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# Trends for Arkansas Field Crop Yields, 2002-2011

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## **Trends for Arkansas Field Crop Yields, 2002-2011**

Increasing yields are an indicator of improvements in crop production technology. Technological advancements allow increased production without additional acreage inputs. Producer profits increase as increased yields lead to greater revenue for each acre in production. Technological improvements which improve yields include inherent seed characteristics, genetic modifications, chemicals, and management practices. Environmental conditions in a single year may lead to deviations from a prevailing yield trend. A statistical measurement that accounts for annual yield volatility is useful for discerning long-term yield trends. This report utilizes annual crop yields in conjunction with Olympic average yields for evaluating Arkansas field crop yields during 2002-2011.

### **Annual Yields for Field Crops**

State annual average yields for major Arkansas field crops during 2002-2011 are presented in Figure 1 through Figure 6. Data are from the National Agricultural Statistics Service (USDA, NASS 2012). Each figure includes the Olympic average for a five-year period. Olympic averages are the average of three years after excluding the highest and lowest yielding years for each five-year period. For example, the Olympic average for cotton in 2011 is the average of yields in 2008 (1012 lbs./ac.), 2010 (1045 lbs./ac.), and 2011 (929 lbs./ac.). Yields in 2009 (818 lbs./ac.) and 2007 (1071 lbs./ac.) are excluded from calculating the Olympic average. This method of calculating averages reduces volatility that is caused by extremely low and high yields that may be deviations from a prevailing trend.

Figure 1 shows cotton yield is declining after 2007. Cotton has large yield increases from 2002 until 2007. Maximum cotton yield occurred in 2004 with an increasing trend continuing for three additional years. There is a subsequent leveling of yield with a low of 818 lbs./ac. in 2009. Yield for 2009 is not included for calculating Olympic average yield in any year. Figure 2 shows corn yield with an increasing trend throughout 2002-2011. The highest corn yield is in 2007. Soybean yields in Figure 3 have the greatest rate of increase before 2005. Yield increases continue at a lower rate until 2007. After this period of yield increases, soybean yields are on a declining trend, before a slight upward trend in 2011. Rice yields in Figure 4 have a steady increase from 2002-2007 with maximum rice yield occurring in 2007. Reduced annual yields during 2008-2011 lead to a declining trend in Olympic averages for this period. Grain sorghum yields in Figure 5 achieve a maximum in 2007. Annual average yields decline in each year during 2008-2011. The lowest annual yield for 2002-2011 occurs in 2011. In Figure 6, the highest wheat yield is in 2006 and the lowest yield is in 2007. The Olympic yield indicates a slight overall decrease for the 2002-2011 period.

