand. During fiscal year 2006, Japan imported 16.5 million metric tons (649 million bushels) of U.S. corn.

Mexico, Taiwan, Canada, Egypt and Colombia are also major corn importers and important markets for the United States.

The US Dept of Agriculture also has a good summary, reviewing global imports and exports of corn 1960-present, [Corn: Trade](#)

For detailed information on planted acreage, production, yield per acre and weighted-average farm price in the US, 2000-2007, see [USDA. Feed Grains Database: Yearbook Tables](#). This shows a massive growth in acreage planted with corn in 2007.

A complete list of the main consumers and producers of corn at the country level can be found at [USDA Foreign Agricultural Service](#) (Select 'Grains and Pulses', then 'World Corn Production, Consumption, and Stocks'). Global corn production was 704 M tons for the 2006/07 marketing year, and 766 M tons for 2007/08. The massive growth in global corn production for the current marketing year came from just one country -the USA. Note that US corn production jumps by about 64 M tons for 2007/08, but US consumption rises by only 35 M tons (corn-to-ethanol). Exports increase by about 8 M tons ([USDA Foreign Agricultural Service](#) (Select 'Grains and Pulses', then 'World Corn Trade'), from 54.1 M tons to about 62 M tons.

This USDA table, [U.S. corn and sorghum exports by selected destinations](#), shows the destination for US corn exports, 2000-2006. US corn exports are dominated by Japan, Mexico, Taiwan, South Korea, Egypt, Columbia, Canada, Syria and Dominican Republic (all over 1 M metric tons in 2006).

SOYBEAN (SOYA BEAN)

The US Dept of Agriculture provides three useful summaries of the soybean trade. [Soybeans and Oil Crops](#)

Processed soybeans are the largest source of protein feed and vegetable oil in the world. The United States is the world's leading soybean producer and exporter. Farm value of U.S. soybean production in 2003/04 was \$18.0 billion, the second-highest value among U.S.-produced crops, trailing only corn. Soybean and soybean product exports accounted for 43 percent of U.S. soybean production in 2003. Soybeans equal about 90 percent of U.S. total oilseed production, while other oilseeds—such as cottonseed, sunflowerseed, and peanuts—account for the remainder.

[Soybeans and Oil Crops: Background](#) and [Soybeans and Oil Crops: Trade](#).

Despite substantial growth in oilseed and oilseed product output in the past 25 years and recent gains in export volume, the U.S. share of global exports has steadily diminished. In the mid- to late 1970s, the United States dominated world trade in unprocessed oilseeds, with a global market share of more than 70 percent. Recently, this figure has fallen below 50 percent. From a smaller percentage base, the United States has seen its share of oilseed meal and vegetable oil exports decline even more sharply, particularly before 1990.

Why the decline in the U.S. share of global exports? A key development has been the phenomenal growth of foreign soybean output and exports, particularly by Brazil and Argentina. Foreign soybean output now exceeds that of the United States, and Brazil and Argentina currently share approximately half of the soybean export market, up from less than 15 percent before 1980. With increased foreign production, and more rapid expansion of trade in soy products than whole beans, Brazil and Argentina have each surpassed the United States in soy meal and soy oil exports. Another factor is the recent expansion of U.S. meat exports, which stimulates domestic meal use rather than contributing to exports of soybeans or soybean meal. Brazilian and Argentine soybean and meal exports are projected to continue capturing market share from the United States in the next decade.

For detailed information on planted acreage, production and yield per acre, 1960-2006, see [US Dept of Agriculture datasets](#) (Excel file).

A complete list of the main consumers, producers and exporters of soybean at the country level can be found at [USDA Foreign Agricultural Service](#) (Select 'Oilseeds', then 'Table 07: Soybeans: World Supply and Distribution'). This shows that although the USA was still the number one producer of soybean for 2007/08, production fell considerably, from 86.8 M tons over 2006/07 to 70.4 M tons for 2007/08. Global production fell correspondingly by 15.2 M tons. US exports fell by only 3.3 M tons (the difference made up by stocks) while global exports increased by about 4.6 M tons, the increase coming mainly from Brazil. The report [USDA Foreign Agricultural Service](#), Select 'Oilseeds', then "Table 21: United States Soybeans and Products Supply and Distribution Local Marketing Years", shows that the fall in US soybean production was mainly due to a big fall in the area harvested between 2006/07 and 2007/08. In other words, there was a big switch from growing soybean to corn in 2007.

A more detailed summary of soybean exports and imports is available from [USDA Foreign Agricultural Service](#) (Select 'Oilseeds', then 'Table 10: Soybeans and Products: World Trade').

SORGHUM

Sorghum is a grain that most of us are probably not very familiar with, and may therefore seem like a strange addition to this post, except that, as the [US Grains Council](#) points out, the USA is THE global supplier of sorghum, providing 89% of exports 2005/6:

The United States is currently positioned as the number two producer and number one exporter of sorghum on the world market. The United States' share of world trade in sorghum has not dropped below 70 percent in more than a decade. World trade in sorghum is dominated by U.S. exports to Mexico. Other importing countries and regions include Japan, Israel, South Africa, Spain, Morocco, Eritrea and Others.

For detailed information on planted acreage, production, yield per acre and weighted-average farm price in the US, 2000-2007, see [US Dept of Agriculture datasets](#).

A complete list of the main consumers and producers of sorghum at the country level can be found at [USDA Foreign Agricultural Service](#) (Select 'Grains and Pulses', then 'World Sorghum Production, Consumption, and Stocks'). Global sorghum production was 57.8 M tons for the 2006/07 marketing year, and 64.6 M tons for 2007/08. The massive growth in global sorghum production for the current marketing year came from just one country -the USA. US sorghum production jumped from 7.1 M tons in 2006/07 to 12.8 M tons in 2007/08. In the 2007/08 trade

This USDA table, [U.S. corn and sorghum exports by selected destinations](#), shows the destination for US sorghum exports, 2000-2006. US sorghum exports are dominated by Mexico, the EU, Japan and Sub-Saharan Africa.

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[The Future of Biofuels: A Global Perspective](#) (Amber Waves (USDA), Nov 2007)

[U.S. Ethanol Expansion Driving Changes Throughout the Agricultural Sector](#) (Amber Waves (USDA), Sept 2007)

[The End of Cheap Food?](#) (Oil Depletion Analysis Centre, 28 June 2007)

USEFUL DATASETS

[US Dept of Agriculture. Production, Supply and Distribution Online](#) This webpage contains the most complete and easy-to-read set of data available on production, exports, imports and stocks, for grains and other agricultural products, for the USA, globally and individual countries. But you can only access the tables from this page, not directly, as the data tables are built up dynamically. See the 'Reports' box.

[US Dept of Agriculture. Feed Grains Database: Yearbook Tables](#)

[US Dept of Agriculture. Feed Grains Database: Standard Tables - Frequently Requested Data](#)

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USEFUL PUBLICATIONS

[US Dept of Agriculture. World Agricultural Production](#) (PDF, about 1.0 Mb. Updated monthly.)

[US Dept of Agriculture. Grain: World Markets and Trade](#) (PDF, about 1.6 Mb. Updated monthly.)

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