

GAO

Testimony



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GAO Analysis of Durum Wheat Prices

Statement of
John W. Harman, Director
Food and Agriculture Issues
Resources, Community, and Economic
Development Division

Before the
Subcommittee on Trade
House Committee on Ways and Means



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Mr. Chairman:

We are pleased to be here today to discuss current market conditions for durum wheat, and, in particular, whether durum prices are consistent with supply and demand conditions. Our discussion is based on work recently conducted for Representative Byron Dorgan. To do this work, we developed a statistical model to estimate the historical relationship between average annual durum wheat prices and stocks remaining at the end of the crop year, May 31. We examined this relationship for 16 years, from 1973 to 1988.

Using this model, we found that there is a strong statistical relationship between prices and year-end stocks. That is, price levels bear a strong inverse relationship to stocks on hand at the end of the year, so that the higher the level of stocks, the lower the average annual price, or vice versa. Given this strong historical relationship, our model allows us to look at a given level of ending stocks and estimate a price range commensurate with that level.

Using the USDA November forecasts of ending durum stocks, our model projects an average annual durum wheat price of at least \$5.25 per bushel. Prices for the first 6 months of 1989 indicate an average annual price of about \$4.30 per bushel.

A number of factors have been suggested to explain this difference between our model's results and the anticipated annual average price for this year. Factors suggested include grain quality, levels of imports, and forecasts of export. However, we do not know to what extent, if at all, these factors are responsible for this difference. The difference between prices estimated by past relationships and this year's price may indicate a fundamental change in the market for durum wheat.

BACKGROUND

As you know, the crop year for wheat begins on June 1. During the 1988 crop year, durum wheat stocks fell sharply following the drought. Stocks on hand on May 31, 1989, were 60 million bushels. As of November 1989, USDA forecasts that ending stocks on May 31, 1990, will be 49 million bushels. This projected level is the lowest level since 1974. Given this low level of stocks, Representative Dorgan questioned why durum wheat prices were not higher.

Export and domestic use are the major pressures on ending stocks. Domestic use includes some imported wheat. Some of this wheat may remain as stocks at the end of the year for use in subsequent years. However, whatever their disposition, imports have historically constituted a small portion of total durum wheat use. From 1973 until last year's drought, imports represented from 1 to 7 percent of use. During the same period, exports constituted from 42 to 63 percent of use. Therefore, a percentage change in imports would be likely to have a much smaller effect on durum prices than the same change in exports because the base for each is different.

USDA is projecting export and domestic use of 114 million bushels for this crop year. These data indicate that demand pressures will leave a considerably lower level of stocks than usual at the end of the 1989 crop year.

