

## Briefs

## Planting Progress Enhances Corn Yield Prospects for 2000

USDA's initial projection for U.S. corn yields in 2000 is 137 bushels per acre, about 3 bushels higher than the long-term, straight-line trend would indicate. The above-trend yield projection reflects earlier-than-average planting of this year's corn crop. A crop planted earlier tends to have greater yield potential because it allows for more of the critical stages of crop development, especially pollination, to occur under typically more favorable weather conditions, avoiding the hotter and drier periods later in the summer. Through May 14, planting progress for 18 major corn production states reached more than 90 percent completion, compared with a 5-year average of 62 percent by mid-May.

To assess potential yield gains resulting from early plantings, a corn yield model was used, based on trend, weather, and planting progress. The model, developed by USDA's Economic Research Service, uses July weather (precipitation and average temperature) and mid-May plantings data for the five-state Corn Belt (Iowa, Illinois, Indiana, Ohio, and Missouri), which typically accounts for about half of U.S. corn production. The estimated regression equation explains about 90 percent of the variation in national corn yields in 1975-99.

The effects of mid-May planting progress and July temperatures on corn yield are each linear in the model—i.e., for these variables, each unit of change has a constant effect on yield. The effect of Corn Belt precipitation for July, however, is nonlinear because the response of corn yields to different amounts of precipitation is asymmetric. That is, reductions in corn yields when rainfall is below average are larger than gains in corn yields when rainfall is above average.

If planting progress by mid-May this year had been average—and assuming weather in July is average—the model suggests a corn yield of about 134 bushels per acre in 2000. However, a weighted average of corn yield estimates for alternative July weather outcomes, including both favorable and adverse weather, lowers the mean (average) expected corn yield to 131 bushels per acre, reflecting the asymmetric response to different amounts of rainfall. The mean expectation analyzed here accounts for most of the likely outcomes in July weather (95 percent of the statistical distribution of the weather variables).

Advanced planting progress this year adds to this average yield expectation. For every 10-percentage-point increase in planting progress above average, corn yield expectations are raised by 2.6 bushels per acre. So with 95 percent of the Corn Belt corn crop

planted by mid-May (compared with the 1975-99 Corn Belt average of 71 percent by that date), mean expectations are raised to about 137 bushels per acre.

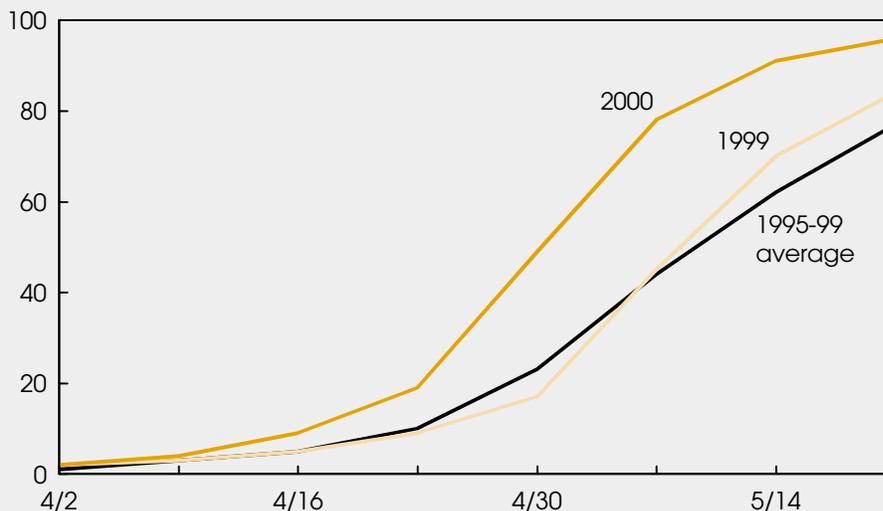
As the growing season for corn progresses, and actual data for July weather become available, the model can be used to update projections of this year's corn yield. Higher yields could result if July weather is more favorable than average, while a hotter and drier July could reduce corn yields.

USDA's first survey-based estimate of corn yields for this year will be released by the National Agricultural Statistics Service in the August 11 *Crop Production* report. **AO**

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### Corn Plantings Are Well Ahead of Average Pace

Percent of acreage planted



18 major corn-producing states.  
Source: National Agricultural Statistics Service, USDA  
Economic Research Service, USDA