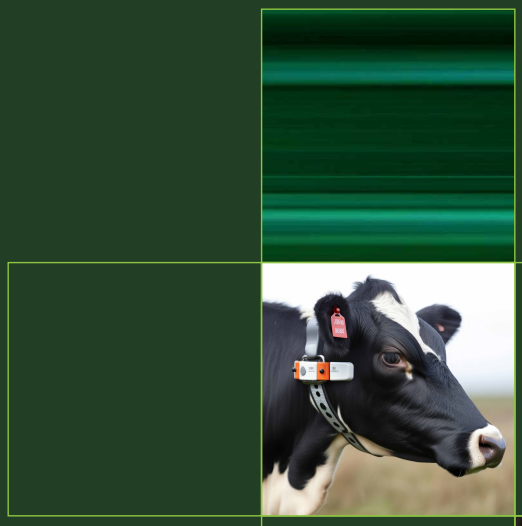
SMART FARMING

Intelligence Report

Navigating Ag Data & the Smart Farming Change Journey



A report from Farm Journal Intelligence on where producers are headed, and how we support them in getting there.

FARM JOURNAL

Introduction

Every year, U.S. producers take aim at more ambitious goals. Their inspiration might come from many sources: Customer demand for data-informed product stories, rapidly changing economic, labor and field conditions, and personal drive toward innovation, all of which can influence an operation. What is becoming clear is that one path to achieve these goals is powered by increased use of new agricultural technology, tools, and practices to create a "Smart Farming" experience.

The benefits to more tech-enabled agriculture are clear: more data at producer fingertips for making decisions. Improved efficiency and profitability. Less wasted time and energy. Better information for the supply chain, and consumers that are asking for it. The question now is: How can we help producers get connected to the technology solutions that work best for them?

For Farm Journal's "Smart Farming week", Smart Farming was defined as a persistent management strategy that empowers farmers and ranchers to collect, visualize and confidently act upon relevant data insights to enable precise, efficient, and sustainable production of food, fuel, feed, and fiber.

> "Smart Farming means making your life more efficient, so you don't have to focus on the mundane but instead on making the best product possible ... We only have so many hours in a day."
>
> –Lucas Fricke, 6th generation Nebraska hog and row crop farmer

