



PRECISION AGRICULTURE SERIES

TIMELY INFORMATION

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Precision Ag Adoption in Central Alabama

Introduction

Precision Agriculture technology and site-specific practices continues to be readily adopted in Alabama. A goal of the Alabama Precision Ag Team is to present the latest advances in precision agriculture to farmers so that they receive information from a reliable and unbiased source that may be implemented on their farms. One way of sharing this information with the farmers is to host seminars, clinics and workshops that

HIGHLIGHTS

- Precision Ag (PA) adoption has increased considerably in Central Alabama since 2010.
- Notable adoption increases were in: *Precision Soil Sampling, VRT, Autoguidance and Yield Monitoring.*
- 96% of the participants have access to high speed internet with 59% using the internet for PA info.
- 81% of the respondents would like more PA education.

provide demonstrations supplemented with lectures about the latest precision agriculture information. In February 2010, a survey was conducted at a crop production meeting organized by the Alabama Cooperative Extension System (ACES) to understand the current adoption levels of various precision ag technologies and relation information. The survey participants were asked if they were currently using a specific technology, plan to use over the next 2 years, or will never adopt. The same survey was conducted again during a similar ACES crop production meeting in February 2013 to evaluate changes in adoption over the past 3 years.

Farm Size

For this study, Central Alabama represented farmers primarily from the following counties: Autauga, Bullock, Chambers, Elmore, Lee, Lowndes, Macon, Montgomery, and Russell. Farm size for row crop producers in these counties would be considered medium to small in terms of total croppable acreage. A majority of farms in this area are smaller than 1500 acres (Table 1). However, a slight increase in farm size occurred between 2010 and 2013 with a few more (+5%) in the 1500-3000 acre range. Crop diversity exists, with most farmers growing corn, cotton and soybeans. Peanut acres have reduced significantly (over 50% less) with corn and soybean acres increasing during these 3 years. Sesame is a crop which is being grown by a few farmers with acreage increasing in 2013.

Table 1. Summary of farm size, in acreage, based on farmer responses.

Size (Acres)	Percentage (%)	
	2010	2013
< 500	37	39
500 – 1500	53	45
1500 – 3000	6	11
> 3000	4	5

Table 2. Crops grown within the past year (respondents could select all that apply to their operation).

	Percentage (%)	
	2010	2013
Peanuts	47	20
Cotton	68	65
Corn	42	55
Soybeans	26	45
Wheat	24	35
Small Grains	24	10
Other	39	30

Precision Ag Adoption

Overall, technology adoption has increased throughout Central Alabama since 2010 (Figure 1). There has been a significant increase in the number of farmers that are currently utilizing precision ag techniques such as RTK guidance, yield monitoring/mapping, and zone and grid soil sampling in conjunction with variable-rate (VR) fertilizer,. The number of farmers using some form of precision soil sampling (grid or zone) has increased (+36%) since 2010. The main reason for this interest has been the need for farmers to utilize fertilizer more efficiently due to increasing costs plus the variability of soil fertility (P and K) within fields. It is interesting to note that the use of grid versus zone sampling is relatively similar in 2013. Similarly, the use of variable-rate technology (VRT) by farmers increased greatly with 38% implementing in 2013.

The decrease in lightbar guidance usage (from 33% to 23%) over the last 3 years can be contributed to growers moving to autoguidance solutions; in particular RTK level autoguidance. Many farmers indicated that lightbars demonstrated the tangible benefit guidance provides and consequently see autoguidance as a good investment. RTK autoguidance adoption was only 13% in 2010 with 36% using in 2013. In general, more farmers are investing in autoguidance options over lightbars today. We were surprised that auto-swath or automatic section control has not been adopted by more farmers (only 14% adoption in 2013 and little interest in future adoption).

