How to Use Data-Driven Decisions to Grow Farm Profits

MAKE BETTER DECISIONS, SAVE MONEY AND BOOST PRODUCTIVITY

"It is a capital mistake to theorize before one has data. Insensibly, one begins to twist the facts to suit the theory, instead of theories to suit the facts."

— *Sir Arthur Conan Doyle*, Sherlock Holmes

Doyle was onto something when he observed the dangers of making decisions without all (or the right) information. It is a warning farmers in particular are heeding as planting season kicks into high gear. It begins by asking the questions: What evidence am I using to make my farm decisions — gut feeling, opinion or speculation?

If you answered yes to any of these, this guide is for you.

First, let's consider the difference between data and evidence. These two terms are often used interchangeably but they have very different meanings, and this difference is particularly important in farming. Understanding this difference is where **precision farming** becomes **decision farming**, and the real payoffs begin.

- Data — Factual information such as numbers, percentages, and statistics.
- Evidence — Data that is relevant and furnishes proof that supports a conclusion.

In this guide, **5 Ways to use Data-Driven Decisions to Grow Farm Profits**, we will focus on how digital data can be used and/or processed in a manner that supplies the evidence to help you understand where your farm business has been and, more importantly, where it needs to go.

STEP 1: GET READY TO COLLECT DATA

First, you need to find easy-to-use farm management software that works well on your smartphone and is scalable, ie. it can grow alongside your operation.

This farm data platform will provide the foundation for your entire precision management strategy, so it needs to be solid and backed by a provider committed to the ag technology space for the long term.

Ideally, it will also track information across your entire farm operation. This way you'll be inputting costs, yield and final pricing information that will translate in the end to a profit map and ROI that encompasess all expenses and revenues.

STEP 2: TRACK FARM INFORMATION

Start tracking everything you can — yes, everything. You need all the information you can get to make smart decisions, especially in the midst of a tough farm economy.

Consider this as your inventory or warehouse, housing your most valuable assets. The farm information you want to track will include:

- Crop rotations
- Inputs (seed varieties, chemicals and fertilizers)
- Equipment maintenance
- Yields
- Bin activity
- Soil test results
- Tissue test results
- Crop plans
- Grain prices

STEP 3: TRACK FARM EVENTS

Tracking farm information is the first step, but it is equally important to track farm events. These include:

- Rainfall
- Growing Degree Days
- Seeding and Harvest Dates
- Input Application Dates
- Scouting Dates

Wondering about the actual value of tracking these events? Let's consider weather.

While we can't influence the weather, we can use the information to influence management decisions. It's hot and dry, but what does it mean for the crop? Can I anticipate a specific yield loss that might cause me to change my management strategy? Should I apply that extra shot of nitrogen? Should I rein that in if we're setting up for a year where my yields will be compromised?

This information is also important when considering when and how much to irrigate, based on soil moisture data, weather predictions and crop health. Weather can also have a significant impact on grain marketing strategies. Having the data-driven evidence at their fingertips helps farmers be nimble enough to take advantage of these events.

STEP 4: TRACK RESULTS

This is the fun part! Ironically, it's also the step many growers fail to follow up on. However, if you're going to go to the effort of selecting and paying for farm data software, and tracking all farm information and events, it is vital to take this final step so you can make educated decisions and lock in success.

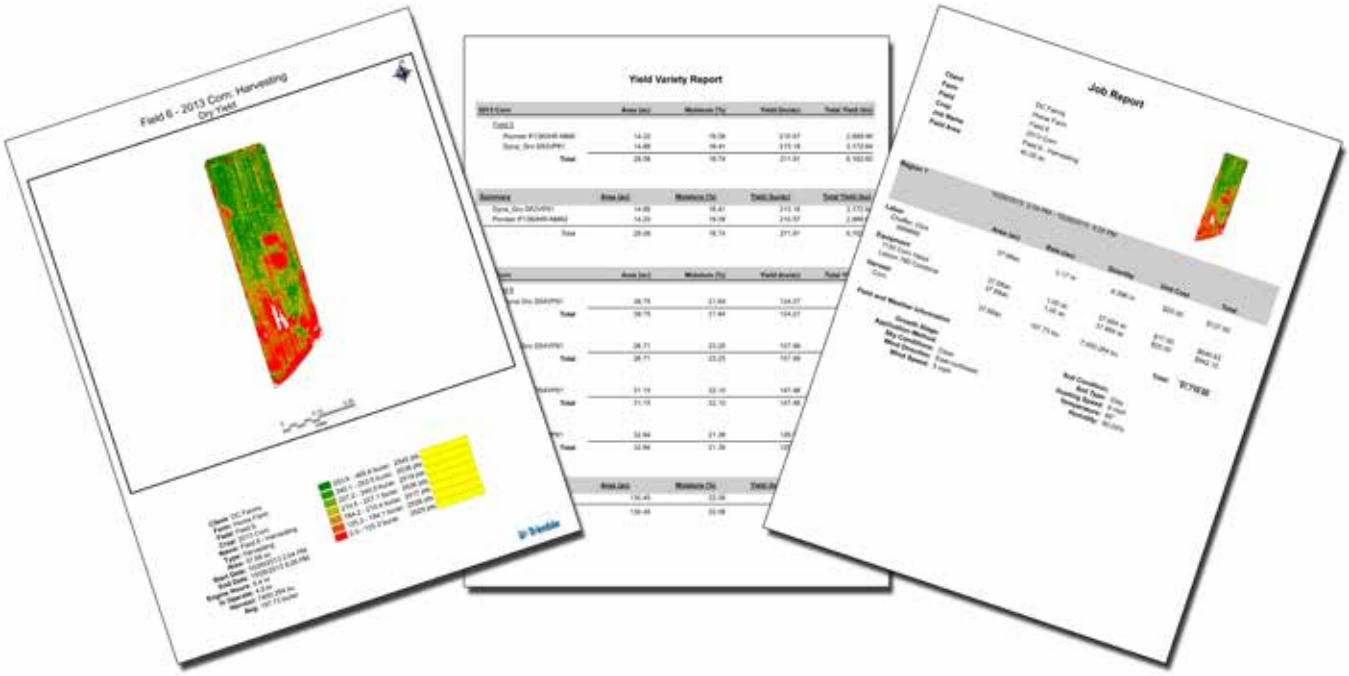
Key result metrics to track include:

