Ag Leader® Technology

Insights

Fall 2013 - Precision Farming Magazine

Crop Diversity Demands Accuracy

Conquering Soil Compaction

Get your sneak peak at AgFiniti® inside

Contents

Fall 2013

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From One Ag Leader® to Another

With the global population expected to grow by two billion in the next two decades, feeding and fueling the world will require smarter farming. Precision ag helps growers become more efficient in all facets of their farming operation, and Ag Leader is here to partner with you to help you maximize your inputs and get more out of every acre.

It has been a tremendous year for Ag Leader and I want to personally thank you for your business in 2013. As we have continued to grow our product line and expand our business both in the U.S. and in overseas markets, we have outgrown our fulfillment facilities. In order to meet demand and deliver our line of products across the world, we are opening a new distribution center located just down the road from our corporate headquarters in Ames, Iowa. We're very excited to have the extra space, as it will help us to serve our customers better.

Perhaps more exciting are the recent product announcements including the new Compass™ display, SMS™ Water Management Tile Editor and the AgFinti® cloud-based platform.

In particular, AgFiniti is all about connecting you to your data. You may have heard some buzz lately about the cloud and I'm sure you may have many questions. Find answers to some of your questions and learn a little more about AgFiniti on page 7.

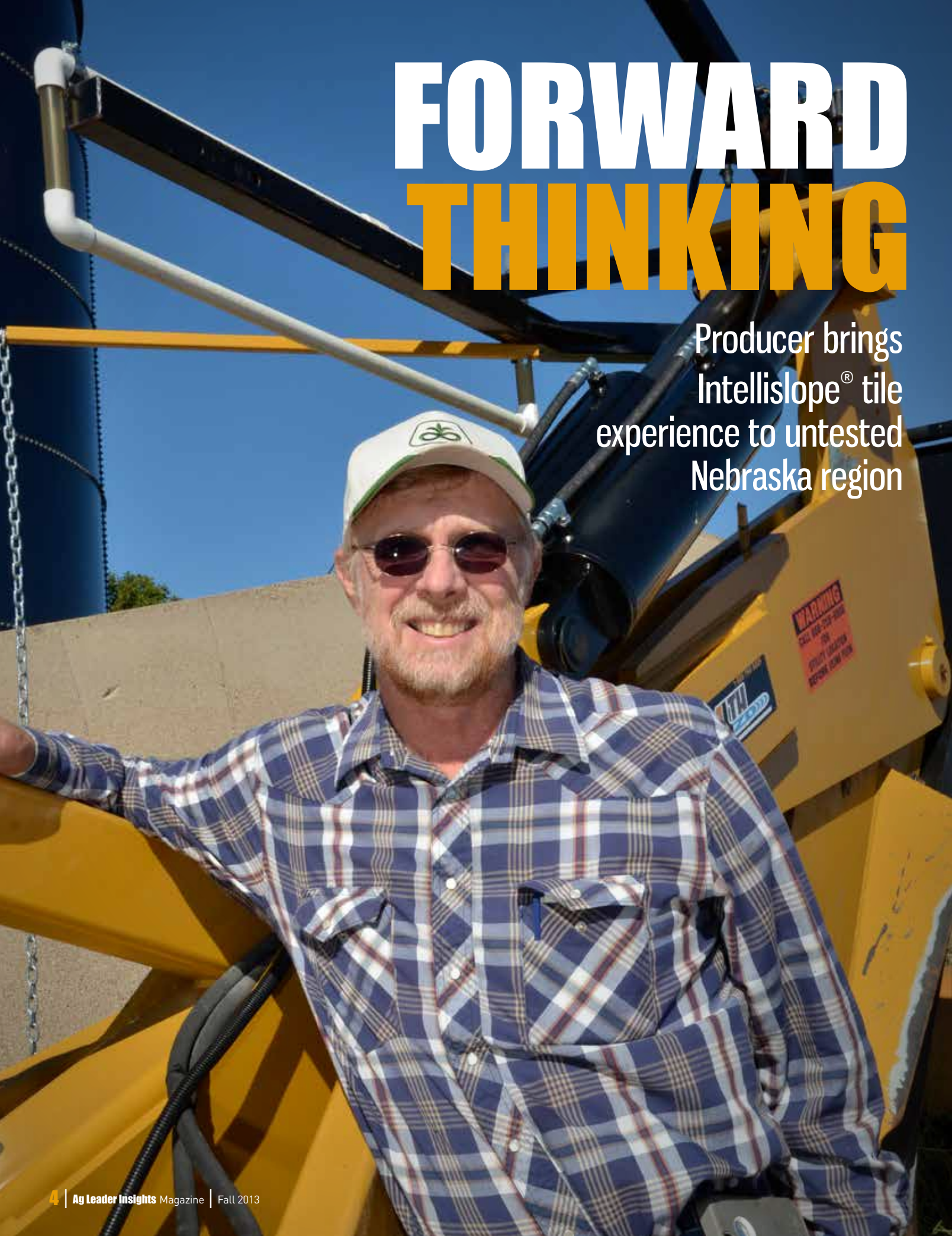
Looking forward to 2014.

Best Regards,

Al Myers

Al Myers

"Precision ag helps growers become more efficient in all facets of their farming operation, and Ag Leader is here to partner with you to help you maximize your inputs and get more out of every acre."



FORWARD THINKING

Producer brings Intellislope® tile experience to untested Nebraska region

"There's very little tiling in this part of Nebraska. Most is done in northeast Nebraska and Iowa. When I first bought the plow, my neighbors had no clue what I was doing. Now some of them are considering it," Batie said.

Batie with his Soil-Max® Gold Digger® Tile Plow loaded with the Ag Leader Intellislope®.

Batie installs drainage tile in a silty clay loam soil.

For a decade, Lexington, Nebraska producer Don Batie kept vigil over 200 acres of his 1,400-acre farm, watching as the water table continued to rise, ultimately rendering those acres idle and useless.

Year after year, the frustration grew for the family steward of this multi-generation, 140-year-old farm located just 35 miles west of Kearney, Nebraska. Even those years Batie attempted to plant crops on the farm he shares with his wife and mother, their crop growth was stunted.

