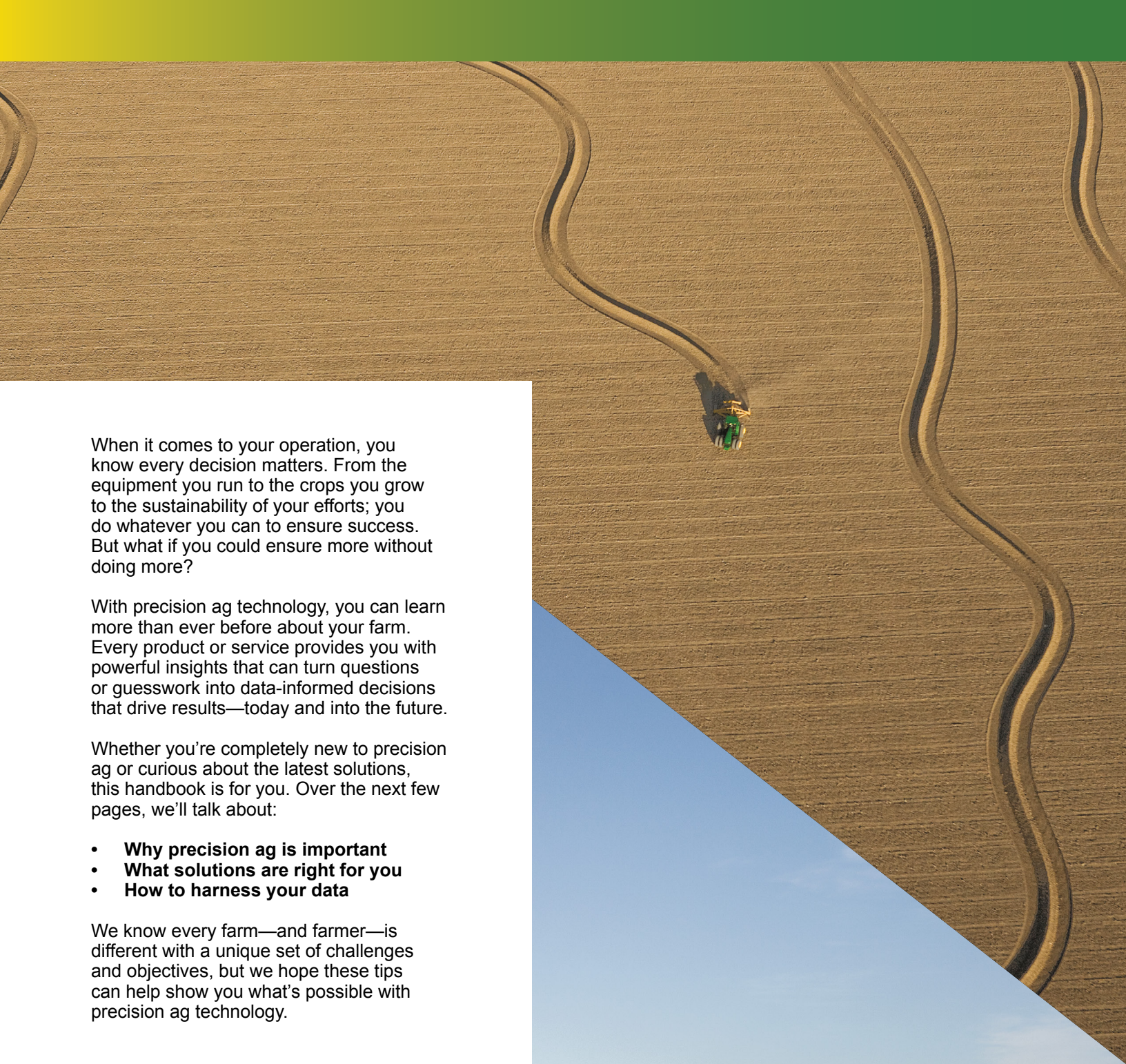




YOUR PRECISION AG TECHNOLOGY HANDBOOK

How to harness your operation's
data and yield better results



An aerial photograph of a brown, tilled field. A small green tractor is visible in the lower center, having just finished a pass, leaving a distinct, wavy track in the soil. The tracks curve across the field, suggesting a non-linear path. The sky is a clear, pale blue.

When it comes to your operation, you know every decision matters. From the equipment you run to the crops you grow to the sustainability of your efforts; you do whatever you can to ensure success. But what if you could ensure more without doing more?

With precision ag technology, you can learn more than ever before about your farm. Every product or service provides you with powerful insights that can turn questions or guesswork into data-informed decisions that drive results—today and into the future.

Whether you're completely new to precision ag or curious about the latest solutions, this handbook is for you. Over the next few pages, we'll talk about:

- **Why precision ag is important**
- **What solutions are right for you**
- **How to harness your data**

We know every farm—and farmer—is different with a unique set of challenges and objectives, but we hope these tips can help show you what's possible with precision ag technology.



