GROWERS SHARE THE KEYS TO SUCCESS

PRECISION AG WORKS
LESSONS FROM THE FRONT LINE

Sponsored By Precision Ag Institute
RESEARCH IN THE WINTER OF 2006 returned the result that more than 80% of those that have adopted precision agriculture technology say it's made them more profitable. In that same result, farmers shared that they were getting enhanced profits of $5 to $9 per acre.

This year's research — done amidst changes in crop input costs and better commodity prices — blew the doors off those earlier numbers. Group Editor Paul Schrimpf shares more detail on the pages that follow. Here's just one piece of the headline news:

The average input savings per acre for these precision ag users (inputs including seed, fertilizer, herbicides, insecticides, fungicides and time/labor) $19 per acre for corn, $18.50/A for beans and $39/A for cotton.

Of course there are a lot of the “your-mileage-may-vary” caveats we should add to this, recognizing that precision agriculture is a system. There are improvements people are tallying from the system and not its pieces and parts. But it’s important news for anyone on the fence about adopting precision technology. This Special “PrecisionAg WORKS” Report offers you a good look at the benefits other growers are gaining.

Why are we such advocates? And why now?

Because there has never been a time that the benefits have been so clear. The truth is:

1. **Precision ag is more efficient.** You use nutrients, chemicals, seed, and other inputs in a more precise manner. And when those inputs come at a higher price, there's a premium on using them more efficiently.

2. **Precision ag is good stewardship.** When you are using your inputs more precisely, there is less impact on the environment.

3. **Precision ag is more profitable.** And it’s not reducing costs, although that’s the big story. Almost all of those who’ve adopted precision ag say use of the technology is also increasing their yields.

4. **Higher crop value provides money to invest.** You have more resources to improve your systems, and every additional year of geo-referenced data you can base your decisions on, the smarter calls you will make.
The need for more crop output is clear. Precision ag is key, earth-friendly component of meeting the world’s increased demand.

More crop producers using the tools of precision agriculture is something that chalks up as a ‘win’ for everyone. Profitability is easy for crop producers to gather, and the stewardship issue, while important, is still a side benefit to most.

But agriculture’s recent bull market will continue to draw fire from our detractors. As is the case sometimes in life, the more successful you are, the bigger target you make for those with a contrary opinion. So it is now with those turning up the volume about a host of issues: shortage of food, food prices, ethanol support, overuse of fertilizer and chemicals, the Farm Bill, farmer ‘greed,’ and so on.

Precision agriculture provides a positive message component for all involved in agriculture to tell the story of our own environmentalism. Presently it would seem that we are hiding this light — this cool story of optimizing our resources — under a bushel basket.

Inside the industry, a recent column I read suggested we should do away with the term “precision farming”. After all, the writer suggested, so much of farming is done with precision tools now, precision farming is “just farming.” Yeah, like Tiger Woods is “just golfing.”

I would argue the opposite: share how today’s more precise crop production practices are making the most of our land, our inputs and our labor so that we can feed more people, make more fuel and won’t be rushing onto fragile ground in the process. Use any opening we have to tell the story of our precision agriculture.

We’ve experienced gut-wrenching shifts in agriculture over the past several decades. Now, after some lean and uncertain years the clock has ticked and the pendulum has swung back — agriculture is having some of those boom years that my agricultural economics professor spoke of way back in uh... well, awhile back.

He spoke of a world population that would grow and people who would want to eat meat as their incomes grew. He spoke of fuel from ag crops and increased world demand. He was speaking of times like these.

You are part of the answer. And so is the wider use of these tools of precision agriculture. It’s black and white: PrecisionAg works.

K. Elliott Nowels is director of the PrecisionAg Institute and co-founder of precisionag.com.

We thank the following companies for committing to the advancement of precision agriculture through their support of the PrecisionAg Institute.
REAPING THE BENEFITS

Independent research shows that growers who’ve embraced precision technology are taking full advantage of agriculture’s big boom through better efficiency, lower input costs, and higher profitability.