OUR ANALYSES

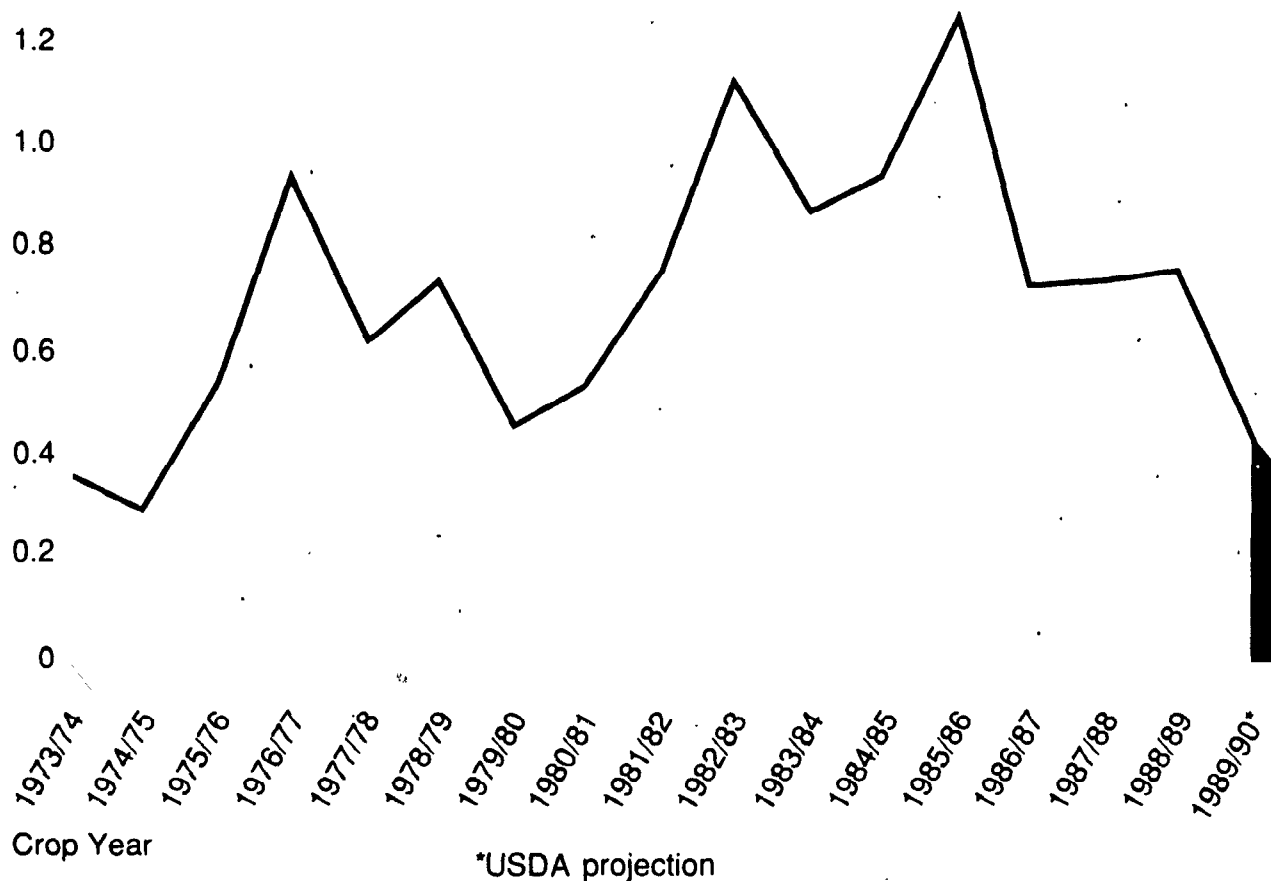
Let me explain how we arrived at our finding that 1989 prices are likely to be lower than estimated by our model. One of the primary indicators of pressures on grain prices is the stocks-to-use ratio. This ratio relates stocks remaining at the end of the year to total grain use for the year. The ratio is a shorthand

method of looking at basic supply and demand for grains. For example, with a projected total use of 114 million bushels, the USDA's November 1989 forecast of 49 million ending bushels implies a stocks-to-use ratio of 43 percent.

Figure 1 shows historical stocks-to-use ratios. For 13 of the 16 years we examined, the equivalent of more than 50 percent of total durum wheat use for the year remained at the end of the year. As you can see, the level forecasted for 1989 is the lowest since 1974.