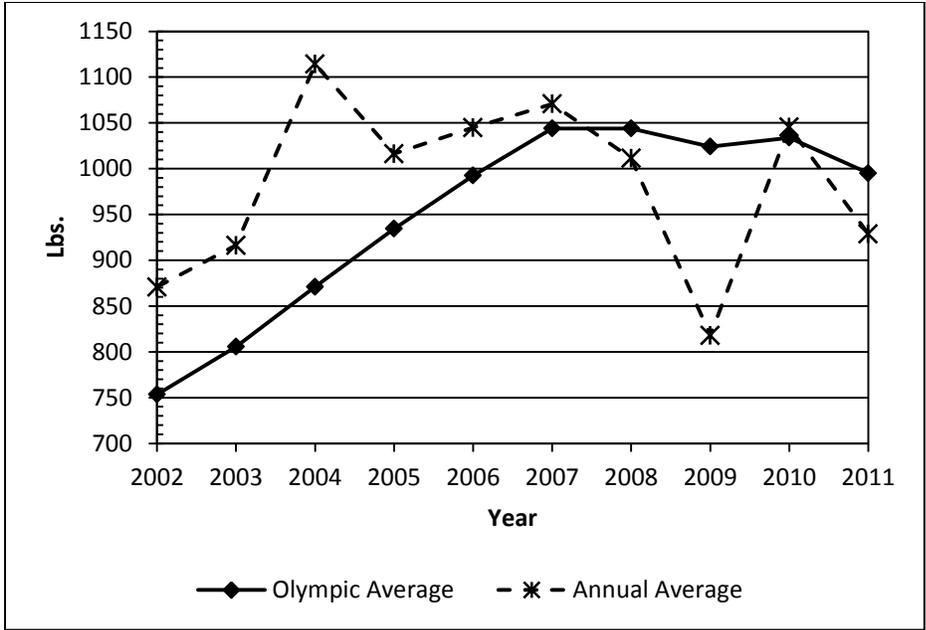


Figure 1. Arkansas Cotton Yields, Annual and 5-Year Olympic Average, 2002-2011

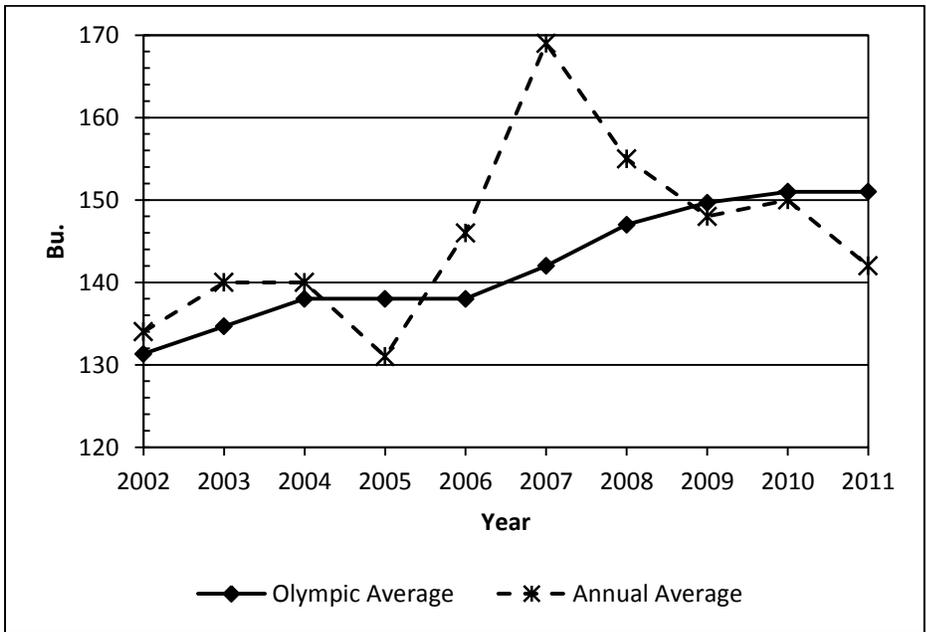


Figure 2. Arkansas Corn Yields, Annual and 5-Year Olympic Average, 2002-2011

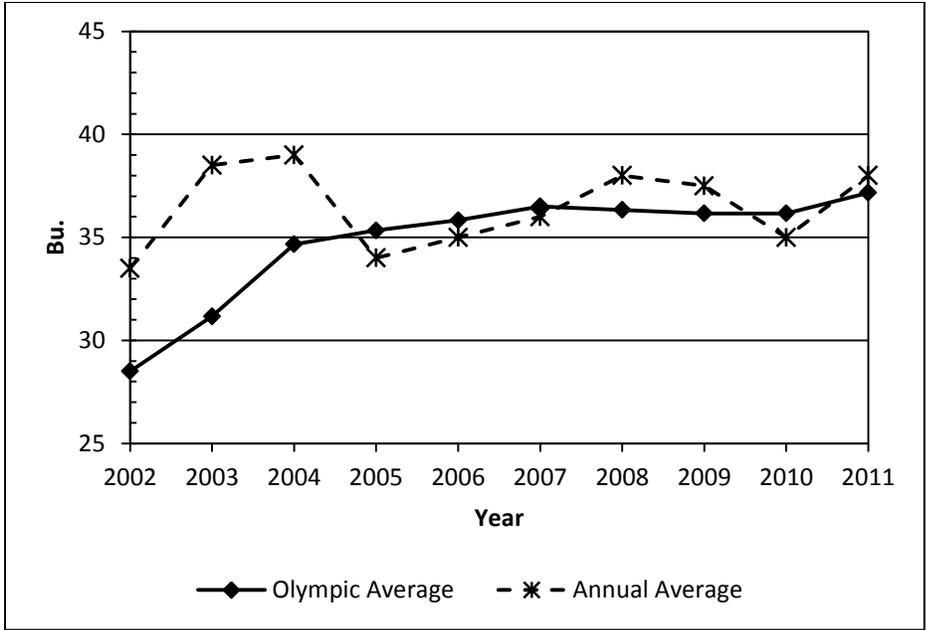