"My entire 1,400 acres were irrigated, yet it was almost impossible to farm those 200 acres," Batie said of his corn, soybean and alfalfa operation. "The water was eight inches below the surface, but no one could figure out why."

Increasing at about a foot per year, Batie tried crop rotation, but still couldn't stop the excess moisture from ruining that section of the farm. Eventually, Batie began to attack the problem in earnest, searching the Internet and traveling to farm shows outside his region to find the answer. His search led him to the benefits of drainage tile despite the fact that the approach was virtually unheard of in his region of the state.

Again, because the approach was not well known in his neck of the woods, finding an experienced, professional installer proved unsuccessful.

In January 2012, Batie purchased a Soil-Max® Gold Digger® Tile Plow loaded with Intellislope® tile plow control system to tile 100 acres in do-it-yourself style.

Tiling, which is designed to remove excess water from soil and enhance crop production, involves the installation of a series of perforated, recycled, plastic tubes two to four feet below the soil surface. Not surprisingly, excessive water not only impairs root health and overall crop quality, it inhibits the operation of farm machinery and leads to soil compaction. Today, approximately 25 percent

Batie routinely inspects his corn for quality.

of the farmland in the United States and Canada is drained, according to the University of Minnesota Extension.

"There's very little tiling in this part of Nebraska. Most is done in northeast Nebraska and Iowa," Batie said. "When I first bought the plow, my neighbors had no clue what I was doing. Now some of them are considering it."

Experts believe producers in every part of the country are candidates for drainage tile. In this case, Batie is installing drainage tile in a silty clay loam soil. This type of soil, often referred to as "sandy clay," is comprised of a concentration of sand, silt and clay. Favorably, the soil conditions have not had an adverse effect on Batie's tiling efforts, he says.

In fact, today's technology makes tiling easy and accurate. The Gold Digger tile plow and Intellislope System, part of the Ag Leader® Integra display, provides precise tile plow control when installing field drainage tile. Specifically, the system's AutoTile® mode enables growers to drive over the path where tile needs to be installed to survey the soil profile and then control the depth and grade of the tile. All survey and installation data is then recorded and archived into mapping programs such as Ag Leader's SMS™ Basic or Advanced for future reference and tiling additions.

"I'm amazed by how simple the Intellislope was to use. It's a wonderful piece of technology," Batie said.

Batie has already tiled 100 acres and is in the process of tiling the final 100 acres by winter. Since purchasing the system in 2012, Batie has upgraded to Intellislope on the Ag Leader Integra display. Those first-year results were impressive, Batie reported. In 2012, during what was considered a very dry year, Batie improved his yield by 30 bushels per acre, or $180 per acre.

"That was in a dry year," he said. "Imagine how the results will look during a wet year."

Batie anticipates another good year, based on visual observations. And, as an added benefit to improved crop yield, Batie said using Intellislope was easy and required little training.

"I'm amazed by how simple it was to use. It's a wonderful piece of technology," he said.

Batie's Ag Leader dealer, Fairbanks International, a division of Titan Machinery, has recently become a certified Intellislope dealer. Today its precision farming specialist, Hope Lewis, says Batie's forward thinking about field drainage tile has everyone in the area taking note. Best of all, Batie runs Intellislope on the same Ag Leader Integra display he bought from Fairbanks for his tractors.

According to Lewis, Batie is always researching the newest and most effective trends in farming, so tiling his field was a natural approach, she said. Yet, the results surprised even her.

"When Don put in his tile, it was so dry and it never occurred to us that we'd see immediate results," she said. "About 20 or 30 minutes of pulling the first tiles through, we saw water pouring out of the pipe. It was amazing, considering how dry it was."

Commenting that Batie continues to be "out front" on the use of new technology, Lewis agrees that tiling was a little known approach in the area and still is. However, she expects that some of Batie's neighbors will follow his lead and will be surprised to see that they, too, have excess moisture affecting yield.

"I think we can already see what a difference it has made," Lewis concluded. ■

BEYOND THE CLOUD

What you need to know about the infamous "cloud"

Since the beginning of time, clouds have been a topic of conversation among farmers - at least in the context of Mother Nature. But a new type of "cloud" has recently taken over the conversation. This cloud, just like the weather, is a game-changer for the agriculture industry. Still, many questions about the cloud exist.

What is a cloud?

Oxford English Dictionary says, "a cloud is a visible mass of condensed water vapor floating in the atmosphere." You might be thinking, "That's where my farming data is going? Confusing, isn't it? But, rest assured, your data won't be raining down to earth the next time a storm rolls in because it's not in a cloud, it's in "the cloud," Or, better defined by Oxford English Dictionary as, "A network of remote servers hosted on the Internet and used to store, manage, and process data in place of local servers or personal computers."

Instead of storing your data on the hard drive of your computer, it's securely stored on a network of servers often located in data centers. These data centers, located across the country and around the world, were built especially to house data in a safe, secure environment. Unlike your hard drive, you can access your data on these servers from anywhere you have Internet access.

Is my data safe in the cloud?

Tony Houseman, IT operations supervisor at Ag Leader, said, "There are a few key reasons cloud storage is safer and more reliable than storing all your data on a conventional server. Cloud storage providers sole responsibility is to store and protect data for others. Therefore, they can invest more into the areas of resiliency, encryption, authentication and authorization, since it is so vital to their business. Additionally, cloud storage providers replicate their data and services across multiple data centers located throughout the world. Doing that improves uptime and performance for their customers because they 'talk' to systems closer to their location."

WHAT IS AGFINITI?

Ag Leader's new AgFiniti cloud-based platform connects your operation to your data by providing many new tools including wireless file transfer, remote support and more. Simply connect the Ag Leader USB Wi-Fi Adapter to the Ag Leader Integra or Versa display and choose a wireless carrier and a hotspot device that works best for your operation. Now it's easier than ever to transfer valuable precision ag data wirelessly to and from the field. Send guidance lines, prescriptions and other data files from your display and store them in a secure account accessible from any device. You can also choose to share information with or access remote support from your dealer or other trusted advisors to help you get the most out of every acre.

The possibilities are infinite with AgFiniti. Contact your Ag Leader dealer or visit AgLeader.com for more information.