Figure 1: U.S. Durum Wheat Stocks-to-use Ratio, 1973/74-1989/90

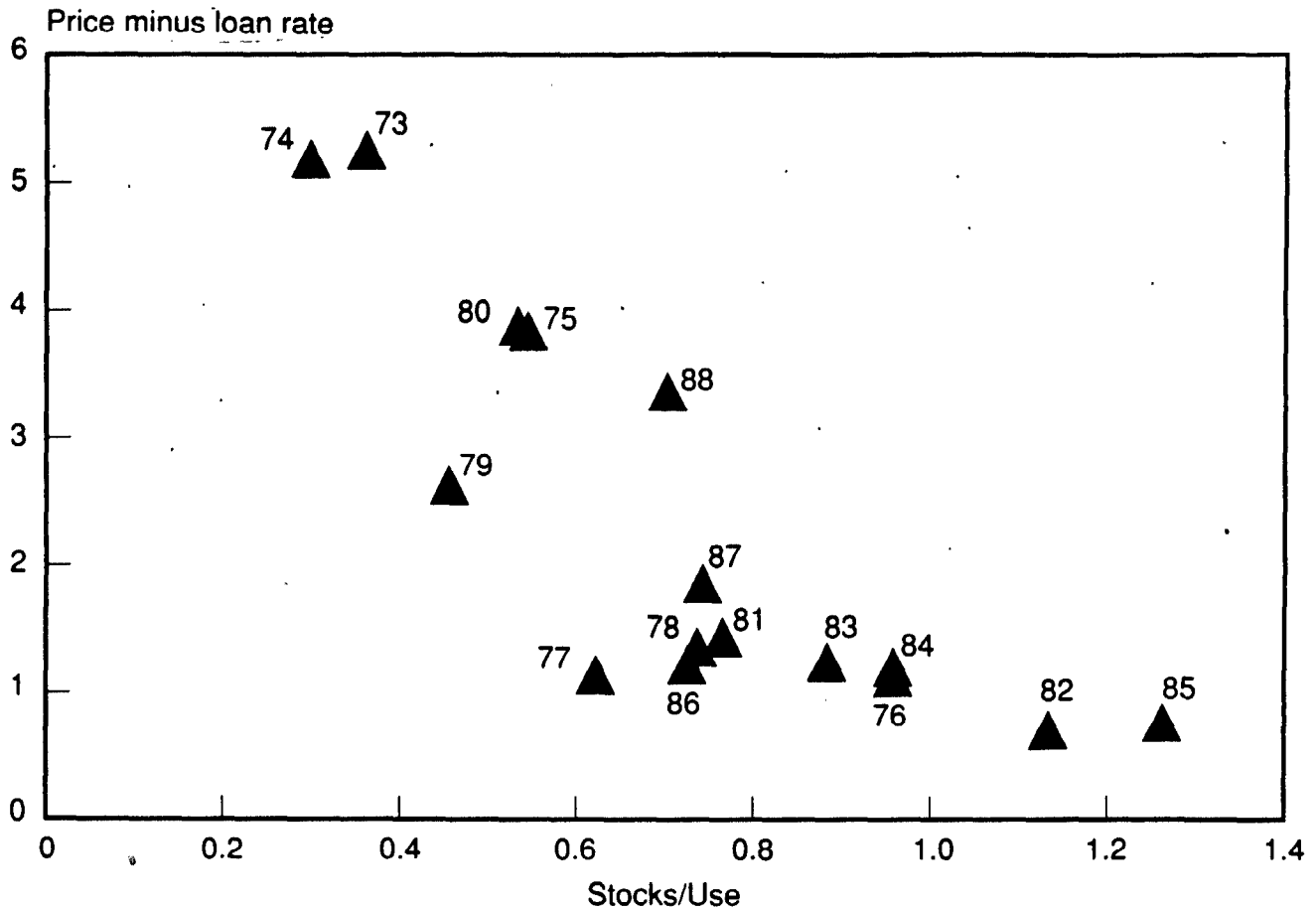
1.4 Stocks-to-use Ratio



Our model estimates the relationship between historical stocks-to use ratios and average annual durum prices. That is, large expected ending stocks indicate that supply is well above expected demand. When stocks are very large relative to use, the resulting low prices lead farmers to keep their wheat off the market by storing it. Low projected ending stocks indicate that supply is tight relative to use. Buyers then bid prices up, and farmers place their wheat on the market. In this way, the ending stocks-to-use ratio is a barometer of pressures on price.

Figure 2 shows the relationship between the stocks-to-use ratio and price for the period we examined. As you can see, as the ratio increases, prices decline.

Figure 2: Durum Wheat: Annual Cash Price and Ending Stocks-to-use Ratio, 1973/74-1988/89



To forecast average annual prices for 1989, we compared historical relationships between prices for the first 6 months of the crop years from 1973 to 1988 with annual average prices for those years. We then applied these relationships to the actual prices for the first 6 months of 1989.

As you can see in figure 3, prices for the first 6 months in 1973 through 1988 have ranged from 87 percent to 112 percent of the average annual prices for these years.

Based on our calculations, the average price for the first 6 months of the 1989 crop year was about \$4.30 per bushel. However, the price could vary from about \$3.74 to \$4.82 per bushel around this average.

Figure 3: June-November Durum Wheat Prices as a percent of Average Annual Price

120 Percent of annual price



To determine the price one would expect based on historical stocks-to-use ratios, we used the statistical model we developed to estimate the price/stocks-to-use relationship based on 1973-88 data. We also used the model results to estimate a price corresponding with November forecasts of durum wheat stocks on May 31, 1990, the end of the crop year. Figure 4 shows estimates from our model for prices as related to stocks-to-use ratios from 30 percent of use to 120 percent of use.