What is precision agriculture

The world's population is expected to grow rapidly by 2050, increasing the global food demand by up to 50%. As demand increases, so does the pressure on growers to increase efficiency, optimize productivity and produce stronger yields. That's where precision agriculture technology can make all the difference.

From planning to planting to harvest, precision ag technology works by connecting your acres and equipment to provide real-time data and recommendations that keep you in the know and in control. It does this through information technology and solutions like in-field data collection, variable rate technology, sensors, control systems, telematics and more. Each solution helps you ensure accuracy and better decision making. Because the more informed you are when it comes to what's happening in your operation, the better you can optimize performance and profitability.



John Deere has been a leader in precision ag since the 1990s. It started with the introduction of GPS-enabled auto guidance (AutoTrac™) for tractors and today, includes a wide range of advancements and expertise that connect machines, people, technology and insights. From GPS receivers to remote support, it's all about giving you the advantage. In fact, **John Deere technology covered almost 230 million acres around the world** (25% of global arable land) in 2020. That's over 4.6 times the total land area of Nebraska.



How precision agriculture gives you the advantage

Managing operational costs. Minimizing downtime. Conserving resources. Monitoring crop health. Precision agriculture can help achieve all of this and so much more. Today's technology solutions allow you to observe, measure and manage the variabilities and demands of farming with confidence.

Whether your farm has been handed down for generations or is just getting started. Whether it's situated on the dryland plains, a lowland river bottom or in the greater Sandhills. Whether you grow corn, wheat, legumes or raise livestock. Whatever your everyday tasks or operational goals, precision agriculture can help you deliver in three key areas.

PROFITABILITY

- Plant, grow and harvest with accuracy to keep crops healthy and yields strong.
- Track how every seed, acre or machine is performing with real-time data.
- Know operational costs and make more informed decisions for the future.

EFFICIENCY

- Organize and prepare for field activities prior to busy seasonal work.
- Remotely monitor and manage equipment and execution through the John Deere Operations Center.
- Optimize vehicle performance and settings; minimize downtime with JD Link™.
- Distribute valuable inputs in precise locations and in a timely manner.

SUSTAINABILITY

- Conserve energy, labor and time by efficiently consuming fewer resources for each bushel of output.
- Make smarter decisions with accurate data that helps ensure more sustainable future practices.
- Reduce or redistribute valuable inputs within fields to improve environmental stewardship.



With just one crop per growing season, some farmers only have **approximately 40 opportunities** to grow the crop and have it reach optimum yield potential. The optimal planting windows for many row crops average just 10 days, so variables which delay planting can lead to a 1% reduction per day in yield.

Finding the precision agriculture solution for you

Just like buying a combine or tractor, it's important to first understand what you're looking for from precision ag technology. At 21st Century Equipment, we work with you to design a custom solution from our wide array of John Deere Precision Ag options. Our Integrated Solutions Group (ISG) consultants take the time to learn your operation, challenges and opportunities. Then, we help you organize and understand your data, so you can confidently manage your land and make decisions that yield results.

The precision ag solutions we offer are developed specifically for the John Deere tractors, combines, sprayers, planters, seeders, hay and tillage products you own. And we help you manage all that data as a single partner you can count on to keep you running and maximize your investment.

Let's look at the top ways you can put our John Deere Precision Ag technology to work for you.

1. GUIDANCE & AUTOMATION

When it comes to efficiency, accuracy is the name of the game. Say goodbye to skips, overlap and guessing when or where to place inputs. John Deere AutoTrac™ precision guidance helps unlock profits by lowering input costs and maximizing your time in the field.

Automated steering capabilities let you take your hands off the wheel to manage other important job functions, while still ensuring accuracy and productivity. And with application control systems, you can automatically vary the application rate of seed, fertilizer or herbicides based on data-informed prescriptions and the support of your precision ag trusted advisor. You can also equip your planter with RowCommand™ to ensure accurate seed placement, which reduces overlap and saves on seeding costs.

It all starts with leading John Deere displays and a StarFire™ receiver. Thanks to a variety of signal choices with John Deere GPS receivers and a large, reliable RTK Network from 21st Century Equipment, you can get a 24/7/365 signal for any precision ag field operation. You can even choose the level of accuracy you need to start reaping the rewards—whether prepping, planting, seeding, caring for crops or harvesting them.

2. REMOTE MONITORING

We know it's impossible to be in every field every minute of the day, that's why JDLink™ lets you manage your operation from anywhere—be it the office, house or even a restaurant. Simply put, JDLink™ connects you to your machines so you can check in on what they're doing, how they're doing and where they're doing it. This real-time visibility helps ensure things are staying on track and can even identify a small issue prior to a more significant problem, providing the ultimate peace of mind. For some operations, the John Deere AgLogic™ system can help manage an entire fleet and improve productivity of all John Deere equipment, and even other brands.