"Cloud storage providers sole responsibility is to store and protect data for others. Therefore, they can invest more into the areas of resiliency, encryption, authentication and authorization, since it is so vital to their business," Houseman said.

Who has access to my data?

Perhaps the bigger question is: If I store my field data in the cloud, who has access to it? Especially when it comes to protecting information about your operation, it is important to investigate the policy of the company you are working with.

When it comes to AgFiniti®, Ag Leader's cloud-based platform, the data stored is 100 percent yours. Ag Leader is not in the business of selling seed or chemicals and has no ulterior motives or rights to access your data.

Because of the value data can provide to your operation, it's important to have the technology to gather field data, and a way to securely store and access it when you need to. Ag Leader is in the business of helping you manage your data so you can make profit-driven management decisions.

Why should I consider using the cloud?

The cloud is all about convenience. This tool was made to make your life easier.

Before the cloud, when data needed to be transferred from one device to another, growers had to put it on a data storage device and carry it to a desktop or tablet to transfer the data. If the data storage device is misplaced or broken, the data is lost. The cloud eliminates that possibility.

Now you can wirelessly transfer the data from the display in your cab and save it to the cloud without the risk of misplacing it. Plus, by saving your data to the cloud, you can access it any time and anywhere from your tablet, smartphone or desktop computer. And you can choose to easily share information with or access remote support from your dealer or other trusted advisors to get the most out of your precision farming data. ■

PLOTTING A PERFECT ORCHARD

Lamont Fruit Farm of Waterport, New York, uses the Super Spindle growing process in their apple orchards.

In an era when most growers are vying to boost yields by almost any means possible, a 500-acre apple orchard in upstate New York is scrapping 90 percent of its original crop load – by design. For Lamont Fruit Farm it's about maximizing quality, not quantity. Their reputation isn't staked on whether they can churn out the most fruit, but rather their ability to consistently produce apples that are the right size, shape, color, sugar content and taste.

When owner Rod Farrow, an Englishman who moved to the United States in the mid-eighties, took over ownership of the orchard in 2000, he implemented a growing process called "Super Spindle." Spacing between trees is set at 11 feet, with trees growing to be about 10 and a half feet tall. Early in the growing process, clusters of four to six little apples sprout on the trees, and they remove all but one fruitlet from each cluster. The process ultimately maximizes the sunlight and space each apple receives.

"The one-to-one ratio (width to height) is really critical. This system allows the fruit on the bottom or the top of the tree to receive almost equal sunlight," said Jason Woodworth, co-owner of Lamont Fruit Farms. "If the trees grow too vertical, you start to shade the other row. So this helps you grow a higher quality apple than you would with the big trees you imagined seeing at orchards when you were a kid. "

The orchard comprises of trees grown at Lamont Fruit Farm's own nursery. According to Woodworth, trees don't like to be replanted where other trees previously existed, so he said it's always been a challenge to find virgin sites where they can set up the nursery.

"To maximize what land we can get our hands on, we decided to use GPS," Woodworth said.

The nursery uses seven-foot spacing, with trees planted six

"It's a lot easier than years ago when people used to grid the orchard and mark it out with two or three people using stakes or binoculars," Woodworth said.

inches apart. Woodworth and his business partner, Jose Iniguez, wanted to use GPS to plot each tree's location, allowing them to come back within a year or two and plant new trees exactly three and half feet over from where the previous trees were. Woodworth wanted perfect symmetry across the nursery and felt GPS could help maximize the land available to them.

"I knew what I wanted, but I didn't know anything about GPS," Woodworth said.

So he turned to Ben Flansburg of BCA Ag Technologies of Medina, New York, who helped devise a precision farming package that featured the ParaDyme® automated steering system from Ag Leader. Because the orchard is roughly 22 miles from Batavia, the closest town where the New York state GPS signal is available, Flansburg also advised Woodworth to buy a base station.

"When we plant in the spring or fall, we have all kinds of bizarre weather here. So if you're trying to get trees in, when we want to go, we have to go rapidly," Woodworth said, snapping his fingers to emphasize the urgency of the situation. "With the base station, 99 percent of the time we can lock in and go. It's a lot easier than years ago when people used to grid the orchard and mark it out with two or three people using stakes or binoculars."

Planting perfectly spaced trees is only the beginning of the process. Starting in the

Jason Woodworth, Lamont Fruit Farm co-owner, and BCA Ag Technologies owners, Ben and Chris Flansburg, stand next to the fall 2013 apple orchard crop.

middle of April, Woodworth and his team begin putting down fungicide every four to five days based on rain and temperature. Fire blight, a destructive bacterial disease that targets apples and pears, kills blossoms and sometimes even entire trees, so Woodworth said it's critical that they stay on schedule.

"It can erase a whole block of fruit very rapidly if you're not on top of your game," he said.

Later, when temperatures rise and insects arrive in May, they start to apply insecticides as well.

Use of a carbohydrate deficit model designed by Cornell University helps them determine stress levels of trees, so they can apply chemicals at the right times. "We know if we're in a carbohydrate deficit, the chemicals will work," said Woodworth. "If we're on a surplus, we know the chemicals probably aren't going to work well. Or, maybe we can try to adjust and use more product to get the same result."

When it comes to using precision farming technology for spraying variable rate fertilizer, Woodworth said his main concern isn't shaving costs, but ensuring that each part of the orchard gets exactly what it needs to ensure consistency across the board. It's this type of judicious approach that enables Lamont Fruit Farm to produce apples that are similar in size, shape, color, sugar content and taste come harvest.

Lamont Fruit Farm produces apples that are the right size, shape, color, sugar content and taste.

Lamont Fruit Farm will introduce precision farming technology to the harvesting process for the first time this fall. The fruit industry, according to Woodworth, is currently moving away from sacks and ladders towards mechanized harvesting platforms that run between rows, putting pickers at the exact

heights they need to be in order to pick the fruit more efficiently.

When their new mechanical harvest arrives, Woodworth plans to use the ParaDyme automated steering system to guide it precisely between the canopies.

"Getting the machine to run in a straight line is critical. With GPS we can just lock in and go. We won't even have to have an operator on the machine. Everybody on board will be harvesting apples that are right in their wheelhouse," Woodworth said.