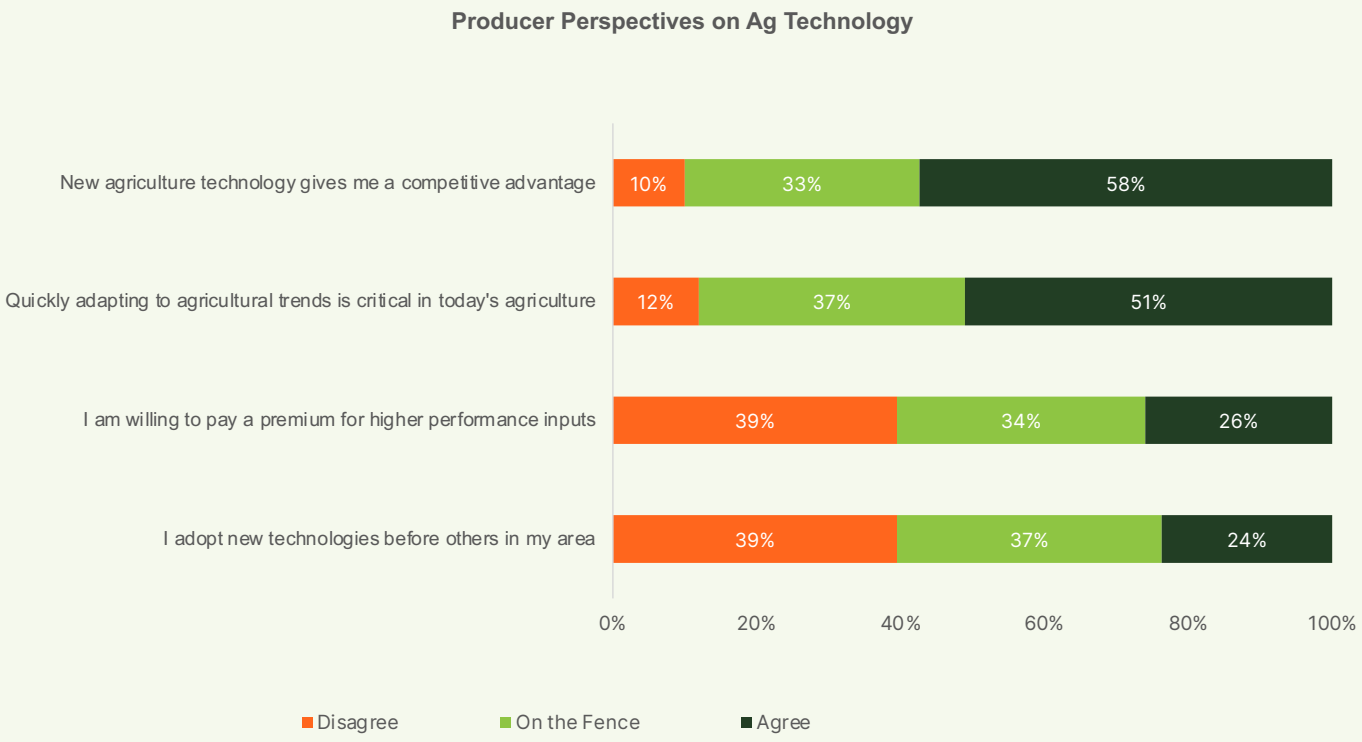
Any farmer, rancher or grower draws on their "field smarts" about what works on their operation, but which producers are inclined to adopt Smart Farming technology solutions — and why? Farm Journal took a deep dive into the decision-making journeys of the most tech-forward farmers in our community to provide some answers. The data referenced in this report is drawn from a variety of Farm Journal Intelligence products, representing row crop and livestock producers in 2023 and 2024.

Top Takeaway:

Find Future Efficiencies to Enable Smart Farming Operations Today

Smart Farming sentiments among producers show great promise overall:

- Over half of farmers agree new agtech gives them a competitive advantage, and that quickly adapting to trends is critical in today's agriculture.
- Four in 10 feel they are quicker to adopt than others in their area.
- Four in 10 are willing to pay a premium for higher performance inputs.



*Values might not equal 100% due to rounding.

To accelerate positive momentum, Smart Farming advocates should understand:

Producers prioritize financially viable, effective and easy-to-integrate Smart Farming solutions that fit into (rather than revolutionize) their operations — with more change on the way.

- Technology adoption today is most prevalent in the best-known categories, such as equipment monitors and technology focused on increasing input efficiency.
- However, the fastest-growing categories are in Artificial Intelligence enabled technology, such as selective or drone-enabled spraying and fully autonomous machinery.

Age isn't the predictor of technology adoption that many assume it will be.

- Producers with resource constraints might assess Smart Farming acquisitions as high risk. Signals from a producer's operations and behavior, rather than their demographics and geography, predict which ones will still be prepared to adopt.

Multiple barriers — technical, logistical, and personal — must be overcome for producers to make a more complete Smart Farming transition.

- Many producers are still under-equipped in their technical support infrastructure and require assurance of long-term partnership to see the need and value in many premium Smart Farming tools.

Nonetheless, there is a clear market to engage those that already see value: As shown, **58% of producers agree that Smart Farming technology gives them a competitive advantage** and are ready to hear more.

Key Finding #1:

The technology that farmers are most inclined to adopt today is focused on cost savings, from inputs to labor

The technologies that have gained the most traction in the market today are, unsurprisingly, those that offer clear ROI, saving money and time. But as we look toward the future, we see the rise of Artificial Intelligence based tech that will provide producers with real-time data and increased levels of precision.