Figure 3. Arkansas Soybean Yields, Annual and 5-Year Olympic Average, 2002-2011

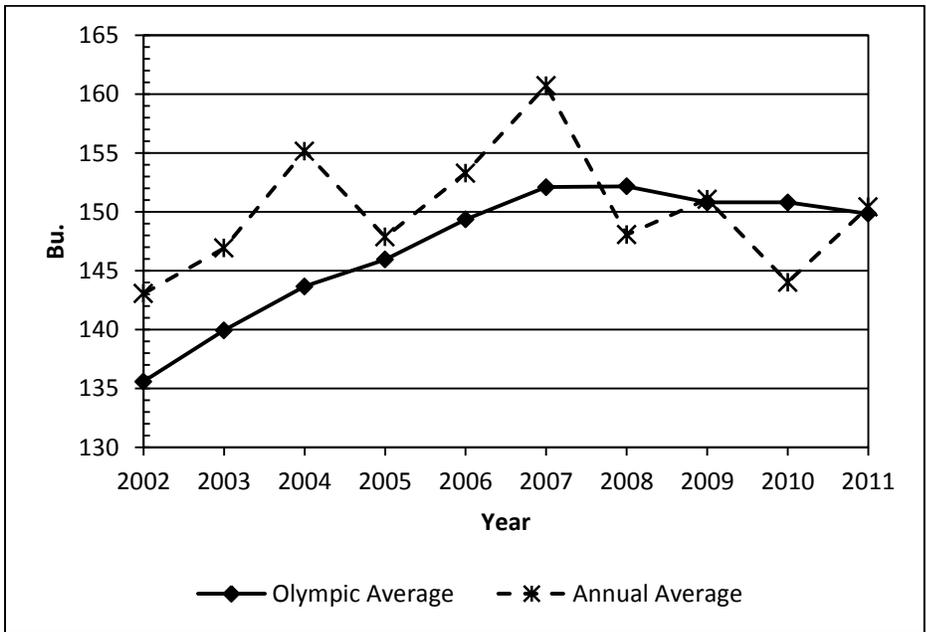


Figure 4. Arkansas Rice Yields, Annual and 5-Year Olympic Average, 2002-2011

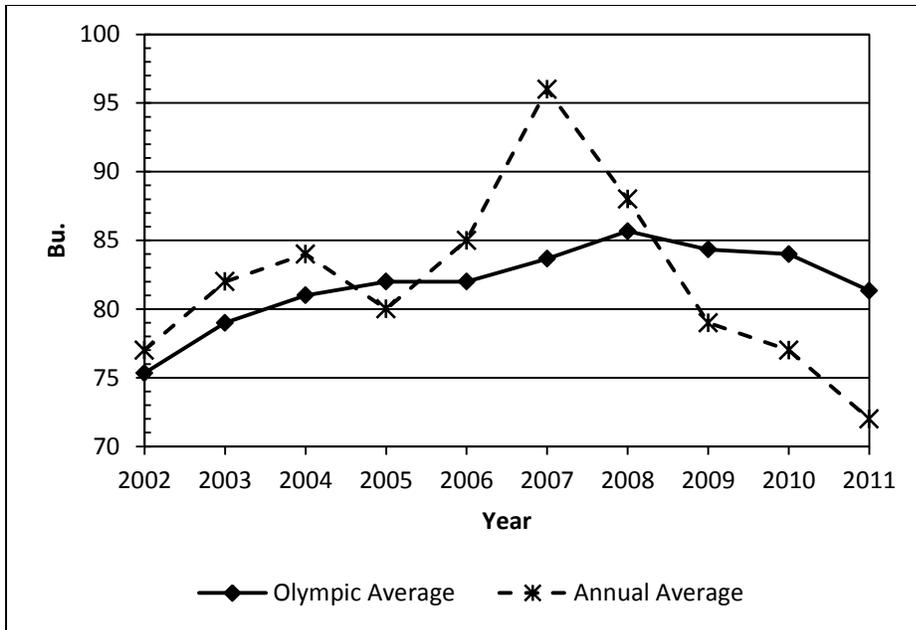


Figure 5. Arkansas Grain Sorghum Yields, Annual and 5-Year Olympic Average, 2002-2011