Once the harvesting process – which Woodworth refers to as "70 days of hell" – ends in late October, the crew at Lamont Fruit Farm will spend the month of November pruning trees and planting new ones. After that, they will take a three to four month break and wait until spring, when the cycle restarts and they once again set their sights on growing perfect apples in a perfectly planted orchard.

Plastic bins used for harvest at Lamont Fruit Farm.

A GOOD MUCK FARM

When farms get passed down from one generation to the next, it's not just big iron and real estate that changes hands. Secrets of the trade and knowledge of the land are also bequeathed. Thus, it stands to reason that a 12th generation farmer like Travis Torrey has accrued some keen insights on the land in Genesee County (New York) where his family has farmed and raised dairy cattle since the 1800s.

Torrey Farms, located in Elba between Albany and Buffalo, now comprises 12,000 acres, and it's here that Torrey and his roughly 300 employees raise 1,500 head of dairy cattle and grow diversified crops such as onions, cabbage, cucumbers, corn, green beans and soybeans.

"The younger guys that are coming out to work on the farm, they may not necessarily have a farming background. But they all know how to use a computer and have smart phones, so they understand the technology," Torrey said.

The muck soil at Torrey Farms is naturally rich in phosphorous and nitrogen.

Walk through the thousand acres allotted to the primary crop – onions – and your nostrils twinge at the powerful, sulfuric scent emanating from the blossoming onion bulbs. The observant eye will count as many as ten varieties of yellow onions and also a few varieties of red. Within days these onions will pop up in the produce sections of chain stores and in restaurants up and down the Northeastern seaboard, in metropolises like Boston, New York City and Philadelphia.

Half the onions come from transplanted plants. For the other half, Torrey Farms uses about $500 in seed per acre to plant eight seeds per foot. They count on automated steering from Ag Leader to plant all their crops, helping to ensure consistency across the fields – no matter who's at the wheel.

"Planting is tedious. Moving so slow for so long, we've had guys fall asleep," Torrey said. "But the operator alarm setting (on autosteer) goes off and they have enough time to wake up and turn."

Onions planted in the muck at Torrey Farms.

With a team of 300 workers, all boasting different levels of experience farming and using precision ag technologies, Torrey said it's helpful that the Ag Leader equipment they use is reasonably simple to learn.

"The younger guys that are coming out to work on the farm, they may not necessarily have a farming background. But they all know how to use a computer and have smart phones, so they understand the technology," Torrey said. "Two of my workers don't speak much English and they can use it."

According to Torrey, an acre of onions can earn seven or eight thousand dollars under ideal circumstances, which explains why it's the signature crop of Torrey Farms. But it's the nutrient-rich muck land – valued at about $10,000 an acre – that serves as the invaluable ink with which they make their mark. Naturally rich in phosphorous and nitrogen, it's pretty much worth its weight in gold (or inputs anyway). Unfortunately, it only runs so deep.

"There's probably three feet of muck sitting on some of the worst soil imaginable. And when the muck's gone, the

Torrey holds a sample of the very profitable and valuable muck soil.

land doesn't really have any value," Torrey said.

The two biggest threats to muck are water and wind. Heavy rains can dilute the muck and wash it away. To prevent this Torrey tiled all his land and uses pump stations to pump the excess water into ditches. In wet years like this one, ditches can fill up to the point they almost overflow onto country roads, which even in dry times are about as stable as a vanilla wafer floating on pudding. The murky water eventually flows into nearby Oak Orchard River, which carries it into Lake Ontario.

"It's pretty well filtered by the time it gets there," Torrey joked.

That the muck can oxidize and blow away is the graver threat. There have been spring days when Torrey is forced to use his headlights when driving because of the thick, black drifts of muck engulfing the road, his truck and seemingly everything. It's like watching money go up in smoke, then blow on down the road. Some farms in the area are now so devoid of muck, Torrey explained, that farmers can only grow corn – if anything at all.

Torrey checks on the progress of his onion crop.

Farming on muck land offers some unique challenges. The Torrey Farms crew often customizes equipment to help navigate the gooey, unstable terrain. For a sprayer, they put rubber tracks and Ag Leader's DirectCommand™ on 90-foot GK Machine Sprayer.

"It's kind of a homemade, rugged sprayer," Torrey quipped. "The (DirectCommand) helped a lot because some of the younger kids will spray areas ten times, and it's got the automatic shutoff to help that."

Torrey estimates that right now 80 percent of the precision farming tools they use are from Ag Leader. As the company continues to roll out new innovations, he anticipates there will be more opportunities to benefit from emerging technologies.

"It's kind of baby steps. Gradually we'll do more and more," Torrey said. "I think the technology will keep improving and there will be more opportunities to take advantage of."

