

Corn Yield Trends for Indiana: 1930 to 2007

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Historical grain yields provide us with a glimpse of yields yet to come, although like the stock markets, past performance is no guarantee of the future. State average corn grain yields in Indiana have increased at a fairly constant 1.64 bushels per acre per year since 1930 primarily due to improved genetics and production technology (Fig. 1). Some question whether the straight line relationship accurately reflects the trend in yield gain in recent years, but I believe yield trends calculated from relatively lengthy historical time-spans are more reliable for predicting near-term future yields than those calculated from relatively short time-spans (Nielsen, 2006).

The Jan 2007 USDA final estimate puts the Indiana corn crop at 157 bushels per acre (bpa), or 5.5 percent above the 2006 trend line yield of 148.8 bpa and 11 bpa below the record crop of 168 bpa established in 2004 (Fig 1). By comparison, recent years' departures from trend yield (Fig. 2) were 2005 (+4.7%), 2004 (+15.5%), 2003 (+1.5%), 2002 (-14.9%), 2001 (+11.0%), and 2000 (+5.8%). The current regression trend line estimate for the 2007 Indiana corn crop would be 150.4 bpa.

Annual grain yield estimates fluctuate above and below the trend line throughout the more than 70-year period of records (Fig. 2), but four weather-related disaster years are especially noteworthy. Late planting plus early fall frosts in 1974 decreased state average corn yields 26% below the trend value for that year. Severe droughts in 1983, 1988 and 1991 resulted in yields 34%, 30% and 26% less than their respective trend values.

Because the departures from trend for these four years are so dramatic, it is of some interest to calculate the trend line for corn grain yield without their inclusion. In so doing, the annual rate of yield increase is slightly greater (1.7 versus 1.64 bu/ac/yr) and the estimated trend yield for 2007 changes from 150.4 to 154.8 bpa (Fig. 3). Such a modified trend line may offer more valid estimates of statewide yield potential in "normal" years. In this context, the 2006 Indiana corn yield estimate of 157 bpa represented a 2.5% departure above trend yield.

The top five U.S. corn grain-producing states are Iowa, Illinois, Nebraska, Indiana and Minnesota (Fig. 4). According to the final USDA production estimates for 2006 (published Jan 2007), these five states (6.99 billion bushels) accounted for about 66% of the total estimated grain yield for the U.S. in 2006 (10.5 billion bushels).

For More Information...

For more statistics about Indiana agricultural production, browse the Web site of the Indiana Agricultural Statistics Service at http://www.nass.usda.gov/Statistics_by_State/Indiana.

Related References

Nielsen, R.L. (Bob). 2006. Corn Grain Yield Trends: Eyes of the Beholder. Corny News Network, Purdue Univ. Online at <http://www.kingcorn.org/news/articles.06/YieldTrends-0615.html> [URL verified 15 Jan 2007].

USDA-NASS. Jan 2007. Crop Production 2006 Summary. United States Dept. of Agr - Nat'l Ag. Statistics Service, Washington, D.C. Online at <http://usda.mannlib.cornell.edu/usda/current/CropProdSu/CropProdSu-01-12-2007.pdf> [URL verified 15 Jan 2007].

Don't forget, this and other timely information about corn can be viewed at the Chat 'n Chew Café on the Web at <http://www.kingcorn.org/cafe>. For other information about corn, take a look at the Corn Growers' Guidebook on the Web at <http://www.kingcorn.org>.