- Scouting observations
- Emergence (plant stands)
- Herbicide efficacy

In this step, as-applied data tracking becomes particularly important. This includes:

- Date and Time Stamp for sprayer operations, in the case of rain events, insurance claims and/or misapplied rates.
- Date and Time Stamp for seeding/planting, in the case of tracking growing-degree days, insect pressure, etc.
- Vehicle tracking, operator tracking
- Test strip tracking, which is key if you double up on a rate and want to come back to scout or analyze harvest data.
- Yield data, to analyze the success of your strategy.
- Harvest storage and grain contract management

All of this data becomes increasingly important as you work with third parties, such as banks requiring loan documents or an end-use customer requiring documentation showing how the crop was grown.



STEP 5: ANALYZE RESULTS

This is the step that transforms your data into valuable evidence.

The key here is that your software platform must provide the tools needed to turn data into insights. Essentially, you need a report card to say how you did that will provide insights on where to adjust your strategy to drive profits.

Your software must be able to seamlessly calculate:

- ROI
- Nutrient use efficiencies
- Identify problem areas in the field
- Calculate nutrient removal across the field
- Reinforce or correct yield goal estimates
- Improve crop zone boundaries
- Use multi-year yield data to refine all of the above

In the end, your evidence will help you answer other questions such as:

- Which are my most profitable fields, which are the least? Sell or fix?
- Where are my most profitable zones within fields, which are the least? Fix or seed to perennials?
- Is my equipment working to capacity? Should I increase my land base or purchase more equipment?
- Are are my seeding rates at optimal plant density?
- Is my herbicide program working? Am I creating a potential resistance problem?
- Which fields should I start liming, or ripping?

Now it is time to compare your plan to the actuals so you can work with your advisor or agronomy consultant to generate helpful 'what-if' scenarios for the following year. For example, this would include comparing the results of variable rate to flat-rate so you can compare profitability.

In the end, the evidence will provide the backdrop to make informed changes to your grain marketing plan, yield goals, nutrient program and forecasting for the coming year.

CONCLUSION:

While your experience is deep and your instincts are strong, looking carefully at the evidence-based reality field by field will cause you to re-evaluate some key decisions.

Data collection has to provide more value than just the satisfaction of keeping diligent records. Using tools available to turn data to evidence reveal trends, anomalies, inefficiencies and new nuggets of wisdom.

Case Study: How Data-Driven Decisions Drive Success in Grain Marketing

Trimble Ag Software is an excellent tool for record keeping, planning, grain marketing and farm financial success. A few of the more important record-keeping items within the software are the grain contracts outstanding, costs of production, grain bin information, cash flow items and historical, current and planned production.

Within the **grain contracts section**, the key information you can track includes the price grain that has been sold, quality specifications on the contracts, delivery dates, basis and futures price components of the contract, priced and unpriced information and subsequent required pricing dates, delivery locations and delivery dates. The grain contract information needs to be readily available to the farmer so they can make additional contract, pricing and delivery decisions. The contract information allows farmers to be successful at grain marketing, i.e., knowing what you have sold and what you have left to sell.

The **cost of production section** is important for farmers in planning future sales and future production. The cost information can be compared to potential future revenues to assess the current and potential profitability of crops, what crops to grow and the price required to make a profit on the produced grains.

The **grain bin information** keeps the farmer current on grain availability, grain location and grain quality. New grain bin technology allows the farmer to continually monitor grain quality and to make quick decisions if the grain in storage is potentially going out of condition. Having grain bin information current allows the farmer to make good decisions on where to source grain for sales and to where to send truckers moving grain to terminal locations.

Along with the cost of production information, Trimble Ag Software provides the farmers with the ability to map out **future expense and required payment dates**. This information is especially important for farmers that are running on limited cash availability and gives the producer the ability to map out grain sales with cash payment requirements. This cash flow planner is an important financial management tool to run a business and when provided to financial lenders provides the lenders with the confidence that you are on top of the financial aspects of your business, i.e., maximizes the financial institution's willingness to provide additional funding.

The **historical, current and planned production sections** provide vital information to the producer on the current grain available, and the potential grain grown and available to be sold at the end of the current crop year. Having good estimates on production allows producers to take advantage of potentially higher current prices and quicker access to premium delivery windows.

Trimble Ag Software keeps all of the important farm record information close at hand so farmers can make quick decisions when it comes to marketing grain and to make good financial decision to achieve financial success with their farm business.

Good record keeping is the foundation of superior planning and a winning strategy. Trimble Ag Software provides that foundation, and could be your first step towards significant improvements in your farm financial success.

NORTH AMERICA
Trimble Inc.
10368 Westmoor Drive
Westminster CO 80021
USA
1-800-282-4103
TABS_Sales@trimble.com
Please visit
agriculture.trimble.com/software