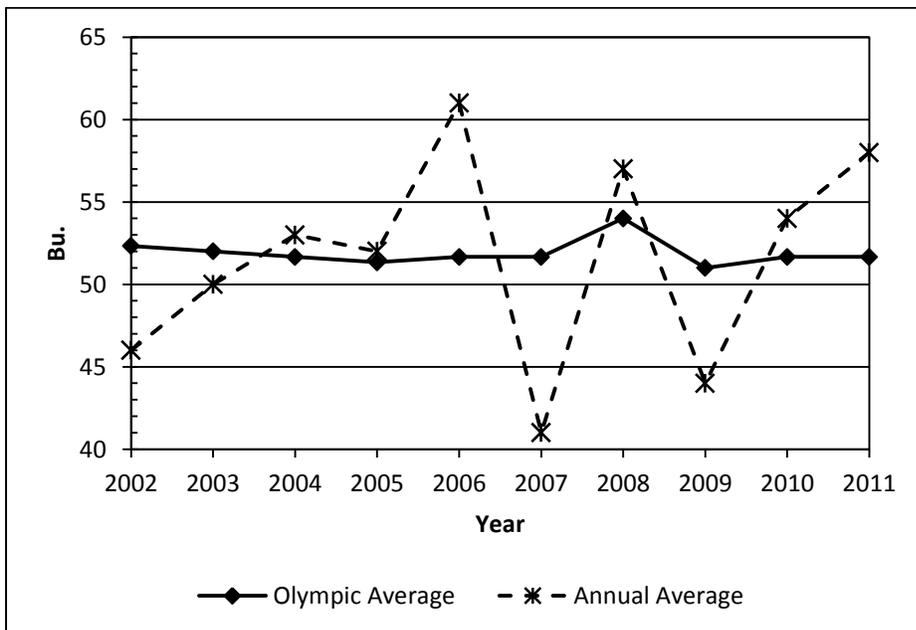


Figure 6. Arkansas Winter Wheat Yields, Annual and 5-Year Olympic Average, 2002-2011

## **Comparing Trends in Arkansas and U.S. Yields**

Appendix 1 compares Olympic average fields for Arkansas and the aggregate of other U.S. producing states (USDA, NASS 2011). Arkansas cotton yields in Appendix 1A follow trends similar to other U.S. yields. Since 2007, Arkansas cotton yields average 235 lbs./acre, or 30%, more than other U.S. yields. Corn yields in Appendix 1B show that the difference between U.S. and Arkansas yields is decreasing in recent years with an average corn yield, since 2007, for Arkansas that is 3 bu./acre less than the U.S. other states average. Since 2007, Arkansas soybean yields in Appendix 1C average 6 bu./acre, or 15%, less than other U.S. yields. Appendix 1D shows that the difference between Arkansas and other U.S. rice yields is increasing. Since 2007, Arkansas rice averages 5 bu./acre less than other U.S. yields. Arkansas grain sorghum yields in Appendix 1E average 16 bu./acre more than other U.S. yields since 2007. Appendix 1F has winter wheat yields that are 8 bu./acre greater in Arkansas than other U.S. states since 2007. Long-term winter wheat yields are on a mostly level trend for both Arkansas and other U.S. states during 2002-2011.