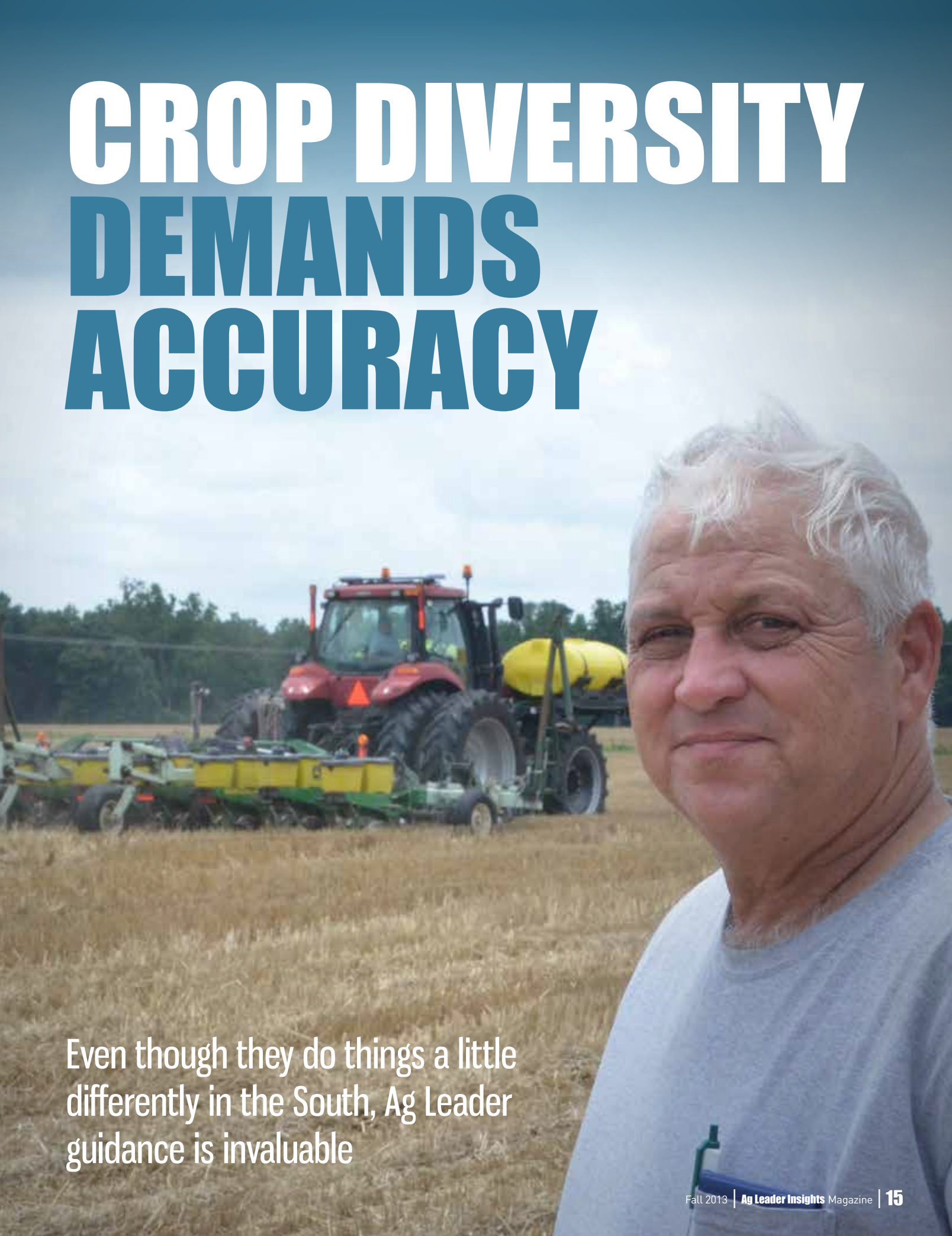
Ben Flansburg, co-owner of BCA Ag Technologies in Medina, New York, will be there to help Torrey and his team adapt new technologies from Ag Leader.

"Our motto is increased offering in your fields," Flansburg said.

And when it comes to a 12th-generation farmer with 12,000 acres, it's all about getting what the land has to offer – so long as the muck runs deep. ■

DEALER: BCA Ag Technologies | PH: 585.356.2751

CROP DIVERSITY DEMANDS ACCURACY



Even though they do things a little differently in the South, Ag Leader guidance is invaluable

Barry stands in a cornfield with his sons, Richard and Dean.

Even though they grow more than 1,300 acres of corn on approximately 3,800 acres near Holly Hill, South Carolina, Barry Hutto and his sons, Dean and Richard, do things a bit different than their counterparts in the Midwest.

For one thing, the crop is planted in 36-inch rows. That's because the family also grows cotton and peanuts; and both of those crops demand 36-inch row spacing to match harvest equipment. The same goes for the 1,250 acres of soybeans they planted this past year, even though nearly three-fourths of them were double-cropped behind wheat. Consequently, they can use the same two eight-row planters on all crops.

"We also do something that most Midwest farmers don't understand, particularly when we're planting peanuts," Dean explained. "That is we plant all the straight rows first and then come back and plant the headlands last. Consequently, we rely on Ag Leader® Integra displays and ParaDyme® automated steering systems very heavily to make sure we don't overlap the end rows with either seed or liquid fertilizer. We put on a straight rate of 17-17-0 liquid fertilizer with the planter, using AutoSwath™ control to shut off the meters when the planter comes to the ends of the row.

Richard operates the Ag Leader Integra display inside the tractor cab.

The Ag Leader Integra display also monitors the rate and pressure, so we don't have to keep watching the machine and wondering if anything has changed," he added. "We also use swath control to monitor our inoculant in peanuts, which is applied in a 10-gallon solution."

Although the ParaDyme system is used for guidance on all crops, Dean says it is most valuable on peanuts, noting that it's almost impossible to harvest the crop without it.

"A lot of guys harvest at night because there's a leaf or plant node that comes out at night and shows up with the lights, so you can spot the row a little better," Dean said. "But with automated guidance, it's just a matter of following the same lines you used to plant. If you're off the row four to six inches, you're leaving money in the ground.

"Without RTK guidance, you might think you're on the row when you're not," Dean said. "On the other hand, you have to trust the Ag Leader Integra display, because there have been times I thought I was off the row, but after making a pass, I find that the Ag Leader system has been right on the whole time."

According to Barry Hutto, the family has a total of two Ag Leader Integra displays and two ParaDyme systems that

"You have to trust the Ag Leader Integra display, because there have been times I thought I was off the row, but after making a pass, I find that the Ag Leader system has been right on the whole time," Dean said.

are generally rotated between four tractors.

"We normally use two tractors to plant peanuts with the eight-row planters," Dean explained. "Then, we dig peanuts with two four-row diggers that make two windrows each, which are then picked up with a six-row combine. Of course, you have to dig the end rows last, so you're not running over the windrows, which, again, makes it important to know where those rows are, which is easy with the Ag Leader Integra display."

"I'd say 85 percent of our fields are 40 acres or less in size and surrounded by a lot of trees. As a result, we would lose the satellite signal almost daily and sometimes for 35 to 40 minutes. That rarely happens with the Ag Leader Integra display."

Dean said ParaDyme guidance is just as valuable in cotton, corn and soybeans after wheat. Cotton, like everything else, is planted with the aid of RTK guidance, the system becomes even more important when the family comes back with a hooded sprayer that is used to kill weeds between the rows.

Dean preps the hooded sprayer that is used to kill weeds between rows.

