

WITHIN AN INCH
OF YOUR FARM



IN COLLABORATION WITH BROWNFIELD AG NEWS AND
DR. BOEHLJE FROM PURDUE UNIVERSITY



JOHN DEERE

SUPPLEMENTAL WORKBOOK



JOHN DEERE

Welcome to the "Within an Inch of Your Farm" Supplemental Workbook! This resource is designed to guide you through the podcast series and offer practical advice on using data to optimize your operation. Our aim is to empower you with the knowledge and tools to use data effectively, make informed decisions, and boost productivity. As you engage with the content, you'll gain valuable insights and strategies to elevate your operation. Let's embrace the power of data together and unlock your operation's full potential.

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Turning data into information

Grounded in data, farmers see profits

When considering your farm's most valuable resources, does data make the list? If not, it's time to update your thinking. In this age of precision ag, the most profitable growers are those who collect and analyze data, turning it into decisions that lead to efficiencies and financial success.

Do you already know a lot about growing a good crop? Of course you do. What you've learned by experience becomes even more valuable when you marry that knowledge with specific data about the honest-to-goodness conditions surrounding your crop—details like soil characteristics, variety performance, input variables, and more. Factor those specifics in with your own intelligence, and you can make truly grounded decisions that hit the mark.

But as the saying goes, "garbage in, garbage out." The integrity of your data is as important as the quality of your seeds and the horsepower of your machines. But what makes for good data?

You want your farm data to be:

Timely

Capture data the moment it's available. Don't wait for the end of the season or rely on your memory.

Accurate

The more precise, the better. This means measuring actions and results not just by field, but by plot, test strip, or individual plant.

Objective

Use tools that give honest, unbiased data—so complete that you don't miss important variables that could skew your point of view.

Understandable

Take advantage of technology's power to sort, organize, and visualize data, so you can see insights at a glance.

Available

Have access to data when and where you can use it to make decisions and take action—whether that's in the cab, truck, or office.

To get data that fits these standards, farmers use advanced monitoring, measuring, and data collection systems. **You may already have some of these tools built into your equipment. Are you using them?**

Let's find out.

As a John Deere customer, you have access to tools that make using data easy, precise, and convenient. Are you getting the most from the equipment and technology you already have?

EASY

Do you have a Gen 4 or G5 display?

YES NO

Whether your display came factory-installed or is a universal model added to a non-Deere machine, that technology equips your cab with an **intuitive, easy-to-use** system.

A few setup steps* will turn that display into a **data goldmine**, as the system automatically captures data while work is in progress *and* keeps that data **in sync** with John Deere Operations Center™.

**Need a hand with setup? Ask your John Deere dealer for help.*

PRECISE

Do your machines feature precision technology?

YES NO

For over a decade, we've been improving the **"sensing" abilities** of our machines, so they are designed to gather data from each field operation.

Our combines, for example, can **document yield in real time**, auto-calibrating as you harvest. Then, after the work is done, you can go into John Deere Operations Center™ to review and verify that your data **accurately** reflects what happened in the field.

CONVENIENT

Do you use John Deere Operations Center™ ?

YES NO

Operations Center gives you access to your data **anytime, anywhere**. You don't have to be at a desk to see what's going on (though you *can* be). If you're on the go or in the field, use the **Operations Center mobile** app.

You can also share data with **trusted advisors** who support your operation.

And remember, there is **no cost** to use this convenient farm management system.

What's your next step? Talk with your John Deere dealer. Have a conversation about your YES and NO answers above. Not only is your local John Deere team committed to helping you get the most from your investment in John Deere equipment and technology, they have the experience and know-how to customize a step-by-step data management plan for your farm.

The data concepts shared here come from an interview with independent expert Dr. Mike Boehlje of Purdue University. He's a well-known leader in ag economics and a smart farmer in his own right. To hear the interview, scan this code to open Episode 2 of "Within an Inch of Your Farm."





Now is the time to gather data

Data is an asset you can't wait to use

As a farmer, you focus on the fruits of your labor. Crops. Yields. Profits. A business you can grow or sell or pass along to future generations.

