Rabobank

US farmers need broader support to overcome barriers to adopting sustainable practices

RaboResearch
Food & Agribusiness
knowledge.rabobank.com

Eric Gibson
Crop Production
Sustainability Analyst

Contents

Summary

US farmers facing growing consumer and regulatory demand for more sustainable agriculture must first navigate the risks of operational change. These risks often slow adoption, reinforcing the need for robust risk management strategies.

In today's economic climate, overcoming barriers to adoption is especially challenging. While risk support should ease transitions, current programs often favor widely used crops and production methods – leaving alternative approaches underprotected.

This paper explores the risks influencing farmers' willingness to evolve their operations:

- Federal support programs – including crop insurance, disaster relief, and economic assistance – offer a critical safety net but don't fully meet the diverse needs of all farmers.
- Sustainable practices, though aimed at long-term productivity and value, can reduce short-term performance – highlighting the need for adaptive, transition-focused federal programs.

Disparity in support creates more barriers and can even amplify existing risks – curbing sustainable adoption. Farmers must weigh the risks of change and reduced support when stepping outside the norm. In a tough economic environment where most farmers are focused on preserving their operations for the next generation, many simply can't afford to take on greater risk to try something different.

Faced with this uneven playing field, many continue operating within current systems – limiting opportunities to meet growing sustainability goals.

While the One Big Beautiful Bill Act expands key farm safety net programs, questions remain about whether those efforts will meaningfully encourage further advancement of on-farm sustainability. A combined, concerted effort – including risk support, new market opportunities, and value chain engagement – may be necessary to help farmers meet rising consumer demands, build on decades of sustainability progress, and strengthen resilience for future generations.

Continued innovation meets the challenge of adequately managing on-farm risks

Change is inevitable and often positive, as evident in US agriculture. Since the mid-1900s, total factor productivity (TFP) – the growth of outputs relative to inputs – has increased annually by nearly 1.5%. Innovation drives agriculture, with farmers eagerly anticipating the next big advancement. However, implementing new production methods presents challenges that farmers

must navigate before adoption. This is especially true for many alternative production methods, which introduce different risks that may not be equally supported by current programs.

While US agriculture continues increasing outputs, many efforts to boost yields often do not fully align with growing regulatory and consumer demands to meet climate and nature goals, such as reducing emissions, conserving water, protecting wildlife, and minimizing waste. Efficiency gains have driven success in agriculture, but less attention has gone into meeting growing downstream demands for sustainability. To achieve such outcomes, farmers must strategically adjust operations – many on a field-by-field basis to accommodate variability. Before implementing large changes, especially those deviating from proven plans, farmers must understand the new stresses and risks that they may introduce.

Managing risk is essential for long-term success – a top priority for most US farms. This report explores some of the key risks and barriers to broader adoption of sustainable farming practices.

Understanding farm risks

Risk influences every farm decision, affecting profitability, long-term viability, and the health of the ecosystem farmers rely on. When adopting a new, unfamiliar method, producers must assess risks differently. This is one of the largest barriers to wider implementation of many production methods.

In production agriculture, the United States Department of Agriculture (USDA) highlights five different types of risk:

- **Production risk:** Weather, climate, disease, pests, and other natural forces that may influence the quality or quantity of production.
- **Price or market risk:** The prices a farmer may receive for crops or pay for inputs/supplies, which influence profitability.
- **Financial risk:** The need and ability to repay debt, associated interest expenses and volatility, the potential of a loan being called, and credit restrictions or availability.
- **Institutional risk:** Government and related actions that may result in outcomes such as production limitations, tax rules, price/risk support, or restrictions on waste management.
- **Human or personal risk:** Outcomes impacted by health or relationships, such as injury, illness, mental health, death, or divorce.

Most farm risks fall within one of these categories. Producers use various strategies to avoid, mitigate, or adapt to risk accordingly.

Some of the most common risks associated with adopting sustainable practices occur during the transition period, when a farmer becomes acclimated to new methods. Often, using something new leads to failure or limited success. Farmers may consult peers, but ultimately, they must evaluate both the short- and long-term benefits unique to their operation.[1] Outcomes vary by placement, conditions, and efficacy – no two applications yield the same results. This requires farmers to test new practices under real growing conditions before full-scale deployment. While adoption may produce positive outcomes, change carries risks capable of influencing adoption (see table 1).