"We use the same GPS lines that we used for planting to guide the sprayer, even though it's now between the rows," he explained. "But you can see how important it is to stay on the line. If you get off the row just a few inches, you're killing cotton."

Since cotton and peanuts are typically rotated, GPS guidance also comes into play when planting the following year's crop. With minimal or no tillage prior to planting, the family simply splits the old rows and seeds the following crop in the old furrow.

Richard added, "The ParaDyme system offers another huge advantage when we plant soybeans after wheat. You have a lot less fatigue at the end of the day, but it's also a lot easier to watch the planter and make sure it's not getting balled up with wheat straw. Instead of trying to watch for a marker track in wheat stubble, you can let the tractor drive itself while you keep an eye on the Ag Leader Integra display and the row units."

"Considering all the ways we're using the Ag Leader Integra display and ParaDyme systems, I really think they would pay for themselves in as little as a year ... particularly if you're growing peanuts," Dean concluded. "It's almost impossible to grow peanuts without them." ■

CONQUERING SOIL COMPACTION

Tim McGreal is out to conquer soil compaction. The Illinois farmer knows how it can stunt plant growth and diminish yields, which is why he's integrating new methods and precision farming technologies to minimize compaction as he farms close to 3,000 acres in Chatsworth, Illinois. It's a formidable challenge, but McGreal is up for the task. And he's turning to a bevy of Ag Leader products for support as he looks to undermine soil compaction.

On Path with ParaDyme®

With about 80 percent of his land being strip till, McGreal has been using Ag Leader products to develop a controlled-traffic situation, particularly in the fall when he makes the strips and the following spring when he plants and applies chemicals and fertilizer.

What soil passes beneath the wheels of his equipment obviously gets compacted. So by following his own tracks, McGreal aims to minimize the amount of soil his equipment runs over. He relies on the Ag Leader ParaDyme automated steering system to guide all of his equipment along the same set of tracks.

"Our strip-till unit, planter and side dress bar are all 60 feet wide, so we're on 60-foot tramlines using the tramline guidance feature in the firmware," he said. "Then our self-propelled sprayer comes in at 120 feet, which allows us to use the same wheel tracks for every operation."

According to McGreal, automated steering has also been valuable in the combine and sprayer. A couple years ago when other growers were buying corn reels so they could harvest downed corn, McGreal simply used the ParaDyme system to keep the header on the row — even when he couldn't see the rows.

"If the header is on the row, you don't need a reel on the header," he said. "At the most, you might need to use the nudge feature to move over a couple inches to compensate for the way the stalks were laying, but we harvested everything just fine."

McGreal said he has seen similar benefits from having automated guidance in the sprayer. That's particularly the case in varying terrain where the automatic boom height control system is being challenged.

"If you have automatic guidance on the sprayer, you can watch the boom height and application rates for yourself. I've come to the conclusion that

"Our goal is to find the best ways to utilize GPS technology for improving our profits and not just using it as a convenience," McGreal said.

if I have to drive it, I won't do it," he said with a grin.

McGreal has two ParaDyme systems and three Ag Leader Integra displays in all. These systems are connected to RTK, which McGreal believes has really benefited his operation.

"One of our slogans when we made the move to RTK was that we want RTK to pay, not cost," he concluded. "Our goal is to find the best ways to utilize GPS technology for improving our profits and not just using it as a convenience."

McGreal inspects one of his ParaDyme systems.

Tiling with Intellislope®

To further reduce soil compaction, McGreal has been installing drainage tile directly below the tramlines. For this, he pairs the ParaDyme and Ag Leader Integra display units with a Soil-Max® Gold Digger® tile plow and the Intellislope® tile plow control system.

"The idea is to try and suck some of the moisture out from under those tracks as quick as we can to further reduce the chance of compaction," he said. "Even that's easy to do with the Ag Leader Integra display and Intellislope software."

Honing in with Hydraulic Down Force

McGreal equipped his planter with Ag Leader's new Hydraulic Down Force system this year, as well as SeedCommand™ features that include SureStop™ clutches on the row units to turn planter units on and off. This includes automatic shutoffs on the fertilizer units, since he applies both starter fertilizer and insecticide with the planter.

"Most of our fields are pretty square, so we're not really using the automatic row shutoffs for point rows," he explained. "But we do have a lot of corn on corn, and any time you have two rows doubled up, you end up with twice the amount of residue. It may not be an issue under conventional tillage, but when you're strip-tilling, even two-row section control can lead to extra residue on the ends. That's why we're using individual row clutch control."

McGreal used a pneumatic down force system in the past. In just his first year utilizing Hydraulic Down Force system, he said he's been roundly impressed with how the system adapts to changing soil conditions so rapidly and smoothly.

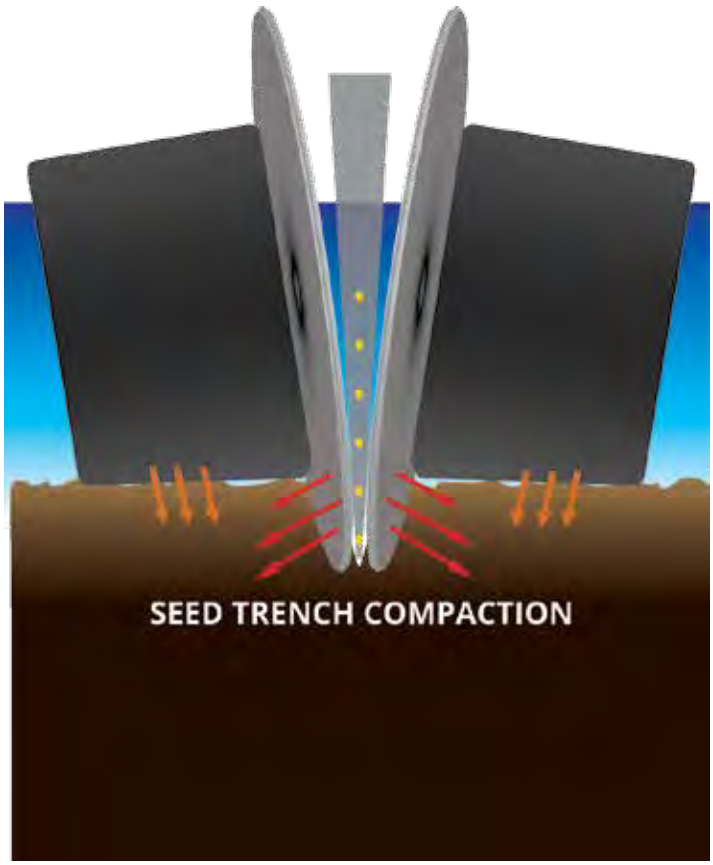
"Seed placement was really good, but I'd say the biggest benefit was its ability to change so quickly to match the conditions," he said. "This spring, we had a lot of clods and tough soil, so soil conditions changed rather often as we went through the