If you're not also focusing on *data*, it's time to start.

Data is another "fruit" your operation produces every day. By gathering and using this asset, you can improve the output and value of all those other assets.

As data accumulates, it grows stronger. Just think how much you've learned since you started farming. You've racked up the experience, intelligence, and know-how that serves you today. Now, you can supplement that mental data by using technology to gather machine and agronomic data. And as you grow your inventory of data—with every pass, every production step, every season—they gain power together. *The more you know, the better you can grow.*

You only get so many chances. If you're fortunate to farm annual crops on the same land for 40 years, you get 40 chances to capture the details of planting and harvesting and everything in between. Not bad.

- **If you're just starting out**, begin gathering data now and you'll accumulate a goldmine of decision-making power.
- **But what if you're 25 years into those 40** and your data bins are an echo chamber? Well, there's no time like the present. Even just 5 observations are enough to improve accuracy.

So, start collecting and learning from your data as quickly as possible, because that learning will translate to your bottom line.

A Tale of Two Farmers

Steve and Tom run neighboring farms. They grow similar crops, have the same soils, and face the same weather patterns.

This year, Steve decided to connect his machines, so they automatically send data to John Deere Operations Center™. Tom is sticking with his memory and pocket-sized notebook.

In 5 years, guess who will be more likely to make accurate decisions about things like fertility programs and seed selection.

Data doesn't wait for annual or seasonal harvest. Your operation is generating data all the time. NOW is the right time to gather that data.

Why the rush?

The time to capture data is the instant it becomes available—even before you know how you might use it.

- The depth at which you tilled a particular field
- The seed varieties you used in that field
- The application rates of the fertilizer you applied in that field
- The actual yield of that field

Miss the moments to capture data points like these, and you could lose the value and accuracy of those details—forever.

Why? Because **few of us have a mind like a steel trap**. This is particularly true when it comes to the many details of farming, and even more-so for long-cycle crops that take a year to produce. **Once these data collection moments have passed, you can't get them back.**

Is now the right time for you to start gathering data?

Every "YES" you check below is a sign that yes, it's time to focus on your farm's data.

Do you scribble farm details in a notepad?

YES NO

Do you have more than one such notepad?

YES NO

Have you ever lost or damaged a notepad?

YES NO

Have you ever offered an advisor a "best guess" about field work?

YES NO

Are you trusting memory or intuition with details like herbicide application?

YES NO

Have you ever scrambled to provide documentation about your farm?

YES NO

What's your next step? Talk with your John Deere dealer. Have a conversation about your YES answers above—and how data can help you turn them to NO. Your local John Deere team is there to help you get the most from your investment in John Deere equipment and technology. They also have the experience and know-how to customize a step-by-step data management plan for your farm.

The data concepts shared here come from an interview with independent expert Dr. Mike Boehlje of Purdue University. He's a well-known leader in ag economics and a smart farmer in his own right. To hear the interview, scan this code to open Episode 3 of "Within an Inch of Your Farm."





7 ways data is good for your farm business

Look what data can do

1. Improve efficiency & productivity

Study your farm's past performance to choose the right seed, fertility, pest control, tillage practices and systems.

Data can help you plan to capture maximum yield by improving efficiency and productivity.

2. Control costs

Be a low-cost producer. Create a seamless flow from John Deere Operations Center™ into Harvest Profit to understand how your agronomic practices are affecting your finances. Create powerful geographic maps and analysis to understand how to improve next season.

Data can help you find ways to grow profits.

3. Manage margins

When you know your costs, you can better calculate your margins—and thereby make better marketing decisions. While you can't control market prices, you can manage what you spend.

Data will spotlight opportunities to minimize costs and protect your profit margin.

4. Improve operations & execution

Use technologies like AutoTrac™ to do jobs more easily, accurately, and timely. Use checklists, standard operating procedures, and apps to be sure you're in the right field at the right time. Plan workflows to include a Plan B and a Plan C so you can respond to changing conditions like a sudden storm.

Whatever you do, data can help you do it better.