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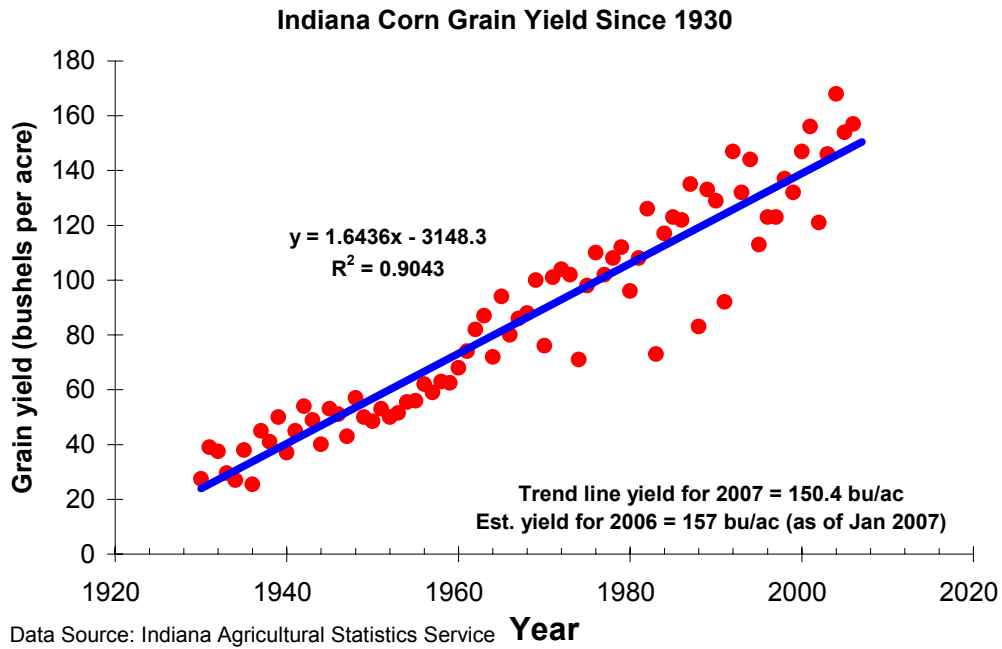


Fig. 1. Historical corn yields and calculated trend yield line for Indiana, 1930 to date.

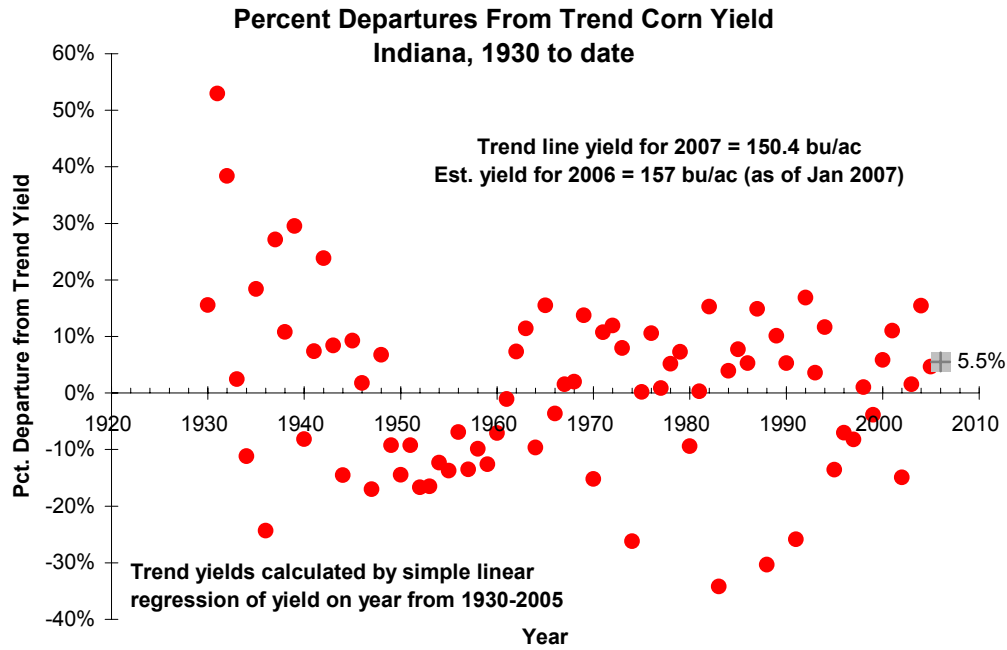


Fig. 2. Departures from trend corn yield in Indiana, 1930 to date.

