

— Post-Harvest Review —

Precision Ag Management Comes Of Age

MOLINE, Ill. — It's harvest. The smell of fall in the air and more than a little bit of grain chaff, too! A combine hums smoothly in the distance as it makes its way down the field. But when the tractor and grain cart are summoned, there's no one around to jump in and go.

Where are the farm hands?

Because this tractor is driverless, it starts up, uses global positioning satellites (GPS) to locate the combine, and makes its way safely through the field. When it arrives alongside the combine, the grain is deposited into the cart on the go.

Next, the tractor pulls the load back to its resting spot and shuts down. You can bet there are busy farm hands around but they're not in the tractor cab. Satellites and software have just given them a whole new job description.

This concept isn't that far out. Twenty years ago, no one had even heard of GPS or

geographic positioning systems — unless you were an engineer at NASA. Today, this is a part of our everyday lives.

Companies such as John Deere must continually think to the future with ideas such as the driverless tractor and much more. However, the real ingenuity comes when a concept becomes viable as a product offering.

Precision agriculture's technology potential has been discussed for several years. But producers and experts now agree that unless a new technology can add dollars to the bottom line today, such hi-tech tools are really no more than a hi-tech diversion.

Technologies such as GPS, real-time yield monitors, multilayer field mapping software, and variable-rate seeding and chemical application systems are readily available on the open market and each promise specific

benefits. Yet, Dr. Kent Olson, Department of Applied Economics, University of Minnesota, contends that producers must look beyond individual tools to realize the benefits of precision agriculture. He said producers should think of precision agriculture as a holistic approach to farm management.

"Once you start learning about all the fancy gizmos, it's easy to think about new technology as merely the purchase of another machine — another combine, another tractor, said Olson. "But technology such as precision agriculture is more than mechanical and physical expertise — much more."

In fact, precision agriculture is not a single technology, said Olson, but a "suite of management strategies, technologies, and practices" that farmers can use to improve decision making in agricultural production, marketing, finance, and per-

sonnel management.

Olson said the key to making precision agriculture work lies in understanding how to integrate the technology and apply site-specific information in making decisions that meet whole-farm management goals. Generally, those goals involve boosting efficiency and profitability.

John Deere seems to have taken Olson's assessment of precision agriculture to heart, and it recently formed a special program and team of people to deal specifically with creating a precision agriculture package that integrates technology into farm equipment in a manner that meets the farmer's business goals.

Barry Schaffter, vice president of this new precision agriculture group at John Deere called Agricultural Management Solutions (AMS), said, "The potential for this technology is amazing, and part

of what we do is research new applications for these tools, such as the driverless tractor, for example. But customers want more than potential, and they tell us that if we can't show them how to save a dime with a new technology, they don't want to put another nickel into the machinery."

To accomplish this task, the AMS group looks at the whole farm to help producers identify solutions in production, equipment management, agronomic practices, and farm business management.

Part of this is creating precision ag components that work together and are easy to operate. After all, if a new technology is not easy to use, it won't be used, stresses Schaffter. But ultimately, said Terry Porter, John Deere AMS marketing manager, the goal of AMS, or any precision agriculture system, is to supply producers with the right kind of information and the means to analyze and apply that information to make better — and more profitable — management decisions.