What We Saw:

Ag Tech categories showing greatest demand in 2023-2024	Ag Tech categories gaining greatest momentum in 2025
Yield monitoring	Drone based field applications
Automated steering	Selective spraying technologies
Variable rate fertilizer application	Grain bin monitoring
Variable rate planting	Field level accounting for ROI
Advanced nutrient management	Fully autonomous machinery

What It Means:

Why the laser focus on efficiency for Smart Farming? Producers expressed that to invest in new agtech, it was "most important" to them that products have qualities that would make their lives easier and their operations more productive right out of the box, including being:

Financially viable
"Cost effectiveness" (74%), "ROI" (41%)

Effective in the field
"Crop yield optimization" (34%), "Data accuracy" (27%)

Simple to use and integrate
"User-friendly interface" (33%), "Compatibility" (17%)

As with most on-farm decisions, the ROI needs to pencil out for a decision to make sense. After that, the integration and ease of use of a new system is a key decision factor for a significant portion of producers. **Solution providers must be able to address these real needs of producers and articulate the value proposition for both their time and money with a focused and segmented engagement strategy.**

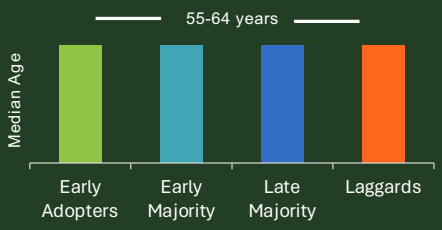
Key Finding #2:
The next generation is not necessarily more likely adopters

Conventional wisdom suggests that younger generations are more comfortable with technology, and therefore, more likely to adopt Smart Farming technology on their operations. The data suggests that the story is not quite that straightforward, and age is not an accurate predictor of Smart Farming readiness.

Low variation across adoption attitudes

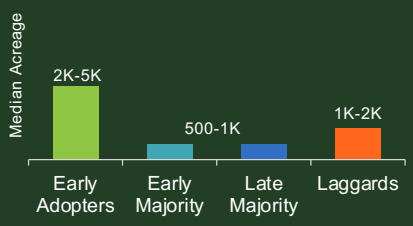
High variation across adoption attitudes

The median age of all groups is 55-64 years

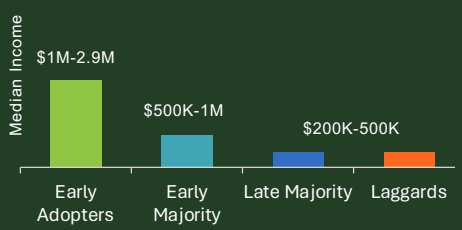


vs.

Early adopters and laggards direct larger operations



Higher incomes enable earlier tech adoption



What It Means:

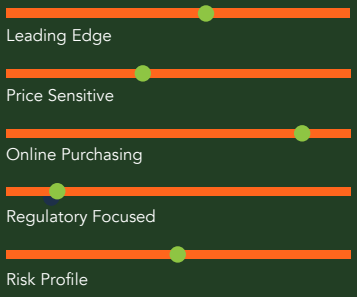
It turns out that operational size, attitudes towards risk, and self-perception as a leader outweigh the impact of their age and other demographics.

TECH SAVVY FARMER

CONSUMER

64 years old
Owner
2,731 acres
$868,858 gross farm income

ATTRIBUTES



23%

Say they are "early adopters."

They are more likely to be interested in new technology than the average farmer (10%)

TOP CROPS

Tech Savvy Farmers mostly grow:

Corn (27%)
Soybeans (23%)
Wheat (19%)

LIVESTOCK

Tech Savvy Farmers have at least 1 head of:

Beef (24%)
Dairy (11%)
Pigs (6%)

FARMING PRACTICES

In addition to direct engagement with our audience, Farm Journal Intelligence also examined those producers that showed the highest levels of interest in ag technology. The data shows that instead of age, other indicators proved to be better predictors of producers' likelihood to be attracted to ag tech solutions. What became apparent when tracking the correlation of age, acreage, and Gross Farm Income with adoption attitudes is that smaller or lower income operations may have less ability to invest their time and financial resources into Smart Farming tools.

