



Questions and Answers about Precision Ag's Future with
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What is your best advice for someone considering precision farming in summer 1999?

- How important is precision agriculture?
- What are the key steps before beginning?
- How do you evaluate feedback in the beginning?
- What kind of money will I have to sink into this?
- What sort of farmer is best served by a move to precision ag today?
- Are any farmers well-advised to avoid these tools?
- Which of the precision ag technologies now available will be most valuable to a new user, and why?
- What tools are on the "Must have in year one" list?
- What about consultants?

How important is precision agriculture?

I'm convinced that, in the long run, one of the most important aspects of the farm will be the information you have about the field.

Farmers should be collecting data. Whether it's used proactively to better manage the future, or reactively to analyze past performance.

My guess is that in a few years you won't be able to sell land without precision agriculture records of yields, nutrient applications, drainage and the like.

What are the key process steps aspiring precision farmers should take before they begin to purchase equipment and software?

First see if you have the temperament and inclination. I like to use two tests:

First Test: Are you comfortable with this technology? If so, you are a candidate. If not, maybe you should wait. Do you like the computer and technology? That will help. What's your cyber-level? If it's pretty low, you should be careful.

Second Test: The café. Talk to the guys at the café, and see what they say about it. Do your homework. Check with extension. See what the local track record is. You will get plenty of reactions from people both ways.

Figure out why it's working for some and why it's not working for others. See if you can identify the places where the technology is working. Does it seem to perform better in your area only on certain crops or under specific management strategies?

**"Set up a three-year plan and stick to your budget.
Everybody will encourage you to get 'just one more thing.'"**

How do you evaluate the feedback you gather in the beginning?

This is important. You need to find out if their measure of success is your measure of success. Does this make sense and have value for you, based on your values? I think there can be at least three ways to evaluate reports you get from people using the technology:

- 1) Did it do as it promised (technically)?
- 2) Did it make money by earning more than it cost?
- 3) Did it improve stewardship through reduced environmental impact, more sustainability and/or reduced risk of liability?

Keep in mind if things went badly, was the failure because the technology failed? Or was it because of operator error, because you didn't get rain or there was some other act of God?

Also watch out for the techno-farmer — he will make it work. Don't be fooled by his enthusiasm into believing something that's not there. In the same vein, discount the nay-sayer who is bound to prove this "techno-heresy" false.

What kind of money will I have to sink into this?

It depends. You need to budget for this thing. It can be a money pit. You need to have a budget for equipment, software and processing of the data (i.e., software or service charges). Set up a three-year plan and stick to your budget. Everybody will encourage you to get "just one more thing."

You need to think about the ongoing maintenance of equipment, software and the process. You will have software updates and services every year. You may plan to start slowly and save major investments for years two and three. But you should plan for that and not let it be a surprise.

What sort of farmer is best served by a move to precision ag today?

Farmers at the margin: The rich will stay rich, and the poor guys are going out anyway. The guys in the middle have a chance to change their situation. They have the most to gain. This is long-term, and it requires money. It's too late for the guys on their last legs. The low-profit farmer — not the no-profit farmer — might be best.

Farmers with variability: Do you see wide differences in the yield, soil type or drainage? More variability means more potential benefit from site-specific technology.

Is the variability the sort of thing that you can control? If not, there will be less value. Some things you can't, or can't afford to, change. For example, you can't afford to level most rolling fields.

Are any farmers well-advised to avoid these tools?

"Technophobiacs" should avoid the technology. You also need patience. This process itself is not precise. It's a biological system where all the advice will be subject to probability and will be wrong some times. There will always be a level of imprecision in precision farming.

***"This is the Space Shuttle and...
a lot of users are looking for the clutch and steering wheel."***

Which of the precision ag technologies now available will be most valuable to a new user, and why?

It depends. If you can get yield maps for your equipment and crops, that's the place to start. It's pretty cheap and not very complicated, relative to other precision agriculture tools. A yield map is a good place to start, too, because it helps to build up a data set that shows temporal (time-based) areas with high yield, low yield or variable yield. These could be very useful for analysis.

Soil testing is a good next step if soil variability is critical for you. It helps you prepare. If you think that soil properties are important to your profitability, it would make sense to invest in a soil map. It can be expensive, but it can give good information if the variability matters to you.

Maybe real-time monitors can add value for you, also. That might be a place to look next. These sensors can track real-time weather conditions or other factors to identify conditions that might support disease or pest outbreaks.

And remote sensing fits in here, but other than a few photos of a field, things can get expensive fast.

What tools are on the "must-have-during-year-one" list? Should farmers start slowly or should they plan for an "all-or-nothing" leap into precision farming?

The all-or-nothing is extraordinarily expensive. You don't want to do that. You need a yield monitor and software to create maps. You might want to manipulate the maps as well.

What about consultants? Do I need to put a guy on the "payroll" to make this work?

Maybe there are times when you want to partner with a trusted expert who can provide analysis of the data or help with computer-intensive processing. One role of a consultant is to allow people who want to try the technology but don't have computer skills or interest in acquiring the skills to get started.

Think of the precision consultant like an accountant or a lawyer. You get the expert to provide advice and counsel. You don't invest in learning all about accounting or the law.

Also by outsourcing parts of the process, you have more flexibility to cut off the process if it doesn't work. You don't have to invest in learning a host of new skills, you can just cancel the consultant's contract.

Get local experience.

Use every spare moment to talk with folks who are already into this for a year or two. Decide what you will want to do. This summer would be the time to get local education and prepare budgets and decide where to start.

Maybe you can start things for a year 2000 crop. If you are eager, you could probably get set for 1999 crop yield maps, especially if you had somebody else make the maps this fall.

It's important to understand that the precision agriculture audience has radically changed. A few years ago, the entire audience was techno-farmers who had technology as a hobby.

Now it's very different. They used to be patient and technologically experienced. Now those guys are a very small percentage of the precision market. They are still there, but they are surrounded by a lot of new people.

These new people are much more realists. They aren't into it for fun. They want it easy. And they want it to make money. They want the tool to be as easy to use as a hammer.

Before, guys wanted precision farming to be complicated because that was cool. Now a new set of farmers are being attracted because they are told it is necessary. They want it to be a definitive answer, not a probability.

Precision farming is different than some new agricultural tools. This has a significant intellectual component. It requires the user to figure things out. This is the space shuttle, and a lot of users are looking for the clutch and the steering wheel.

Some users will react negatively to the intellectual commitment aspect. You see a predictable curve with all new technologies. After a slow start with innovators and leaders, there is a huge increase as more people adopt the technology. Then there is a gap where people are disappointed — when it's not automatic and easy. After that fall-off, the technology stabilizes at a new level and continues to grow at a slower pace.