[1] Kolady, D., Zhang, W., Wang, T., & Ulrich-Schad, J. (2021). Spatially Mediated Peer Effects in the Adoption of Conservation Agriculture Practices. *Journal of Agricultural and Applied Economics*, 53(1), 1–20. doi:10.1017/aae.2020.24

Table 1: Common risks associated with example sustainable practices

No-till planting	*Cover cropping*	*Biological inputs*	*Nonsynthetic fertilizers*
Up-front cost/investment	Increased production costs	Increased production costs	Increased production costs
Increased reliance on herbicides	Increased pest pressures	Difficulty measuring outcomes	Variable nutrient availability
Difficulty incorporating some manures	Increased nutrient demand	Increased application costs	Increased application costs
	Moisture variability		

Source: RaboResearch 2025

The current economy for many agricultural commodities – characterized by tight operating profit margins – discourages field trials and implementing new methods.[2] Limited, and at times unattainable, profitability reduces the appetite for assuming additional risks and adopting new methods. While not all outcomes result in a negative experience or ROI, balancing risks often leads producers to stick with familiar methods and plans.

Success breeds continuity, and proven plans are rarely overhauled. Instead, farmers focus on continuing success and increasing it. Small alterations may occur from year to year and field to field, but large changes are rare. Farmers typically test changes on limited acres before scaling up. Simply put, the wrong change can hurt. Tight margins reduce farmers' ability to manage risk or invest elsewhere. An "aim small, miss small" mentality is common when implementing change.

The reality is that many sustainable practices come with higher operational costs and, in some cases, reduced yields – particularly in the short term.[3] While some efforts deliver immediate benefits, others may lead to persistent underperformance, raising serious questions about their fit within a given operation. The structure of today's risk mitigation programs poorly accommodates variability. In fact, when farmers pursue extensive changes – such as a full transition from conventional to regenerative systems – the lack of tailored support can undermine long-term economic sustainability. In these scenarios, the system doesn't just fall short – it can become a barrier to progress.

How are farmers managing production risks?

In today's volatile markets, resilience alone isn't enough. Federal tools like crop insurance, disaster relief, and supplemental programs (farm safety net programs) stabilize the agri-food supply but often fall short for nontraditional operations, as programs are designed around common production.

Agricultural safety net programs

Crop insurance

The most common crop insurance products protect against yield or revenue losses due to extreme weather, pests, or market volatility. Coverage levels for these multi-peril policies range

[2] *Tightening the corn belt: How US farmers adjust input spending when commodity prices fall*, RaboResearch 2024

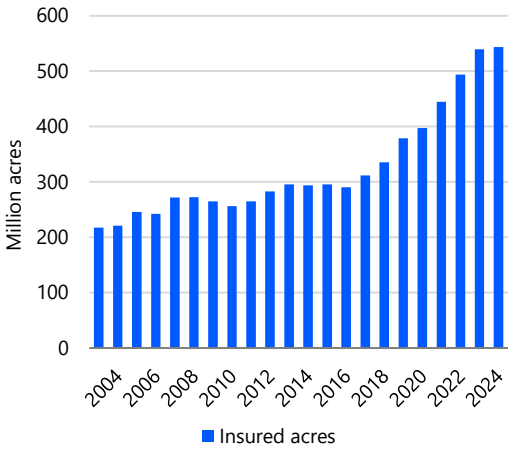
[3] Moret-Bailly, S., Muro, M. (2024). The costs and benefits of transitioning to sustainable agriculture in the EU, Institute for European Environmental Policy

from 50% to 95%, based on historical crop performance. Premiums are subsidized by federal funds as outlined in the Farm Bill and in the One Big Beautiful Bill Act.

Major US crops are eligible for crop-specific yield or revenue protection. Specialized policies also exist for less common crops and operations with unique risk profiles. Policy add-ons, such as hail coverage, are available for region-specific risks.

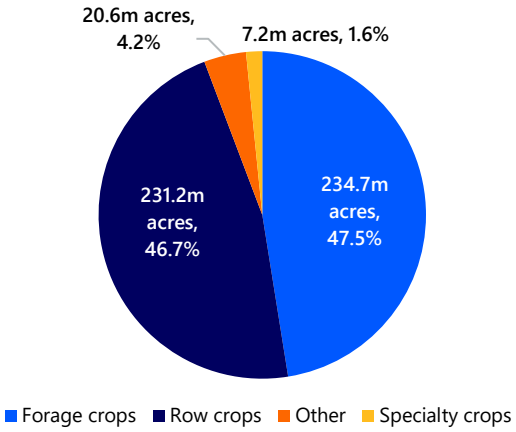
In 2024, a record 543 million acres[4] – about 90% of eligible farmland – were insured under crop insurance programs (see figure 1). Forage crops, which represented only 16% of policies in 2016, have increased to almost 48% in recent years, highlighting programs' adaptability to evolving industry needs (see figure 2).