Yield monitoring (grains and cotton) is becoming important for farmers. Yield monitor use jumped from 16% in 2010 up to 48% in 2013. This significant increase can be attributed to two items in this area. First, the increase in the number of grain combines and cotton pickers equipped with yield monitors; newer harvestors have factory installed yield monitors. Second, the need exists to have yield data to support site-specific management and services being offered by ag retailers in the region. The ag retailers are requesting yield maps to help improve their precision ag services to individual farmers. AgGIS adoption nearly doubled over these 3 years. However, most farmers are relying on ag retailers to provide online, AgGIS software solutions along with data management. To-date, a majority of the data management has been defining management zones and development of prescription (Rx) maps for fertilizer and lime.

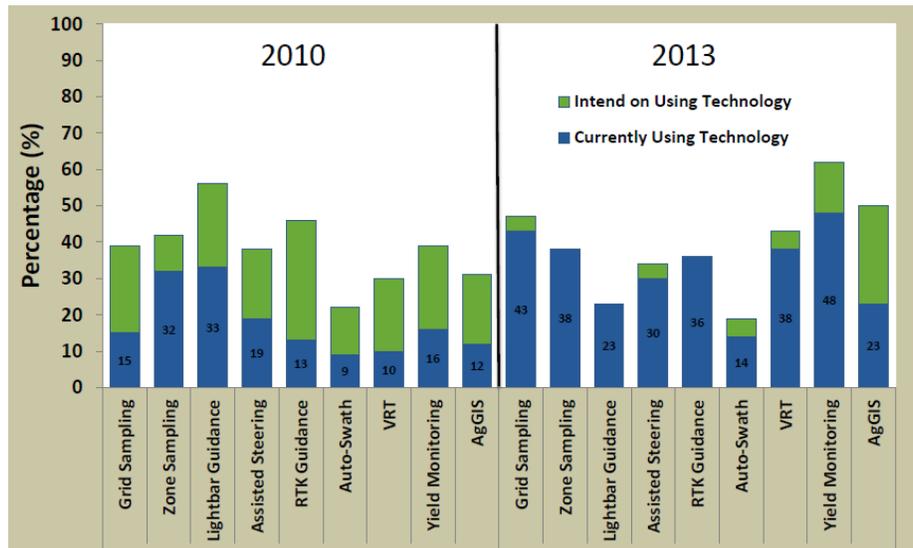


Figure 1. Comparison between the growing trends in Precision Agriculture adoption from 2010 to 2013 for Central Alabama.

One of the survey questions asked about different inputs applied using variable-rate technology (VRT; Table 3). Overall, just under 50% are implementing variable-rate application of inputs in 2013 which was a significant change from 2010 when only 17% had adopted. Nearly 50% are varying their fertilizer (P and K) with 33% varying lime applications. Both VR fertilizer and lime had increased over this 3 year time frame. Variable-rate seeding remains low at 10% and unchanged over the past 3 years. Corn was the only crop where variable-rate seeding had been used.

Table 3. Inputs applied using Variable-Rate Technology (respondents could select multiple answers).

	2010 (%)	2013 (%)
Fertilizer	13	48
Lime	7	33
Seed	10	10
Litter	3	0
Other	0	0
Not Adopted	83	52

Sources of Precision Ag Information

Additional survey questions asked about the best methods that farmers use to learn about new technologies (Table 4). Attending workshops and talking to peer farmers significantly increased while hands-on training remains one the primary means to learn about advancing PA technologies. We have found that farmers are spending more time discussing the setup of technologies along with what works with their peers. Table 5 provides the main sources of information used by farmers. The category of Universities/Extension was the primary means which farmers and other ag professionals are learning about precision ag. Further, 81% of the respondents would like more precision agriculture education. Finally, 96% of the participants have access to high speed internet with 59% using the internet as a resource to gather Precision Ag information.

Table 4. Method(s) used to learn about *new* Precision Ag technologies?

	2010 (%)	2013 (%)
Hands-on training in the field	32	32
Magazines, newspapers, etc.	39	14
Internet	18	9
Attending workshops	25	41
Talking to others	25	36

Table 5. Primary source for Precision Ag information?

	2010 (%)	2013 (%)
Ag Consultant	4	9
Equipment dealer	13	0
University/Extension	25	45
Internet	13	14
Other farmers	17	14
Newspaper, magazines, etc.	29	9
Federal agencies	0	9

Acknowledgment

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