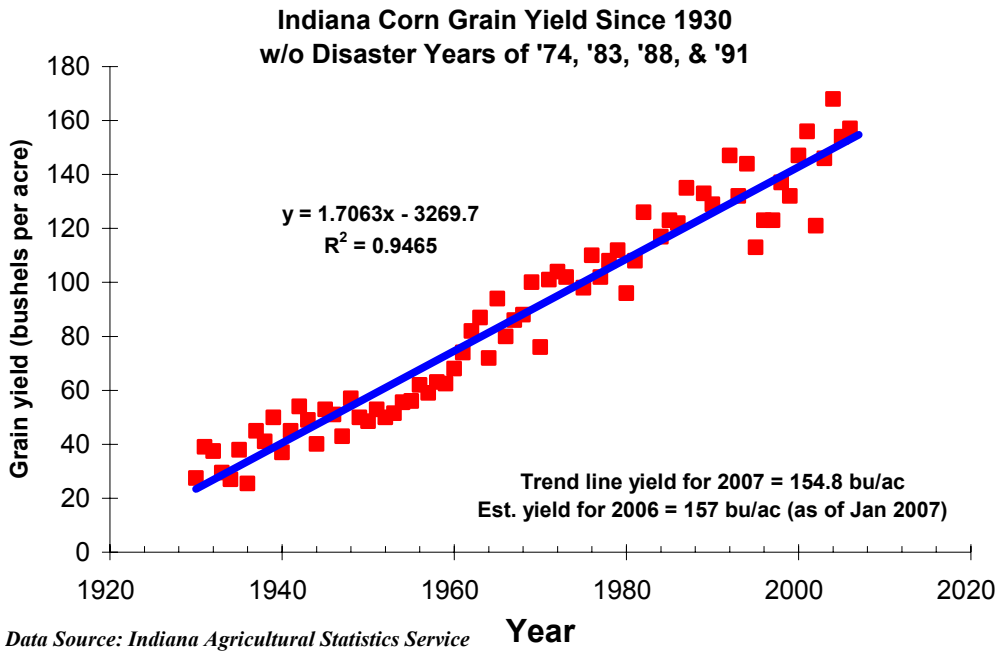


Fig. 3. Historical corn yields and trend yield line for Indiana, 1930 to date, calculated without disaster years of 1974, 1983, 1988, and 1991.

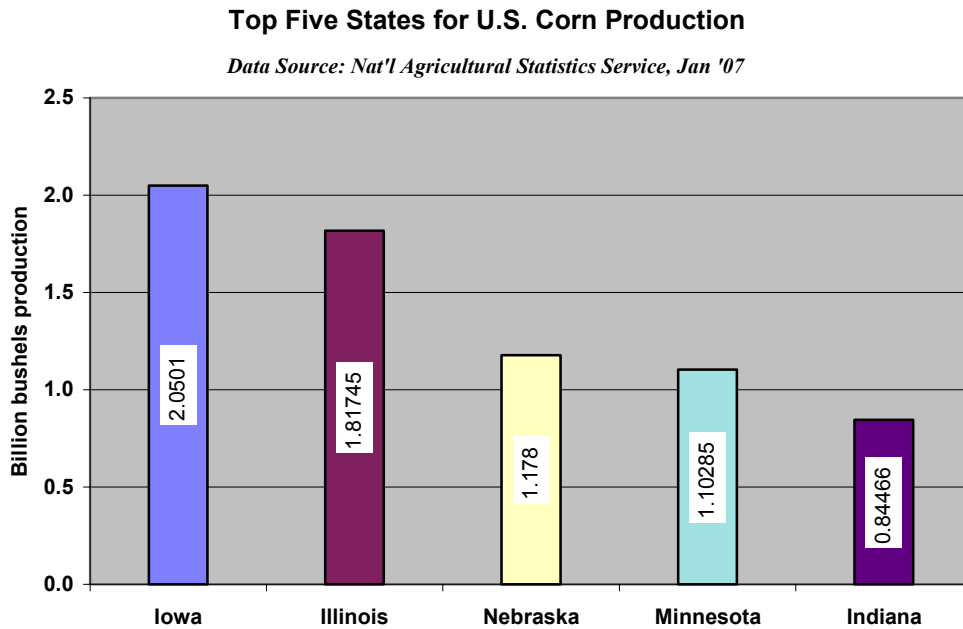


Fig. 4. Top five U.S. corn producing states in 2006.