Figure 1: Annual crop insurance coverage, 2003-2024



Source: USDA Risk Management Agency (RMA), RaboResearch 2025

Figure 2: Production share of crop insurance policies, 2023



Source: USDA RMA, RaboResearch 2025

Economic and disaster relief, supplemental support

The federal government provides direct payments to farmers during natural disasters (e.g., drought) or economic downturns. Safety net programs like the Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) programs offer automatic payments based on revenue or price triggers. These programs are authorized under the omnibus Farm Bill.

Conservation and infrastructure support

Programs through the USDA's Natural Resources Conservation Service (NRCS), such as the Conservation Reserve Program (CRP) and Environmental Quality Incentives Program (EQIP), help producers adopt conservation practices and invest in infrastructure. Additionally, the USDA's Farm Service Agency (FSA) offers loans to support resilience-building efforts across the agricultural sector.

[4] National Crop Insurance Services (2025). Crop Insurers Release 2024 Results as 2025 Sales Closing Date Nears

Outcomes of sustainability efforts may not align well with existing support programs

While federal programs support much of US agriculture, that support is not distributed equally. Some alternative practices can reduce a farmer's eligibility for key programs, effectively penalizing them for deviating from more common production methods. Some structural shortcomings and considerations include yield reductions, operational diversity, value-added goods, and designations of farming practices.

Yield reductions: Crop insurance and other programs rely upon a farm's annual production history (APH). Practices causing short- or long-term yield reductions may limit future coverage and available support.

Diversified operations: Diversification is a proven risk management strategy, especially in agriculture. Many farmers diversify by integrating livestock (e.g., a row crop farmer also raising a cow-calf herd). However, overlapping enterprises can reduce eligibility or limit access to certain programs – and in some cases, disqualify the operation entirely – an outcome that runs counter to the purpose of spreading risk.

Producing unique crops is another strategy farmers pursue to differentiate and strengthen their operations. While many crops have species-specific support mechanisms, less common crops – such as hemp or buckwheat – often lack equivalent coverage. Alternative risk management tools exist but are typically costly and may not offer sufficient protection.

Additionally, base acres – the crop-specific designations used to determine eligibility for ARC and PLC programs – can limit support for diversified operations. As of 2025, 22 crops are eligible under these programs, with corn, soybeans, and wheat accounting for 84% of all base acres. However, the One Big Beautiful Bill Act adjusts eligibility by allowing up to 15% of a farm's base to include eligible noncovered commodity acres. While these commodities do not receive their own base acre designation, they can be added to existing allocations, providing additional economic protection for previously uncovered production scenarios.

Value-added goods: Revenue-based support is tied to commodity prices. While some sustainably produced products may earn price premiums, that added value is often not fully protected, leaving the premium exposed.

Implementing "different" farming practices: All crop insurance policies require adherence to "good farming practices" (GFP), defined as "prudent and responsible" by local experts.[5] Practices like intercropping are often disallowed. Similarly, cover crops must be terminated according to zone-specific rules, limiting their use. Major changes reducing yields can trigger disqualification.

Table 2 illustrates how adopting an alternative, less common production practice – such as reducing nitrogen fertilizer use to align with the environmental optimum rate – can affect crop insurance support. It compares this approach to both a standard Corn Belt nitrogen-application rate (left column) and a more advanced nitrogen-reduction strategy (right column). When yields decline, such as during a drought, producers with higher established APHs receive greater support. While these scenarios are not directly comparable, they highlight how certain practices can impact a farm's financial resilience. The example below summarizes how reduced production levels and APH influence indemnity payments under an 85% coverage revenue protection policy.

[5] USDA RMA (2025). *Good Farming Practice Determination Standards Handbook: 2025 and Succeeding Crop Years*.

Table 2: Potential impact of nitrogen reduction on crop insurance indemnity

	Pre-nitrogen reduction APH: 200 bu/acre	*Integrated nitrogen reduction** APH: 188 bu/acre*	*Integrated nitrogen reduction APH: 175 bu/acre*
Production level*	Indemnity payment received based upon production level and USD 4.00 price benchmark (price benchmark for payment)		
169 bu/acre	USD 4.00	0	0
158.8 bu/acre	USD 40.80	USD 4.00	0
147.75 bu/acre	USD 89.00	USD 48.20	USD 4.00

*Production level is displayed at 1 bushel below the trigger level, or the production point at which an indemnity payment will be made. The trigger level is determined by the coverage level, in this case 85% established APH.
**Production level displayed is based upon reducing nitrogen fertilizer to its environmental optimum, which may result in a 6% yield reduction while only slightly reducing nitrogen loss.[6]
Source: USDA RMA, RaboResearch 2025

Common concerns and barriers limiting further adoption of sustainable practices

Every farmer views their operation differently, but many share common concerns that limit further adoption of more sustainable practices. Not everyone has the same appetite for risk, especially when changing long-standing, profitable systems. Below are anecdotal examples of the risks farmers often cite as barriers to further adoption.