When it comes to keeping you connected, the John Deere Operations Center and John Deere Operations Center Mobile take it to the next level. You can easily and remotely connect to any of your machines and view their location and collected data from your smartphone, tablet or desktop.

AutoTrac™, precision seed placement™ and developing accurate geo-spatial data insights have been a part of John Deere tractors for nearly 20 years.

3. DATA MANAGEMENT

One of the greatest opportunities of precision agriculture is thinking about how to harness all that data. While knowledge is power, it won't do much unless you know how to understand the information at your fingertips. The John Deere Operations Center creates a secure and seamless way to view, manage and share your operation's data—all from a single portal.

Track performance and productivity. Use the Field Analyzer tool to compare yield, application volumes, seeding rates, machine locations and more. ISG consultants can even assist with managing this data and advise on recommend improvements that will help boost your bottom line. It's that powerful, and that easy!

4. VARIABLE RATE TECHNOLOGY

Variable rate technology can help better manage geo-spatial variability, reduce valuable inputs and increase yields.

The **Integrated Solutions Group (ISG) consultants** at 21st Century Equipment can assist in turning accurate data into variable rate application plans that optimize your most productive areas and minimize effects of less productive ones. And since we know agriculture is always changing, our team is always here to ensure you're executing plans efficiently and making the most of your investment now—and into the future.

While these are just some of the ways John Deere can set your farming operation up for success, our team at 21st Century Equipment can find the right combination and support to take your investment to the next level.

An average farm can have more than 350 million plants that must **rely on data-driven insights** and technology to operate at a tremendous scale to best address each seed's needs.





Harnessing the power of your data

Now that you may have a better understanding of what type of precision agriculture technology solutions are right for you, let's talk about leveraging that tech and data for maximum returns. Our trusted **Integrated Solutions Group (ISG) consultants** help provide the insight and support to get you up and running with reliable, executable outcomes in the field. Let's look at how it works.

STEP 1 – GET TO KNOW YOUR DATA

We all know every bit of information counts when it comes to your data. That's why we make it our mission to get you set up correctly and securely. From adding new equipment and technology hardware to leveraging the John Deere Operations Center, we're right there with—and for—you.

Turn to our ISG team to help:

- Organize the setup of farm, field, crop, input and machine data.
- Optimize your machines and implements to ensure agronomic and sustainability effectiveness with overall efficiency and profitability in mind.
- Leverage the John Deere Operations Center to be an integral part in your operation's decision-making process and overall business strategy.



STEP 2 – TURN YOUR DATA INTO DECISIONS

As your partner in finding farming success, our goal is to ensure you're collecting accurate valuable data, analyzing it effectively and using it to impact your bottom line. We call this **agronomic decision support (ADS)**—and it's all about helping you yield more and waste less.

The more in-tune with your data, the quicker and more informed the decision making. Depending on your operational needs, we can discuss services to give your operation a bigger boost. Some examples are:

- Data management and transfer assistance
- Variable rate application planning for seed, fertilizer and chemical inputs
- Electrical Conductivity (EC) Soil Survey Collection
- Geospatial data evaluation, reporting and recommendations
- Production/compliance reporting support

STEP 3 – USE YOUR DATA TO STAY A STEP AHEAD

When you work the land, no two days are ever alike. From changing weather patterns to planting windows to equipment performance, it's important to always keep an eye on your operation.

With remote monitoring and optimization solutions, you can do just that from anywhere, anytime. You can even go a step further to better prepare for success by analyzing and transmitting your data to your machines ahead of critical field use times. That way you can more confidently get things done when you have a narrow window of time to execute important field tasks.

Either way, remote monitoring puts you in the driver's seat of what's going on in the field—without having to be there. All while giving you the power to pinpoint issues, make changes and keep things running smoothly.

Your partner in increasing productivity

Every John Deere precision ag product or service is designed to make you more productive, season after season. And at 21st Century Equipment, all our locations take that one step further to ensure we're working as hard as possible for you as an integrated solutions provider. From our ISG consultants to our service experts and technicians, our goal is to keep you running smoothly and efficiently.

Part of that support comes in the form of our **NextCentury Productivity Packages**. Four uniquely designed support packages that can stand alone or be bundled together to meet your needs and budget. Because we know that uptime is always good for business, no matter who you are.

UPTIME PACKAGE

Helps maximize equipment performance.

HARDWARE & SOFTWARE PACKAGE

Helps manage data with technology hardware, software/firmware updates and maintenance.


EQUIPMENT OPTIMIZATION PACKAGE

Helps boost field utilization and agronomic influence.

ADVANCED DATA MANAGEMENT PACKAGE

Provides advanced data management, analysis and consultation services for agronomics & equipment support.





As you think about the future of your operation, it's good to have a dealership you can count on. With 21st Century Equipment and our ISG team, you have trusted partners committed to developing solutions and delivering success that keep you moving forward. So, take on the demands of every day and gain valuable insights to make your life easier—and your profits greater. The future of farming is waiting for you.

21stCenturyEquipment.com