5. Manage operating risk

While aiming for higher yields, also protect against the risk of *lower* yields. Buy crop insurance to reduce the downside of pest or weather damage. Use futures, options, or forward contracting as hedges to protect yourself from financial risk. Participate in government programs. Secure property insurance to protect your equipment and other tangible assets.

Data will point you to the right coverage.

6. Manage debt capital

Make sound decisions about working capital, such as length of repayment terms and leasing versus buying. Never surprise your lender.

Data is what lenders need to understand your financials and support your operation.

7. Simplify & automate

Complexity creates confusion, and people make mistakes. So, systematize your business and work activities as much as possible. Standard operating procedures and checklists are important. So is precision technology.

Data powers the tools that can simplify and automate farm work.

Don't consider yourself a data expert? Don't sweat it.

Help is here

Choose the best person for the job.

What can you do better than anyone else? Keep that work for yourself and strive to keep improving. Other tasks can be delegated to specialists.

Hire an accountant to do your taxes. Get an attorney to review contracts. **And for data, engage a specialist** who can ensure that your data is collected effectively, shared carefully, and analyzed to capture insights. Not sure who to call? Start with your John Deere dealer.

Your data deserves the best possible treatment.

How can you start using data?

Are you using some form of automation on your farm?

YES NO

If you're using AutoTrac™ or section control, you already have a display, receiver, and software that is both performing the task and documenting it as well.

That's data!

You already have what you need to capture and use data to support and improve your business.

Is your technology use limited to your cell phone?

YES NO

That's a start. With a modest investment in precision technology, you can get a machine connected and experience the benefits of farming with data. Through Operations Center mobile on your phone, you can track where that equipment goes, notice when it's idle, monitor its fuel usage, and more.

Good decisions—and profitable, efficient farms—come from practical data like this.

What's your next step? Talk with your John Deere dealer. Have a conversation about your YES and NO answers above. Your local John Deere team is there to help you get the most from your investment in John Deere equipment and technology. They also have the experience and know-how to customize a step-by-step data management plan for your farm.

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Precision ag is today's business as usual

If you don't use technology, how will you compete?

When did precision technology come to the ag industry?

Some hints: Van Halen was big. A dozen eggs cost about 87 cents. Kids were obsessed with Toy Story (the first one). DVDs were a new way to store media. Michael Jordan was coming in and out of retirement. It's been decades!

For nearly 30 years, farmers have been choosing and using precision technology. Early innovations came at a measured pace, offering the luxury of time to adopt and get familiar with "the new."

First GPS ...
Then AutoTrac™ ...
Then yield monitoring ...

These earliest advancements have become standard practice. Today, you're an outlier if you *don't* take advantage of such features on your farm equipment.

Now, new tech comes at a faster pace. Keeping up is a challenge. With so much else to do and manage, how can you justify the time, learning curve, and money?

It's true, you *could* ignore the new tech and continue farming as you always have.

Meanwhile, your competition—whether down the road or on another continent—is supplementing their farming experience and expertise with technologies to:

- Choose higher-yielding seed varieties
- Place seeds more accurately, at the right spacing and depth
- Avoid skips and overlaps
- Apply the right chemicals at the optimal place and time
- Reduce costs by avoiding over-application
- Sense soil quality and moisture
- And more

Farmers who make the effort and investment to use precision technology—and to analyze the data these tools generate—are gaining a competitive edge.

Are you behind?

The new tools aren't just coming faster. They're getting more powerful. Why?

Technology advancements: With every product launch and update, the hardware, software, and engineering of these tools take a leap forward. More power. Faster processing. More precise sensors. Options to support more jobs and decisions at every step in the production cycle.

Farmers' adoption and use: The more you farm with these tools, the better you can adapt them to the specifics of your operation. Plus, as you accumulate layers of data from pass to pass and season to season, you gain a more accurate and complete picture of your farm. That historical context gives you even greater control over your decisions today—and for the life of your operation.

If you've been reluctant to take the leap, try small steps.

Every "NO" you check here is a signal that you could take a small but significant action toward a more precise and profitable farm.

Are you satisfied with your yields and profits?

YES NO

Do you track farm data as carefully as finances?

