An hourglass-shaped graphic with a globe of the Earth inside. The top bulb is dark blue, and the bottom bulb is light blue. The hourglass is centered on the page.

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*High Wheat Prices: What Are the Issues?*

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February 29, 2008

**Abstract.** The U.S. Department of Agriculture (USDA) projects the U.S. season-average farm price (SAFP) received for all wheat in the 2007/08 marketing year (June to May) to be in the \$6.45 to \$6.85 per bushel range. The range midpoint exceeds the previous U.S. record of \$4.55 (in 1995/96) by 46%. During the past 30 years, the all-wheat SAFP has stayed within a range of \$2.42 to \$4.55, while averaging \$3.33 per bushel. USDA projects a replenishment of U.S. and global supplies in 2008 (assuming normal weather conditions) to moderate market prices in the latter half of 2008. However, prices are likely to exhibit substantial variability until global stock levels can be rebuilt.

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## CRS Report for Congress

# High Wheat Prices: What Are the Issues?

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### Summary

The U.S. Department of Agriculture (USDA) projects the U.S. season-average farm price (SAFP) received for all wheat in the 2007/08 marketing year (June to May) to be in the \$6.45 to \$6.85 per bushel range. The range midpoint exceeds the previous U.S. record of \$4.55 (in 1995/96) by 46%. During the past 30 years, the all-wheat SAFP has stayed within a range of \$2.42 to \$4.55, while averaging \$3.33 per bushel. USDA projects a replenishment of U.S. and global supplies in 2008 (assuming normal weather conditions) to moderate market prices in the latter half of 2008. However, prices are likely to exhibit substantial variability until global stock levels can be rebuilt.

The initial impetus for rising prices over the past year has been a 30-year low in global stocks following seven out of eight years in which global consumption exceeded production. However, in recent months several other factors — including reluctance of traditional exporters to make further supplies available to international markets, strong international demand, the rapid growth in the demand for grains and oilseeds as feedstock for biofuels production, and USDA's announcement that last fall's winter-wheat plantings were less than expected — have contributed to a sharp rise in cash and futures contract prices, particularly for higher-protein wheat varieties. This report will be updated as events warrant.

### Background

Wheat is grown in almost every temperate-zone country of North America, Europe, Asia, and South America. The largest wheat-producing countries are China, India, the United States, Russia, Canada, and Australia. U.S. wheat production accounts for about 9%-10% of world production; but the United States is the world's leading wheat exporter with roughly a 25% share of annual world trade. However, the international wheat market is very competitive and foreign sales often hinge on wheat variety and product characteristics as well as price.<sup>1</sup>

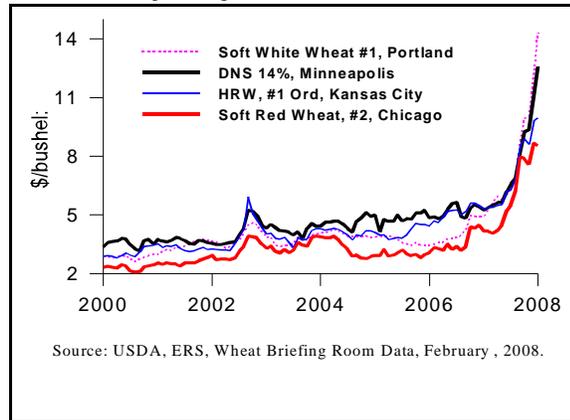
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<sup>1</sup> CRS Report RL33204, *Price Determination in Agricultural Commodity Markets: A Primer*, by (continued...)

U.S. wheat is produced as both a winter and a spring crop.<sup>2</sup> The United States produces all six of the world's major wheat classes — hard red winter (HRW), hard red spring (HRS), soft red winter (SRW), hard white, soft white, and durum. Hard wheats generally contain higher protein levels — a desirable trait for bread making, while softer wheats may be preferable for making noodles, crackers, and pastries. Durum wheat is ground into a coarse flour called semolina that is used for making pastas. In local markets, the demand for a particular wheat class (and quality) relative to its nearby supply will determine local prices. Traditional, higher-protein wheats command a premium over lower-protein varieties, often referred to as the “protein premium” (**Figure 1**). However, linkages to national and global markets bring additional factors — such as transportation costs, competitors' supplies, and foreign demand — into play in determining the price of a particular wheat type and quality.

Wheat is the principal food grain grown in the United States; however, a substantial portion (8%-10%) of the annual U.S. wheat crop is used as a feed grain. As a result, wheat must compete with other cereals for a place at the consumer's dinner table, while also vying with coarse grains and other feedstuffs in livestock feed markets. Almost half of the U.S. wheat crop is exported annually, although the importance of exports varies by class of wheat. White wheat and HRS wheat rely more than other wheat classes on sales into export markets. The larger the share of exports to production, the greater the vulnerability to international market forces.