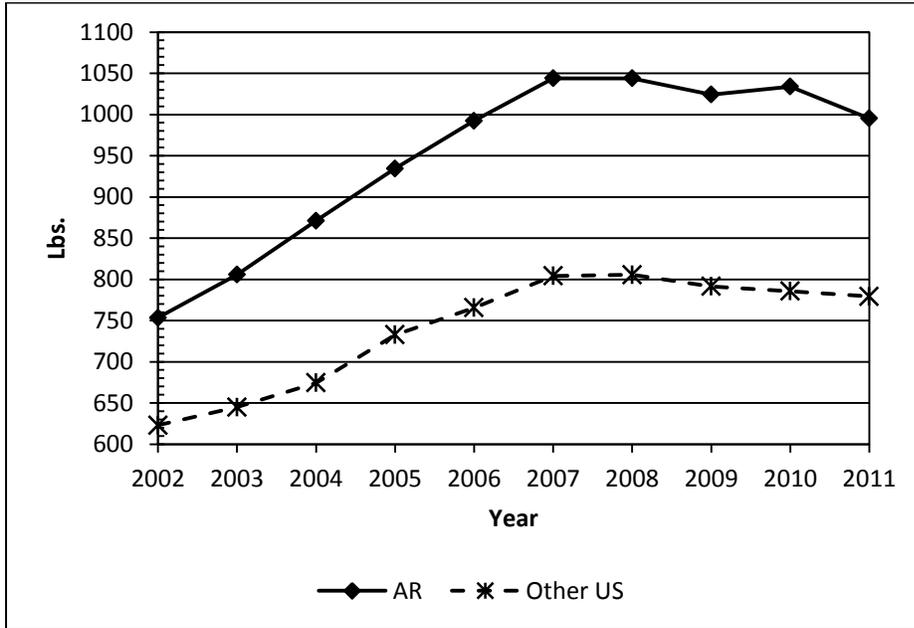
### **Summary**

Arkansas field crop yields have reached a plateau for all crops. Olympic average yields omit years with high and low extremes and indicate prevailing trends in yields. Yield trends in recent years are declining for cotton, rice, grain sorghum, and wheat. Cotton, soybeans, rice, and grain sorghum have periods during 2002-2011 with significant yield increases before declining trends. Yield trends in Arkansas generally follow trends in other U.S. states. An exception is for rice with declining yields since 2007 in Arkansas and continued yield increases in other U.S. rice producing states.

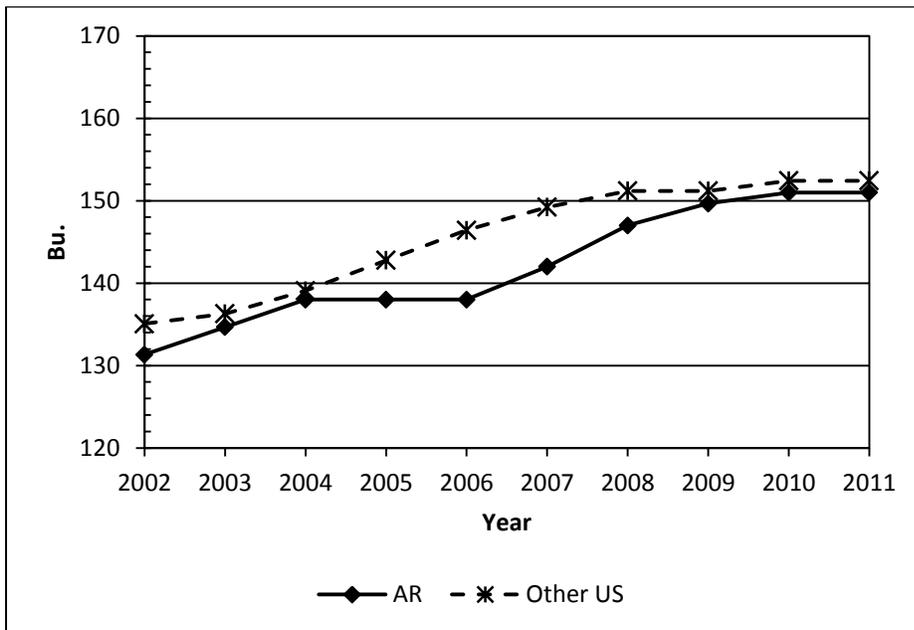
### **Reference**

U.S. Department of Agriculture-National Agricultural Statistics Service (NASS). Internet site: <http://www.nass.usda.gov/> (Accessed August 28,2012).