field. Yet, when I'd look back at the row units, they moved up and down very smoothly. If you think about it, what would happen if you had airbag suspension on something like a truck cab, but didn't have a shock absorber to supplement the system? It would just bounce up and down. We didn't see that happen with the Hydraulic Down Force system."

McGreal said he was impressed with the wide range of down force recorded through the fields. He watched as the system moved from two pounds to 235 pounds on better fields, while other fields saw pressures range from 50 pounds to 400 or more.

This past spring was also the first year that McGreal utilized SeedCommand for variable-rate seeding. As a trial, part of the fields were planted with a variable-seed rate that was based on five years of yield maps, while other portions of the fields were planted with a straight rate that ranged as high as 38,000 seeds per acre within a block that saw the highest yields in the past.

"Most of the variation ranged from 30,000 to 36,000 seeds per acre," he said, noting that they won't know the results until after harvest. "We've toyed with straight rates up to 36,000 seeds per acre in the past, but we've never been really satisfied with the results. However, I think part of the problem is we put those high rates on areas where they really shouldn't have been."



Watch it work online at www.agleader.com

MAPPING OUT A NEW BUSINESS

There aren't many field variables that Tim McGreal hasn't recorded with his Ag Leader Integra display and mapped on the office computer using SMS™ Advanced software. That includes seeding rates, applied down force on the planter row units, fertilizer rates, soil types, plant varieties, herbicide and fungicide applications and crop yields.

McGreal has become so savvy with the SMS Software that he and his brother-in-law, J. D. Skaggs, have developed a sideline business that gathers and charts data for area farmers and writes input prescriptions for such variables as lime, seeding rate and fertilizer rate.

"We've also helped a number of our customers set up test plots to check yield variation between different hybrids and/or different soil types," McGreal said. "Until J. D. joined me this past January, I'm not sure I really utilized the SMS Software as much as I should. And I think there are a lot of Ag Leader customers out there who will tell you the same thing. You have so many other things going on that you just don't have time."

They also use SMS Advanced to create a group data bank that serves as a source of information to all their clients. In other words, without identifying any farms or listing names, they can provide each customer with a summary of how different fertilizer programs worked, the effects of different seeding rates on various soil types, and how plant populations affected yields.

"In effect, they get the results of five or six field trials rather than just one," McGreal said. "They can tell whether something was just a fluke on their own farm or whether it was something we saw throughout the area."

Lately, Skaggs has been using the software to see how elevation affects drainage and crop yields, which McGreal believes will open additional business opportunities.

"We'll be able to develop a drainage plan for somebody and combine that service with the Intellislope and Soil-Max tile plows that are now part of the Ag Leader family."

WE UNDERSTAND PRECISION

Think about the reasons why you have chosen to invest in precision farming equipment. Likely, to either plant seed with more accuracy, apply chemicals with less waste, gather data to use in making decisions or all of the above. Ultimately, it's about working more efficiently and optimizing your inputs to add value to your operation.

Ag Leader believes the same principles behind precision agriculture also apply to manufacturing. That's why Ag Leader employs lean manufacturing, which involves continual process improvement to reduce variability, eliminate waste, and optimize every process in order to yield products with the highest quality and value for customers.

To achieve the highest level of quality, precision is used in every step of the manufacturing process. Ag Leader products aren't made in big batches – the focus is on producing high quality merchandise, one piece at a time. The production facility, located in Ames, Iowa, is strategically organized in "manufacturing cells."

Each cell is designed for a specific purpose and process in order to produce every product in the most efficient way. The careful consideration of each cell creates efficiencies and reduces the chance of defects occurring.

Flow Sensor Assembly Cell shows the assembly station and the robotic, computer-controlled test station.

Cell performance data is also collected and analyzed regularly to look for areas of improvement.

Ag Leader's quality and continuous improvement manager Tim Gaul said, "Some of our improvements are break-through improvements and others we improve on every day. As we monitor each cell in terms of quality, on a weekly basis we analyze the

Operator loads a Hydraulic Down Force sensor into the test stand. The high-pressure hydraulic tester applies force to the sensor while monitoring its electronic response.

reasons for defects, attack the issue, dig into the root cause, investigate the problem, and come up with corrective measures."