BY PAUL SCHRIMPF
pschrimpf@meistermedia.com

HERE’S A LOT TO BE EXCITED ABOUT in agriculture today. We’re feeding the world, and to a growing degree, fueling the world, with the fruits of our labor. There is a bigger reward out there for the grower with higher crop prices, but also a lot more risk from increased costs. How can today’s grower build a farming operation that is both more profitable and risk-protected in the near term, and set up well for long-term sustainability?

Research coordinated through the PrecisionAg Institute in the winter of 2006-2007 revealed clearly that precision agriculture technology is one of the tools that progressive growers are using to improve their operations. In 2008, we dug deeper into the question with the people that know best, precision agriculture “super users.” These growers, who have been using precision technology from three to more than six years, generously shared their perspective on how PrecisionAg WORKS to help them build an efficient, profitable, and sustainable farming operation.

Through the efforts of our research partner dmrkynetec (formerly Doane Marketing Services), more than 60 growers of corn, soybeans, and cotton participated in in-depth written and phone interviews. What we found was clear evidence that precision agriculture technology is helping to reduce input costs, increase yield, and reveal efficiencies not possible through conventional farming practices.

Knowledge Drives First Purchase

It shouldn’t come as a surprise that growers in this study, early adopters, describe themselves as “eager to learn,” “willing to try new things,” “on the cut-
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Among corn growers surveyed using GPS/RTK, reducing input costs and

HAS YOUR OPERATION BEEN MORE PROFITABLE USING PRECISION AG TECHNOLOGY?

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ABOUT THE STUDY

Growers were selected and segregated for study based on the crop they primarily grow, and the number of years that they have been using precision technology. Corn, soybean, and cotton growers were identified and qualified for study via phone conversations. Qualifying growers were then mailed a worksheet to collect and centralize information. Professional interviewers followed up with study subjects and conducted phone interviews. The interviews were conducted from February 19-April 16, 2008, and growers were compensated for their participation.

identifying problem areas in the field were the leading benefits for its use. Soybean growers more often focused on the accuracy of input placement as the key benefit. Among cotton growers, placement of inputs also topped the list of benefits, and cotton growers expressed the highest level of satisfaction with the GPS system they are using.

About controller-driven application, all three groups of growers mentioned savings on chemicals, fertilizer, and lime as the primary benefit, which is no surprise given the increasing cost of inputs. Each noted that a significant savings has been realized using this technology, and express a high degree of satisfaction for this reason, as well as ease of use.

Response to the benefits of yield monitors was more uneven, as growers of soybeans and cotton each expressed some level of frustration with calibration and maintenance. Still, they recognized the importance and benefit of collecting and analyzing yield data to understand field variability, and is very useful for measuring moisture content in grain.

But what about the impact on yield? This was clearly a difficult question for growers to discern, because so many technologies have converged over the past
• Eighty-five percent (85%) of corn growers, 88% of cotton growers, and 100% of soybean growers indicated their operation has been more profitable using precision ag technology.

• The average input savings per acre for these precision ag users (inputs including seed, fertilizer, herbicides, insecticides, fungicides and time/labor) $19 per acre for corn, $18.50/A for beans and $39/A for cotton.

• Fertilizer cost-savings led the way, coming in at $4 to $13 per acre depending on crop.

• The top benefits growers listed from their use of precision ag technology were 1.) the ability to apply chemicals and fertilizer where needed, 2.) greater profitability due to lower input costs, and 3.) identification of poor producing areas of their fields.

Jump On In
Grows who have made substantial investments of time and resources to precision understand well the trepidation that growers feel about taking the plunge into high-technology agriculture. Many of them bought in at a time when the outlook was not so rosy for agriculture.

But the benefits are clear, and given the upbeat state of agriculture there’s never been a better time to make the investment. One research subject, a corn grower, urged us: “Tell them to try it; once you start, you will not want to farm without it.”
8 IN 10 ARE PROFITABLE

Of every 10 crop producers who’ve adopted precision ag technology, eight report that it’s made them more money. As much as $5.29/acre to $9.44/acre or more depending on crop (corn, cotton, soybeans or wheat) and region. Not only that, research shows that the more precision tools they used — GPS, controllers, yield monitors — the more money they made. Isn’t it time you put precision power in your plan?