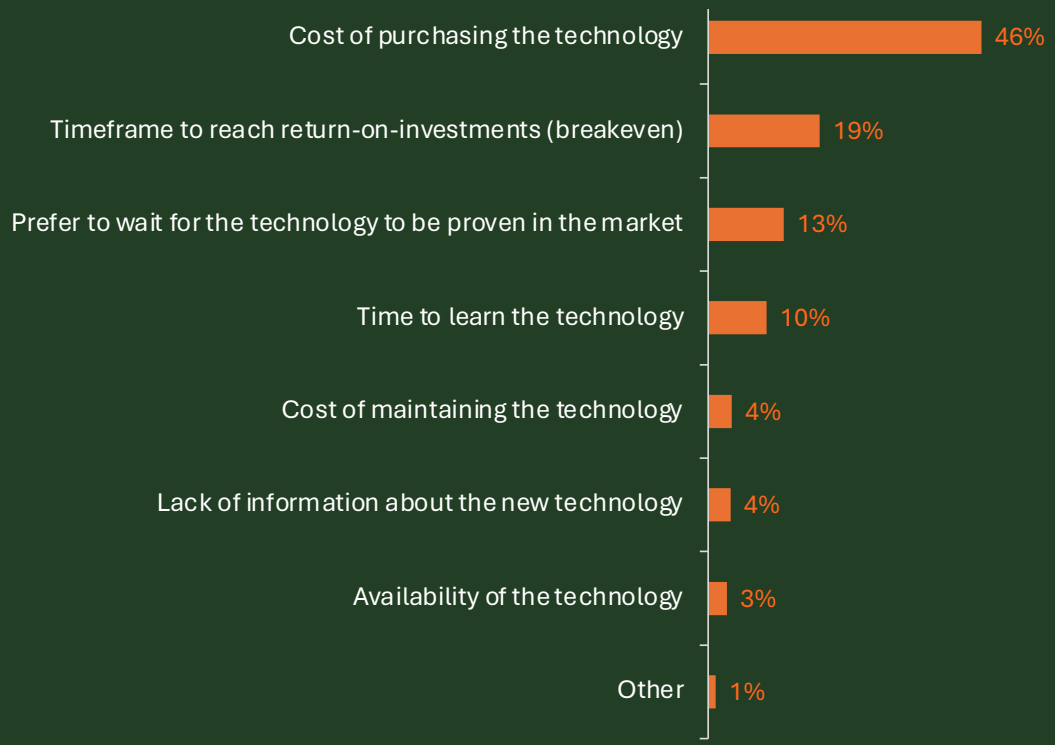
Responses to the question "How fast would you need a return-on-investment before adopting new ag technology?" further back this up. The most common answer was two to three years, reflecting that many operations don't have the capital to wait three seasons.

Key Finding #3:

Price of entry and payback considerations are top of mind, while underneath them are infrastructure considerations

The top barriers and appeals of Smart Farming adoption largely held true across age groups — both for farmers under 40 and otherwise. Key segments of producers are still feeling ambiguity about the value of making the Smart Farming transition, especially when considering which specific features are worth their premium.

Barriers To Adopting New Technology



What It Means:

Cost, timing, and proof of concept are obvious limiting factors for any producer's operational decisions. Producer self-reported barriers to adoption range from the obvious answers of "time and money" to concerns around time and solution maturity. This reality influences adoption rates.

Lurking beneath these considerations are infrastructure and training needs that, if not addressed, can create additional drag on smart farming tech adoption.

A deeper look at how producers are gathering and using data shows that:

» Production management remains an offline endeavor.