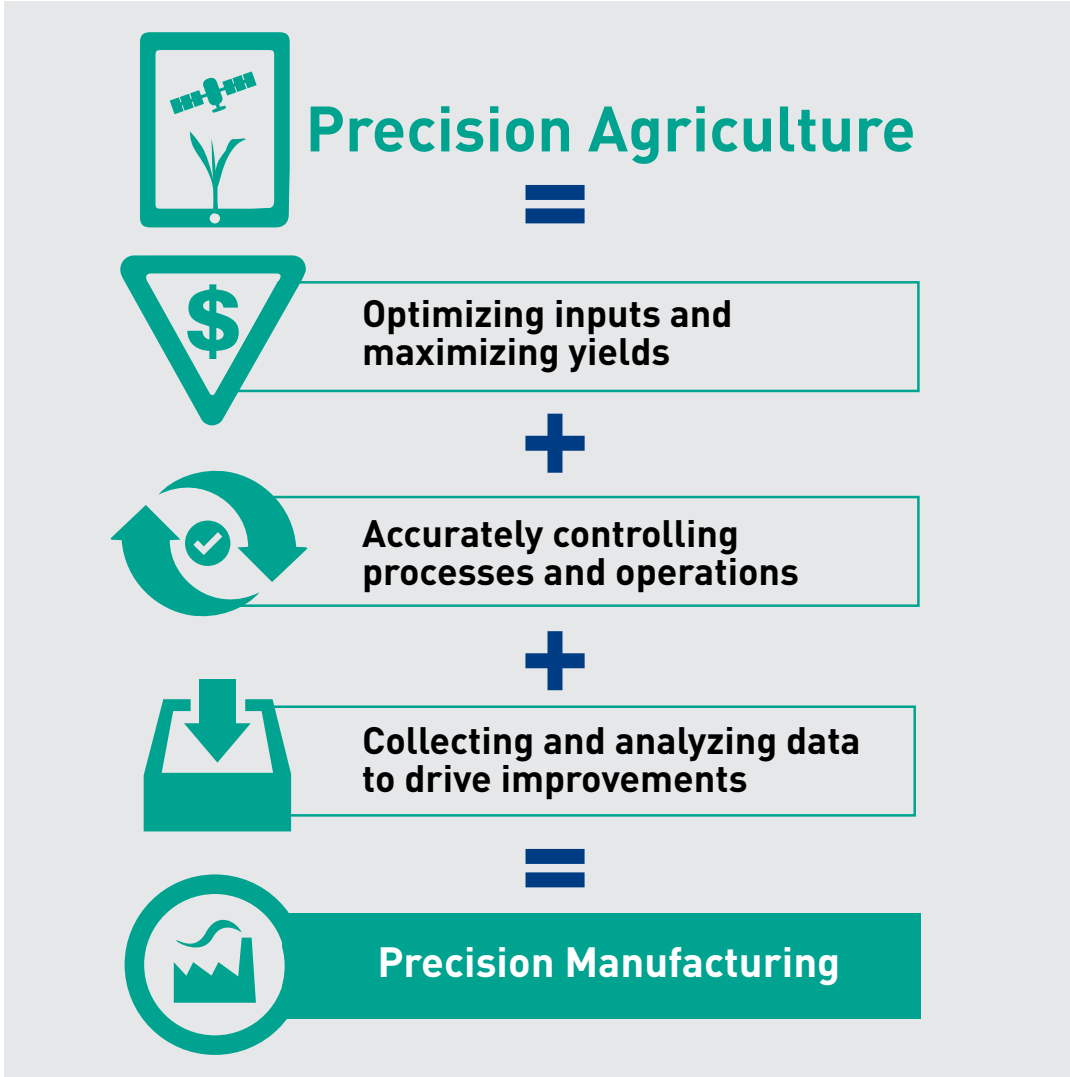
The same process improvement happens with precision agriculture.

"To get the most out of every acre, out of every input, you have to be precise in what you're doing and look at every single opportunity to eliminate waste and create value," Gaul added.

It is absolutely critical for the farmers' equipment to work properly. If 1,000 acres need to be planted, and there are five fair-weather days to do it, there isn't time for equipment to be down. Ag Leader understands that, and that's why we use precision in manufacturing the product so it will perform consistently.

Gaul concluded that, "Ag Leader understands that they're a part of feeding the world, and the way they do that is by participating in their processes of precision manufacturing."

Ag Leader understands precision.



THE INNOVATION UPDATE

LATEST:

SMS winter training schedule announced

As you watch the bushels on your yield monitor during harvest, do you question the factors that make some areas of the field more productive? Are you thinking about ways you can maximize profitability across all areas of your field? If you've answered yes to these questions, the next logical question is how do you go about making that happen? The answer: by using your data to make better management decisions in the future. Not sure how to get started? Let us take the guess work out of it for you, by attending one of our classroom or online trainings this winter. Visit **www.agleader.com/support** for a full training schedule.

Connect with Ag Leader

Social media is a common way people are communicating today. Not only can Ag Leader fans interact with the company on Facebook, Twitter, LinkedIn and YouTube, but also on Ag Leader's blog – Precision Point. These platforms allow Ag Leader to inform and educate, and also have a conversation with those interested in precision farming technology. Connect with us today!

Recent Ag Leader Innovations

The Compass™ display
Growers looking for a simple and affordable precision farming display now have an entry-level solution, thanks to the new Compass™ display.

"The Compass display was designed for growers who want a display to use primarily for guidance," says Matt Leinen, Product Manager. "With a built-in lightbar, the Compass display provides on-screen guidance and coverage mapping that allows operators to improve pass-to-pass accuracy and easily track where they have been in the field, reducing costly gaps and overlaps."

The key features of the Compass display include:

- Compact design with built-in lightbar
- 7-inch color touchscreen
- Built-in manual guidance Combine with OnTrac2+™ assisted steering, ParaDyme® or GeoSteer® automated steering systems for high-end guidance
- Compatibility with ISO 11783 Virtual Terminal Standard
- Full-screen mapping
- Multiple language options

Water Management Module
The Water Management module in SMS Advanced allows you to map out and plan tile lines to be installed. Designing these plans in SMS allows you to visualize the field from different perspectives, as well as overlay with other layers such as yield or soil type maps.

AgFiniti®
AgFiniti®, Ag Leader's new cloud-based platform offering wireless connectivity in the cab, will launch in early 2014.

To use AgFiniti, users simply need to connect the Ag Leader Wi-Fi Adapter to the Ag Leader® Integra or Versa™ display to access a wireless internet network through any hotspot of their choice, such as a smartphone, dedicated hotspot or a tablet (iPad, Android device, etc.).

Guidance lines, prescriptions, as-applied maps and other data files can be sent and received wirelessly and backed up on the user's secure AgFiniti account. Files can be accessed from their smartphone or tablet in the field or at the office and shared with trusted advisors such as dealers, co-ops or farm managers.

For more information on the cloud, refer to page 7.

GUESSING IS FOR COIN FLIPS AND WEATHER FORECASTERS

Not Management Decisions

SMS™ Software

Why play guessing games with your profitability? With SMS™ software from Ag Leader®, you and your consultant partners can import, analyze and make decisions using your own field data to improve your profitability from planting to application, harvest and even water management. Even better, we designed it so it will work across multiple platforms, seasons and even years. Think you'll find a more complete precision farming software package? Guess again.

To find your local Ag Leader dealer visit www.agleader.com

Ag Leader® Technology

www.agleader.com