For more information on these findings, visit www.precisionag.com
Our research work took us deep into the strategies and mindset of precision-savvy growers. We’ve excerpted four of the most compelling interviews conducted during the research process to bring their best thinking to light. (Identities have been concealed per our agreement with the research subjects)

Missouri Soybean Grower

Years Farming: 35
Soybean Acres: 3,000
Other Crops: Corn, Winter Wheat

Why did you first start using precision ag technology?

We thought we could do a little better job of farming — maybe get a more even spread when using chemicals and fertilizers. We were reading about the technology and asked some machinery dealers about it, and got started that way.

What are the greatest benefits that you see from using precision ag in your operation?

Being accurate when you spray and spread and avoiding overlap, and knowing exactly how many acres you are working and how much fertilizer you are spreading.

Tell me about the technology you use.

We’re using controller driven variable-rate — when we were spraying it was hard to see where we were going and to see where we were last. It gets pretty hard to see, even with the full marker, especially with the sun shining and the high plants. Our yield monitor came with the combine. We use it to find out our number of bushels per acre and how much we’ve accomplished in a day. It’s great.

Can you think of any barriers or concerns that you had about the technology that you had before you started using it?

I didn’t know how it was going to work and, you know, it was hard to know if I was going to be smart enough to run the stuff. Once you get it programmed its simple; it just looks real complicated. We just read through the guide and figured it out.

Did cost worry you?

Well yes, it was an issue, but with so many acres that we go over, it pretty much pays for itself, really.

Did you have any ideas or expectations about how much money you’d save by purchasing precision ag technology?

Well, I really didn’t know. I knew it would save us some money. I didn’t really have a figure in mind. I just knew that, even if we only overlapped the fertilizer a little bit it would add up fast. If we just saved $3 to $4 an acre, I figured that we’d save at least $15,000 right there.

“I’d say that if you like to save money you’d better get the technology, because it’ll save you money.”
Is the profitability because of decreasing costs, or is it more because of yield?

It’s hard to say. You know, if it rains in this country then you get a pretty good yield. I don’t know if I’d say that it was because of the equipment. I know it save us some money on fertilizer and spray though.

If you were to give advice to another soybean grower in the area who is not using the precision ag technology, what would you say?

I’d say that if you like to save money you’d better get the technology, because it’ll save you money. Just by avoiding double spreading you save money.

What does it take to be a successful farmer today?

A lot of hours and trying to keep up with technology. Definitely have a business head on you. Be good with figures and have some sort of plan.

Illinois Corn Grower

Years Farming: 44
Acres of Corn, 2007: 5000
Other Crops: Soybeans, Winter Wheat

What technology did you use first?

The yield monitor. We could get a lot of valuable information out of them. We ended up learning that we had poor drainage and other problems. Initially you think that it is going to simply make you farm better, but it didn’t come that easy.

When they first come out I was on the edge of the envelope. I was pretty excited about the right away. Now I don’t need to be on the edge. I need to sit back and watch the younger guys do this stuff.

Do you find that most Precision Ag beginners start with the yield monitor as you did?

Well, you know, that’s the simplest one. You know, they just put the yield monitor in and they forget that they have to do the rest. You have to record it all. There are a lot of people who don’t do the rest.

What are the greatest benefits that you see from using precision ag in your operation?

Yield maps for variety and operational study. Second is steering and navigation. It started with the lightbar and now is up to Real-Time Kinematic (RTK). RTK is fantastic for what we do. We strip till. We use variable-rate for fertilizer and seed application. We added automatic boom shut off last year, and that was our biggest payback and best investment. It maps where you’ve been when you sprayed, and the GPS will automatically shut off if you go into an area of overlap, where you’ve already been.

Why is RTK important for strip till?

We strip between the corn rows, like an eight inch strip, and then the next year we plant in it. We’re stripping with a 12-row and planting with a 24-row and it all matches. Then we plant in the exact same spots the following year. And we need to use RTK because you can’t follow it with any other type. From year to year nothing else works.

Can you think of any barriers or concerns that you had about the technology that you had before you started using it?

Well at first it was the fact that there wasn’t anything available and then it was plain ignorance.

Did cost worry you at all?

It is still expensive, but you get a lot more for your money today.