Figure 4: Estimates of Durum Wheat Prices and Stocks-to-use Ratios

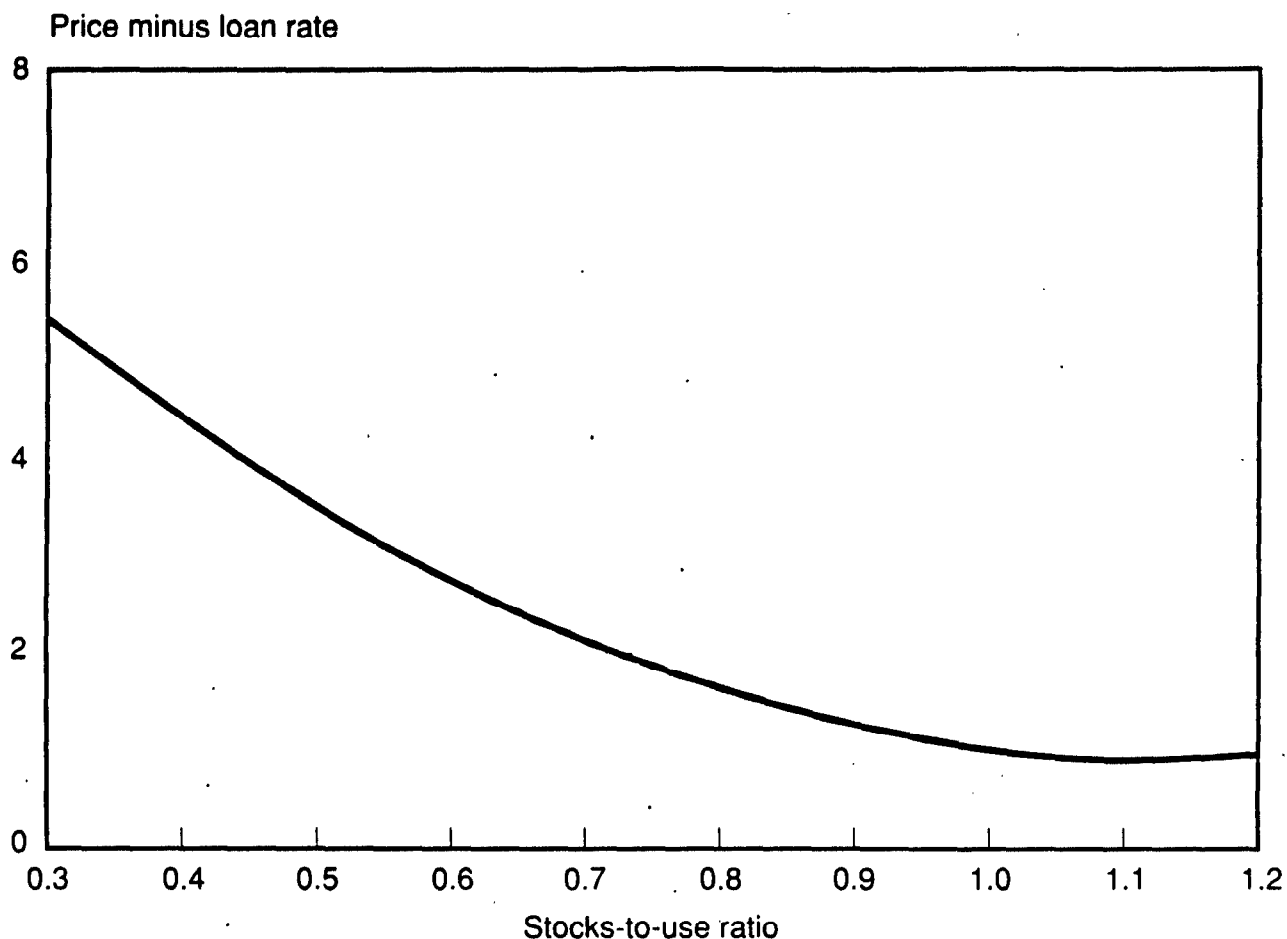
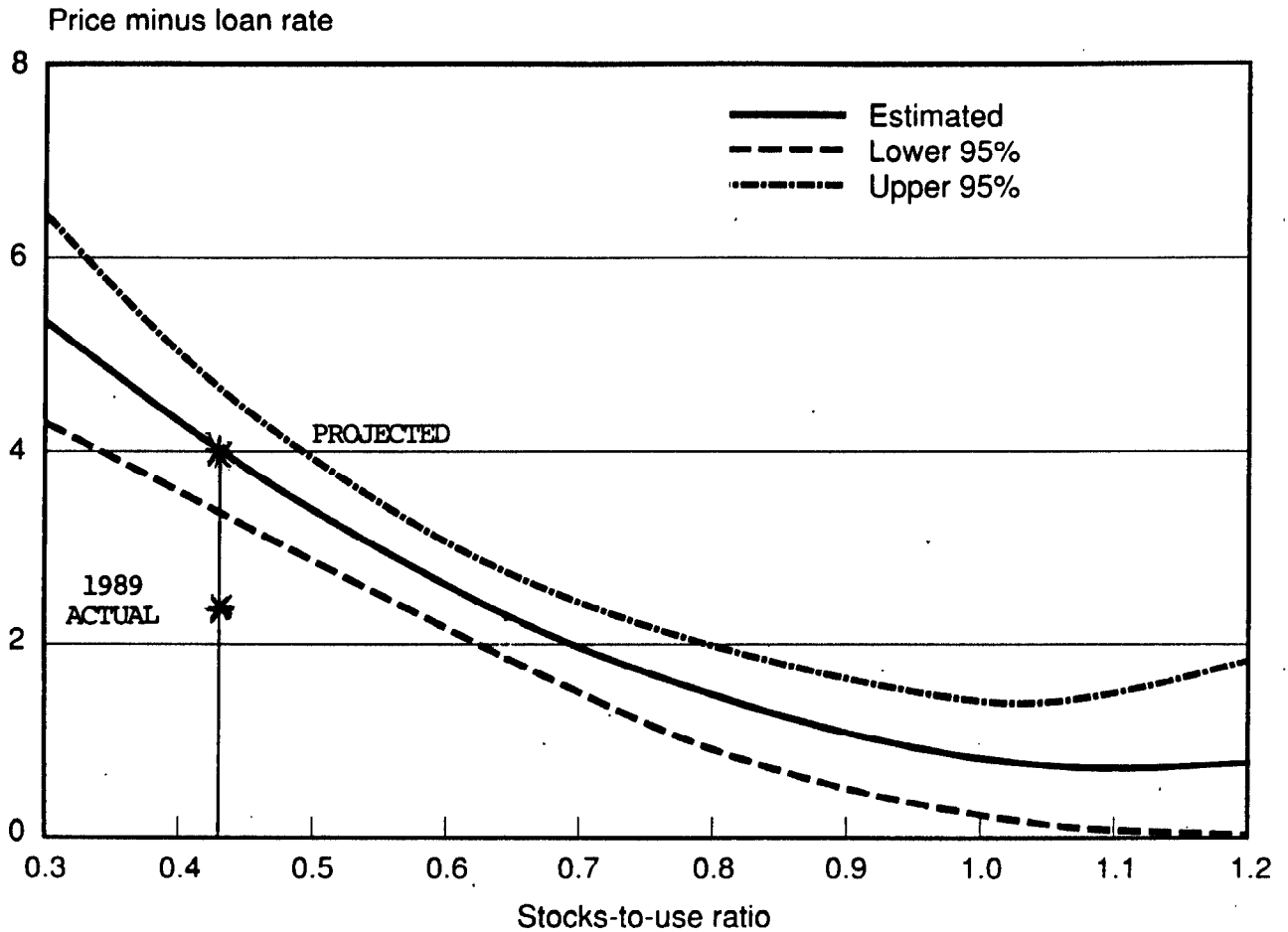