- Fewer than 20% of producers with self-driving equipment connect it to the Internet.
- More than 40% of producers opt out of cloud-based integrations for field monitoring, data analysis, and agronomic updates and recommendations.
- Offline producers cite low confidence in their training/familiarity, need for the service, information security, and equipment compatibility.

» Producers are not yet sold on the value of holistic 3rd party solutions.

- Only 1 in 4 producers use a machine company or retailer's offerings to store their farm agronomic data.
- More than 6% do not store data at all, while over half store it completely on their own (i.e., spreadsheets, notes).

» Producers are not using software as a source of truth for future planning.

- Only 1 in 3 producers uses farm management information, precision agriculture, or weather monitoring and forecasting software. Only 1 in 6 uses software to monitor their equipment.
- Fewer than 1 in 10 producers use data integrations for strategic planning and performance benchmarking.
- Supply chain software use is under 5% — barely on farmers' radar.

The implication:

Producers rely on their personal understanding and attitudes around their access to resources, operation structure, revenue model and ability to absorb time and risk. Their perception of value will also be impacted by the technical integration with their other operational systems.

The question becomes:

How do Smart Farming partners reach and engage producers in their specific target audience knowing that each has triggers for action and inaction and specific visions for the futures of their operations?

Start Small, but Plan for Growth

How to connect with tech-inclined growers with the Farm Journal Intelligence Ag Technology Playbook

A successful and efficient strategy hinges on deeply connecting the farmers that show the most interest with the solutions that exist today, and as well as designing future efforts to meet their needs.

1

Step 1: Understand the Tech-Savvy Farmer

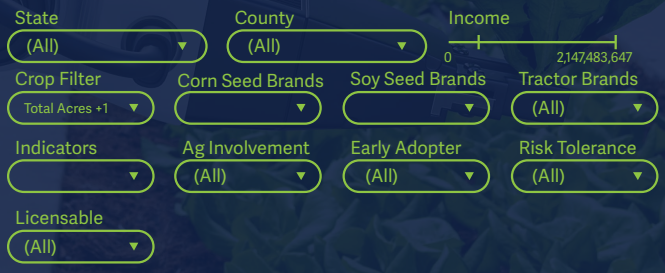
Uncover who is most likely to be receptive to smart-farm technology. Engagement and interest in smart farming topics can be an intent signal to help you pinpoint tech curious farmers and understand what they need and how to support them. Customer insights about who these farmers are, and what they care about, can ensure you deliver the right value, at the right time, in the right way.

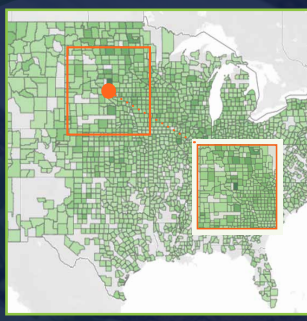
2

Step 2: Identify where the Tech-Savvy Farmer is

Focus is everything in a market overflowing with competition. By understanding where the farmers are that are most likely to be curious about a specific tech solution, we can focus outreach efforts, as well as enlist local dealers, who double as front-line educators, in those areas.

Identify hot spots where farmers show spiking interest and engagement with key topics to then reach out to dealers in those areas.





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Step 3: Recruit your best dealer and retailer partners

Engage your partners in the right places with the right solutions to serve tech-savvy producers.

4

Step 4: Support your dealer and retailer partners for success

Provide your partners with customer insights and training on how to understand and meet the needs and wants of the tech-curious producer.

5

Step 5: Connect farmers with your dealers and retailers

Use the hot spots where farmers show spiking interest in ag tech to prioritize digital engagement and help your partners focus their time and attention on the right customers.

6

Step 6: Evaluate, optimize and redeploy

Keep the process going and scale it.

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For more information, and for proprietary data and business intelligence to help connect with tech-curious producers, contact Rebecca Bartels at rbartels@farmjournal.com

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