**Figure 1. U.S. Cash Prices by Major Wheat Class**



In the U.S. domestic market, flour millers are the major users of wheat, milling about 24% of annual wheat production into flour since 2000.<sup>3</sup> In most cases, a wheat buyer at a flour mill will “source” wheat by general location and primary quality attributes such as protein quantity and quality (i.e., gluten share) and baking performance. Price premiums and/or discounts reflecting quality differences often develop and can also influence buyer preferences. Other major wheat processors include breakfast food, pet food, and feed manufacturers. Wheat may be used directly in feed rations when alternate feedstuffs are lacking or when production-related quality damage makes the wheat unmarketable as a food. Wheat milling by-products such as bran, shorts, and middlings are also used by feed manufacturers in the production of animal feeds.

<sup>1</sup> (...continued)  
Randy Schnepf.

<sup>2</sup> For current data and information on U.S. and world wheat production, use, trade, and government policy, see USDA, Economic Research Service (ERS), *Wheat Briefing Room*, available at [<http://www.ers.usda.gov/Briefing/Wheat/>].

<sup>3</sup> CRS calculations based on data from *Wheat Situation and Outlook Yearbook*, WHS-2007, USDA, ERS, March 2007.

## Key Factors Contributing to Higher Wheat Prices in 2007<sup>4</sup>

**Poor Harvests in Many Major Wheat-Producing Countries.** Early in 2007, estimates of Australia's wheat production and exports were reduced because of severe drought in 2006. Then, late-spring freeze damage in the United States and heavy rains at harvest in the United States and Western Europe reduced the output and quality of wheat. Next, dry weather hurt crops in Eastern Europe and some countries of the former Soviet Union. Drought in southeastern Europe reduced that area's wheat and corn crops, forcing livestock producers in the European Union (EU) to import wheat and feed grains for feed rations. By midsummer, it became apparent that Canada and the Ukraine would reap smaller wheat crops because of poor weather conditions.

**Limited Export Supplies.** The production shortfalls curtailed exports from most traditional wheat exporters. In the spring of 2007, both Ukraine and Argentina initiated export restrictions in efforts to control food price inflation. The Ukraine imposed a ban on wheat exports and Argentina stopped issuing export registrations, which significantly slowed export sales during the rest of the year. Although the EU was able to export wheat without export subsidies, shipments out of the EU slowed sharply by late summer as wheat increasingly replaced corn used for feed. By early fall, only the United States, Russia, and Kazakhstan had large volumes of wheat available for export. Recently Kazakhstan officials have said that they also intend on slowing their country's wheat export pace (via higher custom duties) due to declining supplies.<sup>5</sup>

**Strong International Demand.** Projected tight U.S. supplies, combined with reduced export competition, caused importers to buy U.S. wheat (in late 2007) at a pace not seen since the 1970s. U.S. wheat export sales were very strong despite higher prices and record-high ocean freight rates. Imports by high-income countries, which are not very price sensitive, followed normal seasonal purchase patterns. However, a number of low- and middle-income countries, generally expected to be more sensitive to price changes, continued to purchase wheat even while prices were rising. Some importers even bought larger amounts at record high prices, apparently out of fear that less wheat would be available in the future, and prices would be even higher. In most years, U.S. wheat export shipments decline seasonally during the winter, spring, and summer months. But in 2007, shipments generally rose during this period, significantly exceeding expectations almost every month. In August and September, U.S. wheat export volume spiked, rising from monthly averages of less than 2.5 million metric tons to more than 4 million tons. This occurred as wheat prices climbed to record highs. Record high outstanding export sales (i.e., wheat that has been purchased, but not yet exported) suggest that many importers have already purchased their future needs far in advance of normal purchasing patterns, and that large monthly U.S. wheat shipments can be expected to continue for some months to come, regardless of future price movements.

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<sup>4</sup> Most of the information for this section is from "Large U.S. Wheat Exports Despite High Prices," *Outlook for U.S. Agricultural Trade*, AES-56, ERS, USDA, pp. 13-14, November 30, 2007.

<sup>5</sup> Stevenson Jacobs, "Wheat Jumps on Supply Concerns," *Washingtonpost.com*, February 25, 2008.