Figure 5 shows these estimates, as well as the ranges associated with the estimates. As you can see, the range becomes larger as the stocks-to-use ratio is less than 50 percent or greater than 90 percent. Consequently, for stocks-to-use ratios of less than 50 percent or more than 90 percent, the model estimates will have greater ranges associated with them. Because the USDA forecast implies a stocks-to-use ratio of 43 percent, the estimated range of price associated with our estimate could be as wide as \$1.50 per bushel. Our model estimated that the price could range from \$5.25 per bushel to as much as \$6.75 per bushel, including the loan rate of about \$2.00 per bushel.

Figure 5: Estimates of Durum Wheat Price Ranges and Stocks-to-use Ratios



REASONS FOR THIS APPARENT DIFFERENCE

To understand the reasons for our model estimate being higher than the average annual price that we expect in 1989, we spoke with durum wheat traders and other analysts. While we have not conducted a scientific survey, their responses offer a number of possible explanations. Some noted that the quality of durum wheat traded in the summer of 1989 was lower than usual.

Others told us that Canadian wheat sold was being sold in the United States at lower prices than domestic wheat, providing a possible explanation for lower average prices. However, as we noted earlier, a percentage change in imports would be likely to have a much smaller effect on durum prices than the same change in exports because the base for each is different.

Finally, several of those we interviewed said that members of the durum wheat trade believe demand in the commercial export market will not be as high as indicated in official forecasts. In that case, the stocks-to-use ratio would be higher than the one we developed. Lower exports would make the stocks-to-use ratio higher than forecast, thereby lowering the market price. We do not know to what extent any of these factors may account for prices that are lower than those indicated by our model. As noted earlier, however, this difference could indicate a fundamental change in the market.

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This concludes my formal testimony. I would be happy to answer your questions.