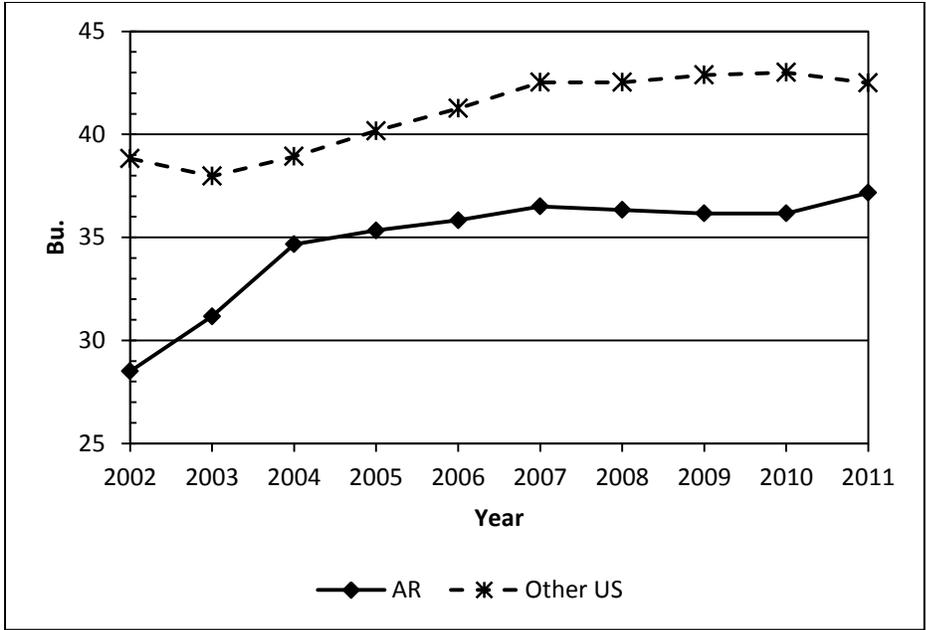
## Appendix 1



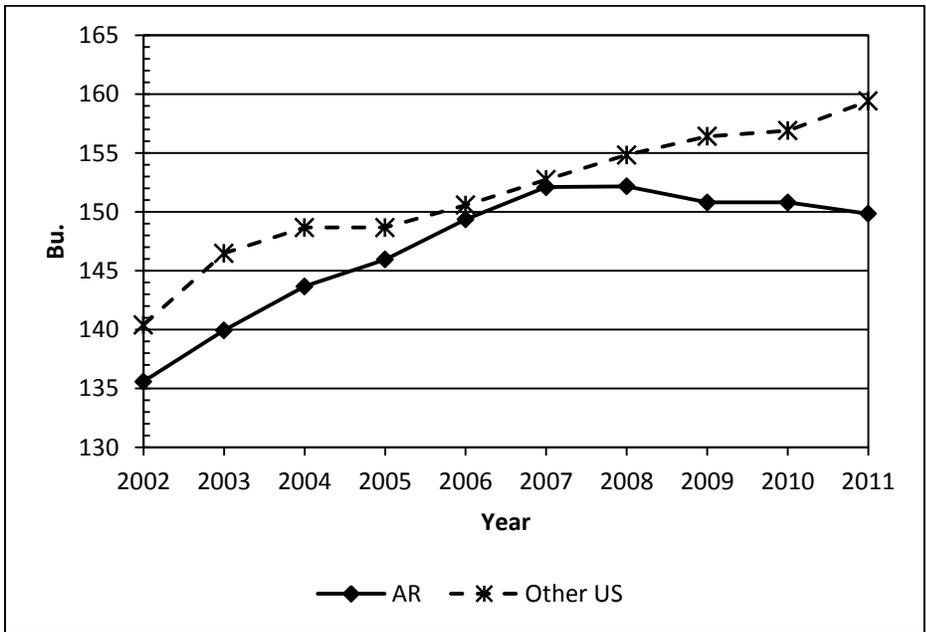
Appendix 1A. Arkansas and Other U.S. 5-Year Olympic Cotton Yields, 2002-2011