Were there any other barriers that you saw or that you thought might be a problem before you bought the technology?

The learning curve. I was going to run it. How do you keep it going? Everyone’s stuff was new and it always had problems. We were doing it all ourselves back then. Now it is way more complicated and we try to get consulting help.

What do you hear from growers in your area that are not using precision technology?

Oh, they say it’s just too expensive. They don’t need it. They just throw a yield monitor into a combine, and then look at their watch and see a big high number and they feel good. I also think it’s the learning curve. There are a lot of us out
here that can’t even turn a computer on, let alone a GPS and a yield monitor, steering and everything that goes with it.

Is the cost concern legitimate?

Well, you’ve got to look at the cost per acre. If you only have 200 acres, then you don’t want to spend $7k to $12k on a yield monitor. So you’d be better off having someone do custom work and giving you a map. It is a concern, but it gets back to the cost and the value. What value are you going to get out of it?

Tell me about your use of RTK.

It’s been three seasons, it is a Trimble, and it cost $25,000 when I bought it. I think it’ll take about five seasons to see the investment even out, but that’s just a guess. As far as benefits, seed placement exactly where we want it from one year to the next has been key.

Mississippi Cotton Grower

Years Farming: 34
Cotton Acreage: 800
Other Crops: Corn

What was the reason you first used precision ag in your cotton operation?

Probably to reduce labor, but I also like straight rows. It got to the point where I couldn’t get anybody to get them straight enough. To me, it pays off. Also, I read about it and was studying about it before anyone was using it. My friend started in with it and I was talking to him, and I guess we were some of the first to really use it.

What are the greatest benefits that you see from using PAg in your operation?

Labor is made easier. You can just set the machine up and put anybody on it and they won’t mess anything up. Then productivity — working the ground and putting up the rows is easier and you reduce the overlap.

What was the #1 reason that you started to use a variable yield system?

We looked at it from the standpoint that we might be increasing our yields a little bit. We’ve had good results with lime, but our custom spreaders are not really equipped to handle the new fertilizers.

What was the #1 reason that you bought the RTK system?

It’s so accurate. All of our lines are set so that when we pull into a field it all pops right up and we stay on the same track.

Any problems with the RTK system?

When we first started out we were running off of a short tower and then we were trying to move the repeater around. We put a base station up, but some of our fields were 14 miles away and we couldn’t get a signal. We ended up having to put a 150-foot tower up and we have good luck with it now.

The price was another thing! The initial price started out at like $50,000 and we ended up in the mid $30s. And at that time no one really knew anything about it. There was a serviceman up here but if something went wrong, we’d just have to shutdown and wait for a dealer to come up and fix our problem.

What was your first piece of precision ag equipment?

The yield monitor on the combine. It’s been about 11 years, and it was the Case IH brand. I don’t know that I’ve really got my investment back on it. But I’m not really using it how I think I should.

Tell me about the controller driven application technology.

We’ve had it about three or four years. We started off with a Henniker brand and switched to a John Deere and it cost about $10,000. It’s helped us save chemicals and avoid overspray.

If you were to give advice to another cotton grower in the area who is not using the PAg technology, what would you say?

Get it if you can afford it. It’s the way of the future,
$5-$9 MORE PER ACRE

Lower input costs and higher yields. That’s how users of precision ag technology say it’s benefited their farming operation. Eight of every 10 farmers using precision says they’ve made anywhere from $5 to $9 more per acre, depending on crop (corn, cotton, soybeans or wheat) and region. That’s a great sign that PrecisionAg WORKS. Shouldn’t you put precision power in your plan?

For more information on these findings, visit www.precisionag.com
you can’t do things the way they used to be done. But, you’d have to be farming 1,000 to 1,500 acres to make the investment really work out.

Missouri Soybean Grower

**Years Farming:** 42
**Soybean acres:** 1,000
**Other Crops:** Corn

What are the greatest benefits you get from using precision ag technology?

First is less stress. It’s much easier to run equipment, it is much more relaxing. Second is avoiding overlap in application, and third is saving on fuel and seed.

What was the #1 reason that you moved to a GPS system?