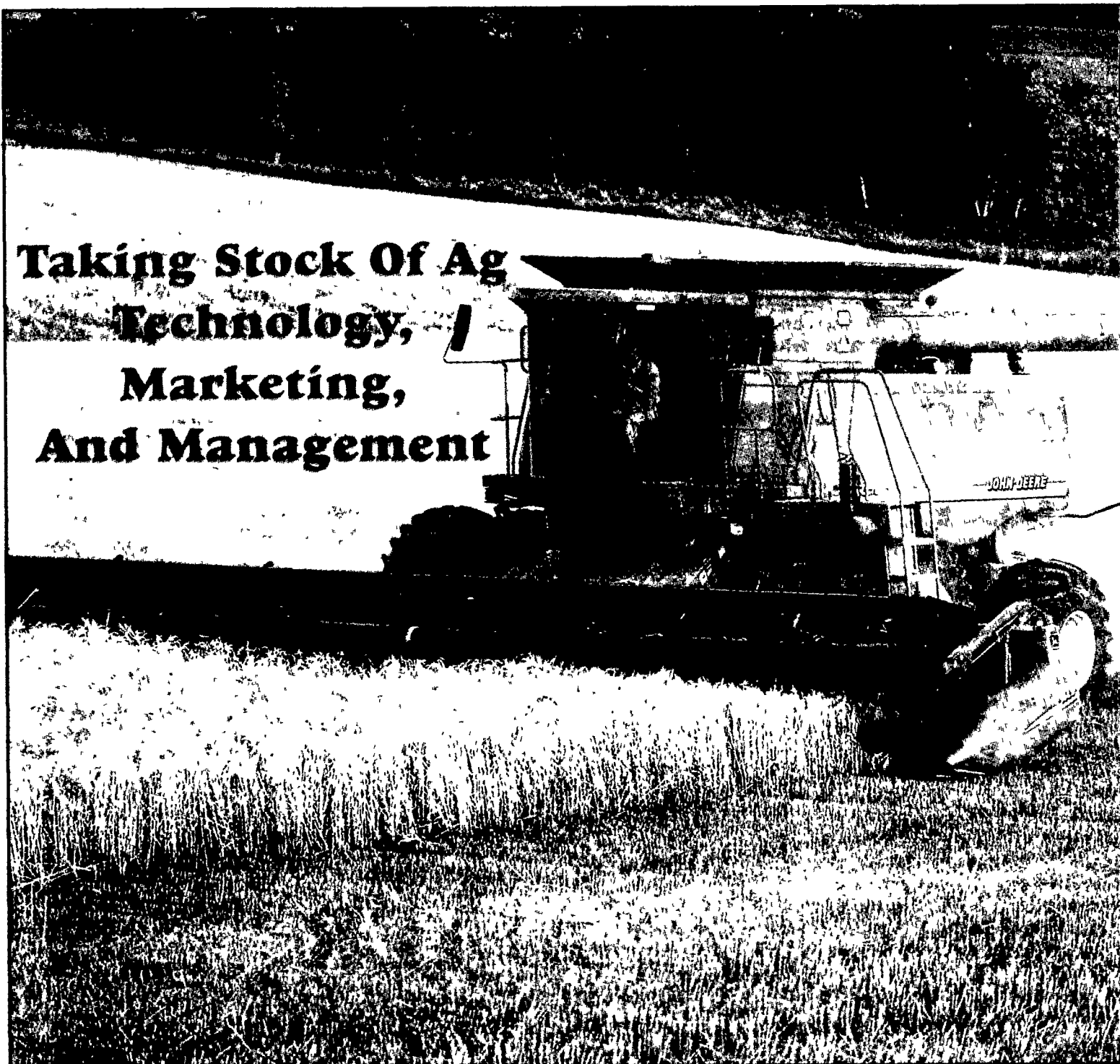
As an example, consider a task as basic as seed selection and purchasing for the coming planting season. With the proper technology, a farmer can turn this simple task into a way to reduce costs, save time, and eventually increase yields.

"In this case, you need a simple way to collect real-time, site-specific information such as field conditions, tillage practices, seed varieties planted, and weather conditions," said Porter. He recommends the John Deere Field Doc data collection system, which works in concert with Deere's StarFire receiver, GreenStar display, and on-board mobile data processor.

"It allows you to make notes on the go, and it's geo-referenced, so every time the operator records information or makes changes, the system tags that data to a specific location in the field," said Porter.

To continue this scenario, producers then download data from FieldDoc to their desktop computer and use JDmap Deluxe software to analyze the information. According to Porter, JDmap translates raw field data into site-specific multilayer maps and summaries the producer uses to match seed performance to seeding rates, fertilizer and chemical application rates, tillage practices, soil types, and field drainage.

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noted, which farmers can use to improve decision-making in agricultural production, marketing, finance, and personnel management.