YES NO

Do you use the tech that's already on your equipment?

YES NO

Do you know how to view and analyze the data your machines are creating?

YES NO

Do you always know where your equipment is and how it's performing?

YES NO

Have you compared planting maps with yield maps?

YES NO

WHAT'S YOUR NEXT STEP? Work with your John Deere dealer to determine your next move toward greater precision and profits. Not only is your local John Deere team committed to helping you get the most from your investment in John Deere equipment and technology, they also are ready to show you how to use those tools and the data they generate.

The technology concepts shared here come from an interview with independent expert Dr. Mike Boehlje of Purdue University. He's a well-known leader in ag economics and a smart farmer in his own right. To hear the interview, scan this code to open Episode 5 of "Within an Inch of Your Farm."





Farmers who invest expect strong returns

Precision technology pays off

Farmers invest in precision technology for a wide range of reasons. Some strive to out-farm every competitor. Others seek modest improvements over last year's results. Whatever the motivation, every farmer wants to see a return on their investment. And John Deere's customers are experiencing real value from precision technology.

Here are a few ways precision technology pays off:

1. Cut costs & improve efficiency

The more accurate your actions—placing seed, applying fertilizer, adjusting machine settings—the more profitable and efficient your operation.

2. Make full use of equipment

When you know where every machine is, what it's doing, and how it's performing, you can achieve more in a day and get quality results faster.

3. Reduce downtime

Machine monitoring technology can also alert you *before* a repair becomes critical, letting you preempt a breakdown and schedule service when it's least disruptive.

4. Minimize risk

Sensing technologies offer precise control over what happens in the field, even across vast acreage. No longer dependent on the human eye to detect issues, you can identify and spot-treat for weeds, pests, and moisture, producing an entire crop of healthy plants with the least possible intervention.

5. Communicate with ease

Precision technologies generate detailed documentation about your crops and how you produced them, making it easier for you to meet the increasing demand for documentation. When buyers, suppliers, and landowners raise questions, you'll have answers.

6. Raise property value

Documentation pays off in land values, too. Suppose your farm has the same corn suitability rating as another, but you've gathered several years of data showing an additional five or six bushels of yield per acre. This productivity data is evidence that your property is more valuable—an advantage when you rent or sell.

7. Farm safely & sustainably

Precision technologies and practices help reduce chemical leeching and runoff, conserve water, manage drainage, and improve soil health—all protecting both your plants and our planet.

Interested in advantages like these?

Go get 'em!

What will it take for YOU to start reaping the rewards of precision technology?

Answer these questions.

Every "YES" you check is an indication that you're taking the right steps now to generate a strong return from your investment in precision technology.

Do you document every pass?

YES NO

John Deere's equipment and technology can produce a goldmine of both machine and agronomic data, giving you a full, honest view of what's happening on your farm. When you document every pass across every field, you gain the advantage of a complete, detailed analysis of your operation.

Are you using the tech you have?

YES NO

Chances are, you're using AutoTrac™ for automated guidance. If so, you are all set to document the work that machine does—no additional purchase necessary. Just turn it on and allow that data to flow from your machine into John Deere Operations Center™.

Are you analyzing your data?

YES NO

Stockpiling data isn't enough; to create positive changes for your farm, you need to study and learn from that data. Where are the lowest-performing areas of each field? How might you regain or improve the value of those spots? Is an aging piece of equipment costing you productivity? Your data will tell you.

Are you acting on your insights?

YES NO

What you learn from your data might suggest that you need to make changes. You may be challenged to think or act differently than you have in the past. Be open to what the data tells you. A few calculated changes can yield surprising results.

Do you have the support you need?

Perhaps you're unsure which technologies are right for your operation. Maybe you're confused or overwhelmed by the data your farm is generating. Your John Deere team is here to support, encourage, and work with you. Don't hesitate to **engage your John Deere dealer** as your partner in success.

The data concepts shared here come from an interview with independent expert Dr. Mike Boehlje of Purdue University. He's a well-known leader in ag economics and a smart farmer in his own right. To hear the interview, scan this code to open Episode 6 of "Within an Inch of Your Farm."