I suppose it is just the ease of running it. Anyone can run it and do a good job. The other reason we got it was the savings in fuel and seed.

What about the controller driven application? Why’d you get that?

Accuracy and the saving of chemicals.

What about the yield monitor?

It is easier to keep records. It helps us see where the yields come from and how to improve on fertilization.

Can you think of any barriers or concerns that you had about the technology that you had before you started using it?

Cost. The initial purchase price was the greatest obstacle. Some people just don’t know how to run it well. So I guess it was the idea of learning and teaching the technology.

Did you have any ideas or expectations about how much money you’d save by purchasing this PAg technology?

We tried to figure out how long it would take to pay for the equipment and figured that we could pay for it within two or three years. But I feel we have been more profitable, both because it helps reduce cost and improve yield.

Talk about the precision products you use.

As far as GPS, we have a GreenStar system and it cost us about $2,500. It took about two to three years to return on the investment and it was our second precision ag purchase. For software, we have used HarvestDoc for four seasons, and cost us about $1,000. It was the first thing we purchased and it taken about four seasons to get it back. We have used a GreenStar yield monitor for four seasons, and it cost about $2,000. It took about four seasons to return the investment and was the first piece of precision technology that we purchased.

Are there any new technologies in PAg that you are planning on purchasing in the next few years?

I’m thinking about auto-steer, and we are also going to update our combine and new tractors with GPS. The only thing that might hold us back is the purchase price or any kind of monthly or yearly fee such as on an RTK system.

If you were to give advice to another soybean grower in the area who is not using the PAg technology, what would you say?

I’d tell them that it makes farming a lot more fun, it reduces stress and increases enjoyment.

What does it take to be a successful farmer today?

I think that it takes a lot of energy, time, and being a good businessman. You need to be able to market yourself and know about prices. You have to make sure that you are getting your inputs at a good price … and that you have a good wife.
FALLING PRICES

Ah, technology. Consider the past 10 years or so: laptops have dropped from $3,000 to $900, big-screen TVs from $5,000 to $1,500 and cell phones are free! Precision technology works easier, works better and costs less, too — signs say getting started has never been easier. Shouldn’t you put precision power in your plan?

IT’S BLACK & WHITE

For more information on these findings, visit www.precisionag.com
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TILL NEED A LITTLE INSPIRATION to get started? Growers who talked to us about their use of precision ag technology were not only happy to share their own philosophies on precision agriculture, but also provided some words of advice for growers who have not yet made the investment. Here are some of the verbatim quotes they shared:

“Do your homework. We have had three different types of guidance and I finally found the one I like. I would recommend grid sample GPS first and yield monitor second.”

“Think about it first, then investigate. It will pay off in the long run.”

“Start with a yield monitor, then go to the GPS. The next year make grid maps, then you can begin to use variable-rate for fertilizer. You can often get help from the local elevator.”

“Research the information and have someone demonstrate the equipment for you.”

“Be patient. You want to pick out a technology you are interested in and try to keep expanding.”

“It really saves cost inputs. Gives accurate yields and allows you to do a better job.”

“If you have the acres and want to be efficient, it is something to investigate.”

“Better get on board or go out of business. No doubt technology is the way to go.”

“You must have the capability of working with computers and the Internet or at least someone to help.”

“Try it, just learn as much as you can. Be informed, but keep and open mind about the technology.”

“Find a good dealer that you trust and one that has good service personnel. Don’t go with the cheapest. You get what you pay for.”

“Read articles being written, not advertisements — look at university research and review third party independent studies. The yield monitor is your first step.”

“Still need a little inspiration to get started?”

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EASY AS 1-2-3!

Your huntin’ dog could do it? Some think so. But if you don’t have a huntin’ dog, don’t let that stop you. Many of today’s plug and play precision ag systems are simple enough that even YOU could do it. With simpler technology and falling prices, getting started with precision ag has never been easier. Just another sign that PrecisionAg can WORK for you. Shouldn’t you put precision power in your plan?

IT’S BLACK & WHITE

For more information on these findings, visit www.precisionag.com
Visit the NEW and IMPROVED PrecisionAg Web site.

For More Information About the BENEFITS of Precision Technology
Visit the PrecisionAg WORKS Section

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