

# Adoption of Yield Monitor Technology for Crop Production

Terry Griffin  
Assistant Professor -  
Economics

Precision agriculture technology has been on the market for nearly 20 years. Global Positioning Systems (GPS), Geographic Information Systems (GIS), yield monitors, variable rate technologies (VRT) and other spatial management technologies are being used by farmers in Arkansas, the U.S. and across the world. This fact sheet summarizes data on adoption of yield monitors. The adoption estimates are based on face-to-face interviews with farmers conducted by the United States Department of Agriculture and referred to as the Agricultural Resource and Management Survey (ARMS), a collaborative effort by the Economic Research Service (ERS) and the National Agricultural Statistics Service (NASS).

In the most recent data available, 28% of corn planted acres (in 2005), 10% of winter wheat (in 2004), 22% of soybeans (in 2002) and 18% of rice (in 2000) were harvested with a combine equipped with a yield monitor (Table 1). Wheat and cotton acres have not experienced the same level of adoption as corn and soybeans.

One might expect high-value crops like cotton to have higher adoption rates. One explanation for the lag in yield monitor adoption is that the cotton yield monitor became commercially available in 1998, at a time when over 10% of corn and soybean acres were harvested with yield monitors. GPS systems were associated with less than half of the acres where yield monitors were used (Table 1). The reason why GPS adoption is important is to allow mapping yield and/or moisture data.

Soybean, corn, cotton, sorghum, winter wheat and rice are the crops of most interest relative to the agricultural industry in Arkansas. Although the data presented is for the entire United States, the adoption of yield monitors in rice can be expected to reflect that of Arkansas farmers, since nearly half of U.S. rice is produced in Arkansas. Nearly 18% of rice acres planted in 2000 were harvested with a combine equipped with a yield monitor but just 6% for rice harvested with a combine equipped with a yield monitor and GPS.

*Arkansas Is  
Our Campus*

Visit our web site at:  
<http://www.uaex.edu>

**Table 1. Share of U.S. crops on which yield monitor technologies were used, 1996-2005, percent of planted acres<sup>1/</sup>**

	Yield monitor without GPS													
	Oats	Soybean	Cotton	Barley	Sorghum	Peanuts	Durum wheat	Spring wheat	Winter wheat	Corn	Potatoes	Sun-flower	Rice	Sugar-beet
1996		14					9	3	2					
1997		10					6	11	6	12				
1998		15	*				4	6	6	12				
1999		17	4			*			17	16	3	8		
2000		21	1				*	9	10	18			18	1
2001										19				
2002		22												
2003			2	13	100									
2004						2	16	14	10					
2005	3									28				
	Yield monitor with GPS													
	Oats	Soybean	Cotton	Barley	Sorghum	Peanuts	Durum wheat	Spring wheat	Winter wheat	Corn	Potatoes	Sun-flower	Rice	Sugar-beet
1996		3					*	*	*					
1997		4					*	*	1	5				
1998		6	*		2		*	1	*	3				
1999		6	*						7	6	3	*		
2000			*					*	3	6			6	*
2001										7				
2002		8												
2003			2	4	11									
2004						*	7	4	2					
2005	*													

<sup>1/</sup> These estimates are revised from previously published estimates based on updated weights from the ARMS. \* = less than 1 percent

Source: Agricultural Resource Management Survey, ERS/NASS, USDA

**Acknowledgments:** The author expresses gratitude to the Economic Research Service (ERS) and the National Agricultural Statistics Service (NASS) of the United States Department of Agriculture for use of the ARMS data and to Becky Cross, director of NASS – Arkansas Field Office, and her staff for use of the ARMS Data Lab and providing comments and suggestions.

Printed by University of Arkansas Cooperative Extension Service Printing Services.

**DR. TERRY GRIFFIN** is assistant professor - economics with the University of Arkansas Division of Agriculture in Little Rock.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director, Cooperative Extension Service, University of Arkansas. The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.