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Structural Change Brings New Challenges to Soybean Price Forecasts

South America has surpassed the U.S. in soybean production and displaced the U.S. as the dominant player in the global soybean market. Its emergence as a major U.S. competitor has put downward pressure on U.S. prices, changing the market dynamics of the soybean sector and the economic relationships that have traditionally been used by USDA for price forecasting. USDA forecasts of the season-average price received by U.S. farmers are an essential tool for government budgeting. These price forecasts are also used by industry analysts and farmers for planning and decisionmaking.

Fundamental to the models used by USDA to forecast soybean prices is a strong economic relationship between U.S. commodity prices and the ratio of U.S. carryover stocks to use—the higher the stocks relative to use, the lower the price. But with the rise of South American soybean production, this relationship has lost some of its predictive power. Forecasting equations that proved reliable for years are now less accurate, and commodity analysts have to rely much more on ad hoc adjustment factors to account for the structural change. Analysts need a more rational system for forecasting U.S. season-average soybean price that incorporates the impact of increased South American soybean production.

Recent ERS research found that using South American soybean production in addition to the U.S. carryover stocks-to-use ratio helps to better forecast U.S. soybean prices. Increases in either variable will lower the expected price. The equation estimates that a 1-percent increase in the carryover stocks-to-use ratio reduces the U.S. season-average price by about 0.4 percent and that a 1-percent increase in South American production reduces the U.S. soybean

season-average price by about 0.5 percent. The latter estimate is the direct effect of South American production on the U.S. soybean price.

But, the U.S. carryover stocks-to-use ratio adjusts downward in response to increased South American production. Increased South American production may result in less need for U.S. carryover stocks (though the exact relationship between South American production and U.S. stocks is a researchable question). Regression analysis of the data indicates that a 1-percent increase in South American production reduces the U.S. carryover stocks-to-use ratio by about 0.6 percent. The 0.6-percent reduction in the U.S. stocks-to-use ratio from a 1-percent increase in South American production, plus its direct effect on the U.S. price, reduces the U.S. soybean price by a composite of about 0.25 percent.

Expanded competition from South America is having a significant impact on the soybean market and on soybean price-forecasting models. ERS analysis shows that the U.S. stocks-to-use ratio and South American soybean production were important variables for forecasting price. Further, the indirect effect of South American production on the U.S. soybean price should be considered when making price forecasts and when budgeting for government payments. \mathbb{X}

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This finding is drawn from . . .

How Does Structural Change in the Global Soybean Market Affect the U.S. Price? by Gerald Plato and William Chambers, OCS-04D-01, USDA/ERS, April 2004, available at: www.ers.usda.gov/publications/ocs/apr04/ocs04d01/



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South American soybean exporters bring new competition for U.S. soybean growers