**Historically Low U.S. and Global Wheat Stocks.** Global stocks are projected to drop to a 30-year low by July 2008, following seven out of eight years in which global consumption exceeded production (**Figure 2**). In the United States, the nearly three-decades-long decline in planted area and production, coupled with the surge in export demand, has led to projections for the lowest ending wheat stocks (237 million bushels) since 1947.<sup>6</sup>

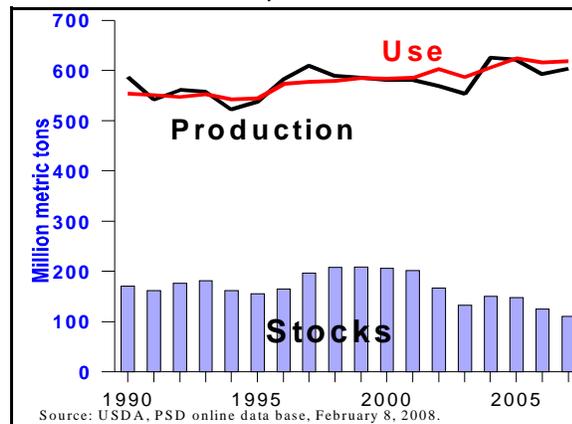
**Substantial Price Premium Emerges for High-Protein Wheats.**

Because of a shortage of milling-quality wheat, prices for high-protein (13%-15%) spring wheat (HRS) — grown primarily in the Northern Plains — have risen faster than prices for the ordinary-protein (10%-13%) wheats (HRW) of the Southern Plains or the low-protein wheat (SRW) grown in the Delta and Corn Belt states. In addition, in January USDA released an estimate for last fall's plantings of the winter wheat crop that, although up from last year, was significantly below market expectations.<sup>7</sup> This increased the market concern about whether a large U.S. spring wheat crop would be produced. As a result, cash and futures market prices for HRS wheat — traded daily at the Minneapolis Grain Exchange (MGE) — hit almost daily record highs through January and February. On February 25, 2008, the nearby futures contract for HRS wheat closed at a record \$24 per bushel.<sup>8</sup> HRS wheat prices can be tracked in the cash market by following daily price quotes for Dark Northern Spring (DNS) wheat out of Minneapolis (**Figure 1**).

Prices for soft white wheat (grown primarily in the Pacific Northwest) have also risen sharply in recent months. White wheat is used to produce a very popular type of noodle eaten throughout eastern Asia. Australia is traditionally the world's largest supplier of white wheat, but last year's drought-reduced harvest drastically limited its export supplies. As a result, China and other Asian countries have been competing for dwindling U.S. and international supplies of white wheat and this has pushed prices sharply higher.

**Pressures from Other Crops That Compete for the Same Area.** U.S. wheat planted area has been steadily declining for the past 40 years as low relative returns have led many farmers to shift to other, more profitable activities. This phenomenon has clearly been evident in the Northern Plains, where the development of short-season corn and soybean varieties has steadily cut into traditional wheat areas. This process has

**Figure 2. World Wheat Supply, Demand, and Stocks**



<sup>6</sup> WASDE, USDA, World Agricultural Outlook Board, February 8, 2008.

<sup>7</sup> *Winter Wheat Seedings*, National Agricultural Statistics Service, USDA, January 11, 2008.

<sup>8</sup> Lauren Etter, "Markets on Tear: Wheat, Oil, Euro — Grain Trading Explodes in the Minneapolis Pits; Speculators Flood In," *Wall Street Journal*, February 27, 2008.

accelerated since late 2005 with the rapid growth of corn-based ethanol production, which has sparked high corn and soybean prices (**Figure 3**). Wheat prices must rise high enough to compete for planted acres this spring (2008) with the other grains and oilseeds. This area competition is also contributing to the price run-up at the MGE.

## Outlook

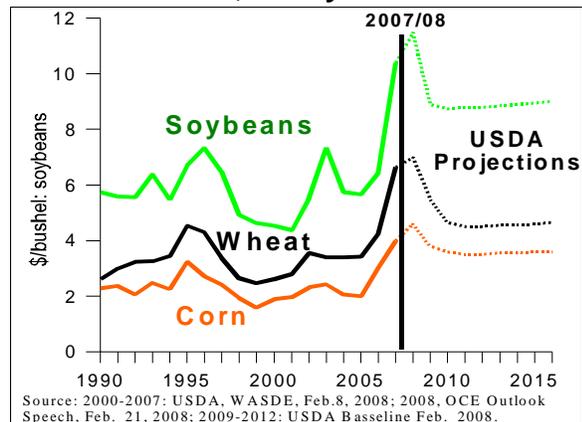
**Near-Term Outlook.**<sup>9</sup> High commodity prices are expected to encourage farmers to expand plantings this spring. However, since the land base is constant, the question is which crops will get more area and which will lose. For 2008, USDA projects that U.S. planted acreage will expand significantly for both wheat (up 6%) and soybeans (up nearly 12%), while corn plantings will decline slightly (by about 4%). As a result, assuming normal weather and average yields, U.S. wheat production is expected to rise by nearly 13%. In addition, USDA projects that global wheat plantings and output will rise substantially (although no official estimate for 2008 global production is released until May). Larger global wheat supplies are expected to significantly reduce international demand for U.S. wheat in the latter half of 2008. Thus, the combination of higher production and lower exports is expected to allow U.S. domestic wheat stocks to rebuild and wheat prices to decline from their early 2007 peaks (while remaining high relative to past years). Markets are likely to exhibit substantial price variability until global stock levels can be rebuilt.