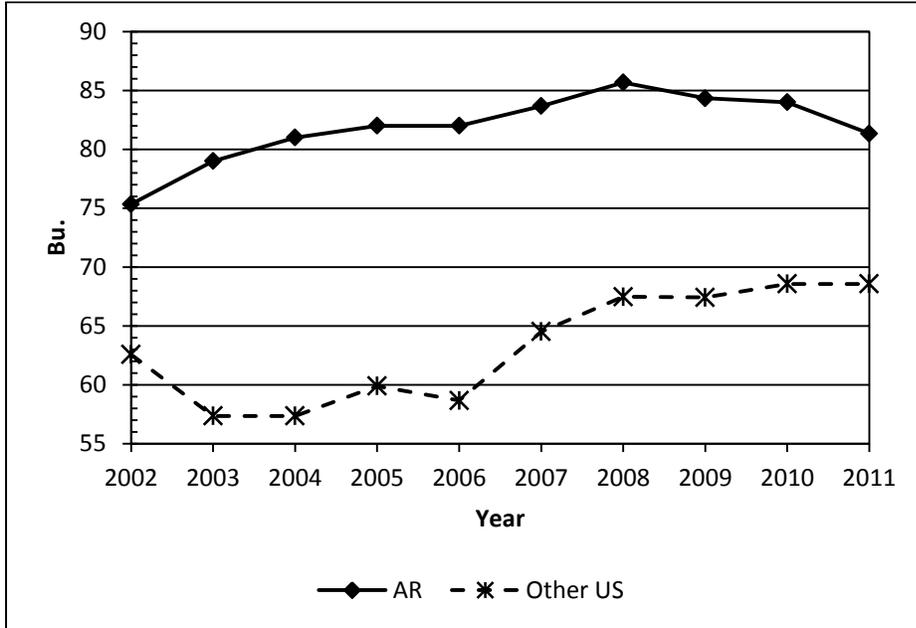
Appendix 1B. Arkansas and Other U.S. 5-Year Olympic Corn Yields, 2002-2011



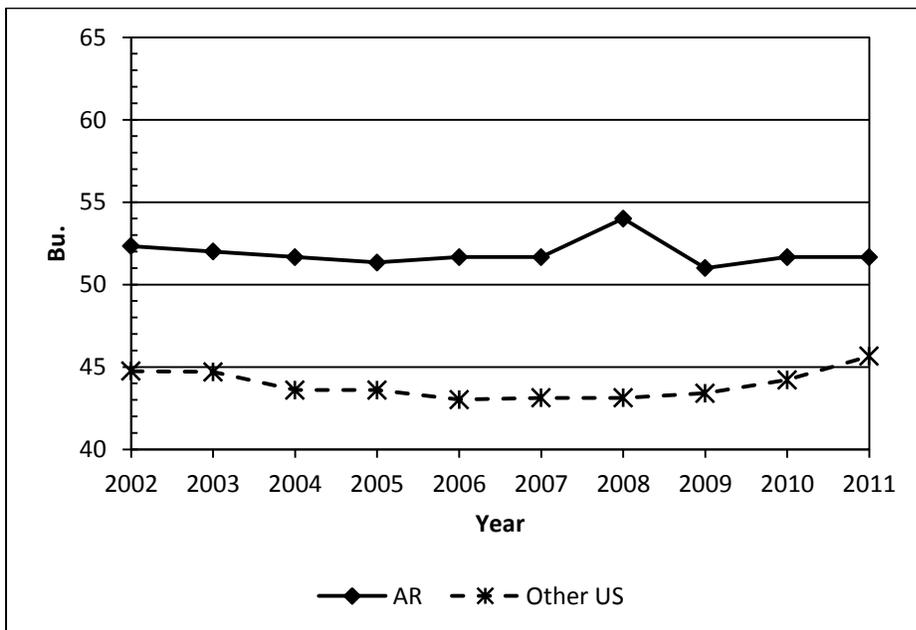
Appendix 1C. Arkansas and Other U.S. 5-Year Olympic Soybean Yields, 2002-2011



Appendix 1D. Arkansas and Other U.S. 5-Year Olympic Rice Yields, 2002-2011



Appendix 1E. Arkansas and Other U.S. 5-Year Olympic Grain Sorghum Yields, 2002-2011



Appendix 1F. Arkansas and Other U.S. 5-Year Olympic Winter Wheat Yields, 2002-2011