**Long-Term Outlook.**<sup>10</sup> As the global supply rebounds from the shortfalls of 2007, higher projected production is expected to facilitate the rebuilding of stocks and the return of prices to the \$4 to \$5 per bushel range over the next five- to ten-year period.

## Food Price Effects

**Domestic Food Price Inflation.** The rise in agricultural prices, combined with high oil prices, have contributed to higher food inflation in the United States and around the world. U.S. food prices increased by 4% during 2007, the highest one-year rise since 1990. Prices for cereals and bakery products were up by 4.4%. USDA predicts that food price inflation for 2008 will be in the range of 3% to 4%, while bakery goods are expected to rise by 5.5% to 6.5%.<sup>11</sup> Inflation concerns were further heightened when the U.S. Bureau of Labor Statistics announced that food prices had jumped by 1.7% during the

**Figure 3. U.S. Farm Prices: Wheat, Corn, & Soybeans**



<sup>9</sup> "Grain and Oilseed Outlook for 2008," USDA, grain and oilseed ICECs, USDA Agricultural Outlook Forum, February 22, 2008.

<sup>10</sup> USDA Agricultural Projections to 2017, OCE-2008-1, February 2008.

<sup>11</sup> "Food Price Outlook, 2008," Briefing Room: Food CPI, Prices, and Expenditures, ERS, USDA, February 25, 2008.

month of January 2008 — the biggest monthly increase in three years.<sup>12</sup> Despite the sharp increases in commodity prices in 2007, most economists agree that fuel costs have played a larger role in food price inflation than have commodity prices.<sup>13</sup> In general, retail food prices are much less volatile than farm-level prices and tend to rise by a fraction of the change in farm prices. This is because the actual farm product represents only a small share of the eventual retail price, whereas transportation, processing, packaging, advertising, handling, and other costs — all vulnerable to higher fuel prices — comprise the majority of the final sales price.

**International Food Prices and Aid.** Due to trade linkages, high commodity prices ripple through international markets where impacts vary widely based on grain import dependence and the ability to respond to higher commodity prices. Import-dependent developing country markets are put at greater food security risk due to the higher cost of imported commodities.

The overall impact to consumers from higher food prices depends on the proportion of income that is spent on food. Since food costs represent a relatively small share of consumer spending for most U.S. households (about 10%), food price increases (from whatever source) are absorbed relatively easily in the short run. However, low-income consumers spend a much greater proportion of their income on food than do high-income consumers. Their larger share combined with less flexibility to adjust expenditures in other budget areas means that any increase in food prices potentially could cause hardship. In particular, lower-income households in many foreign markets where food imports are an important share of national consumption and where food expenses represent a larger portion of the household budget may be affected by higher food prices.<sup>14</sup> Humanitarian groups have expressed concern for the potential difficulties that higher grain prices imply for developing countries that are net food importers.<sup>15</sup>

International food aid is the United States' major response to reducing global hunger.<sup>16</sup> Because most U.S. food aid activities are fixed in value by annual appropriations, the amount of commodities that can be purchased declines with rising food prices. In 2006, the United States provided \$2.1 billion of such assistance, which paid for the delivery and distribution of more than 3 million metric tons of U.S. agricultural commodities. The United States provided food aid to 65 countries in 2006, more than half of them in Sub-Saharan Africa.

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<sup>12</sup> “Inflation at Highest Level in 26 Years,” *Omaha World Herald*, February 26, 2008.

<sup>13</sup> For example, see John M. Urbanchuk, “The Relative Impact of Corn and Energy Prices in the Grocery Aisle,” LECG LLC, June 14, 2007.

<sup>14</sup> Shahla Shapouri and Stacey Rosen, “Energy Price Implications for Food Security in Developing Countries,” *Food Security Assessment, 2006*, GFA-18, ERS, USDA.

<sup>15</sup> International Monetary Fund, *World Economic Outlook: Globalization and Inequality*, Washington, October 2007.

<sup>16</sup> For more information see CRS Report RL33553, *Agricultural Export and Food Aid Programs*, by Charles Hanrahan.