"Transitioning my operation is already challenging enough without reducing my risk support."

Short-term performance setbacks can lower a crop's APH, reducing long-term insurance coverage. Farmers must weigh the cost of new practices against reduced support.

"I am at a competitive disadvantage."

Reduced income and risk support can leave farmers vulnerable compared to peers with stronger safety nets. In competitive land markets, those with better insurance often have an edge in leasing or purchasing ground and in securing loans since lenders typically require coverage.

"The methods I want to use disqualify me from utilizing some insurance products."

Due to the inclusion of GFP guidelines, some practices, particularly those less utilized and researched, may be restricted. An insurance agent can assist farmers in understanding GFP qualifications specific to their region.

"I am producing a premium product, but marketing opportunities are limited."

Despite demand for sustainable goods, many farmers struggle to access premium markets. Higher production costs require higher returns, but revenue-based support is tied to commodity prices. For example, non-GMO corn may sell for more, but coverage is based on lower, standard prices – leaving the premium value unprotected.[7]

"It didn't work for my neighbor, so it probably will not work for me."

[6] Iowa State University News Service (2025). Ideal Nitrogen Fertilizer Rates in Corn Belt Have Been Climbing for Decades, Study Shows

[7] *Financial Times*: Selling sustainability: what consumers really want

Peer observations are some of the most impactful influences in farming. If a neighbor's attempt at a new practice fails, others may expect the same. Even if conditions differ, the perceived risk can outweigh potential benefits.

"I can't add more cost right now."

With margins tight, adding costs – especially those that increase other risks – is difficult. New practices may tie up capital and limit other opportunities, making them hard to justify.

"My kids can worry about that after I'm gone."

Older farmers may avoid major changes, leaving them to the next generation. A lack of motivation or comfort with change can increase risk potential. Many would rather pass on a stable operation than risk short-term setbacks from unproven changes.

These examples highlight the inherently high-risk nature of farming – especially when adopting new or different methods – and underscore a critical challenge curbing further adoption: When innovation isn't rewarded, farmers stay the course.

Survey says

RaboResearch recently surveyed over 700 US farmers and ranchers, focusing on how their views on sustainability influence their on-farm decisions.

~50% struggle to make sense of the economics of sustainable efforts and/or to implement many practices deemed sustainable	**19%** have no qualms with implementing sustainable practices into their operations and business	**54%** prioritize long-term, generational success when describing their sustainability goals

These findings underscore the barriers hindering further adoption. Risk management plays a critical role in on-farm decision-making and influences willingness to explore alternative methods. Because succession planning and long-term success are priorities for most producers, economic stability and risk mitigation remain top of mind.

Alternative means for managing sustainable risks

Whole-Farm Revenue Protection

Whole-Farm Revenue Protection (WFRP) policies are designed to insure all qualifying farm revenue under one policy. They were created to support diverse operations, producers of unique or premium products, and those using less conventional methods. WFRP is especially relevant for highly sustainable operations, including organic, regenerative, or otherwise nontraditional systems.

Of 2.1 million crop insurance policies sold, fewer than 2,000 are WFRPs, suggesting they are not meeting farmer needs despite their intended aim. WFRP policies are complex and create significant administrative burden for both farmers and insurance agents. One familiar with these products referred to them as a "nightmare" to write – a fact reflected in the difficulty many farmers face finding agents willing to offer them. Premiums can also be prohibitively expensive.

According to the National Sustainable Agriculture Coalition, states with smaller, diversified operations are significantly less likely to carry crop insurance due to a lack of policies that fit their

needs – further signaling that WFRP is not meeting its intended purpose.[8] Similarly, the USDA's Economic Research Service reports that in 2022 only 9%[9] of farms growing specialty products participated in federal crop insurance programs, compared to 62% of row crop operations, representing over 75% of eligible acres.[10] These figures highlight the need for improved products tailored to smaller, diversified, and premium producers.

Written agreements

Written agreements (WA) allow certain crop insurance policies to be customized when standard terms don't meet a farmer's needs. For example, if a farmer grows a crop in a county with no historical data, a WA can allow the crop to be insured using data from a nearby county. In another case, a farmer producing a contracted premium product may qualify to have that price reflected in their revenue protection. WAs can also protect against on-farm production variability, as standard policies are often based on whole-farm yield averages. By allowing the creation of geographic or productivity-based segments, WAs enable producers to account for yield differences caused by factors such as soil type or topography.

While WAs offer flexibility, they are not a universal solution. Each WA must be individually approved by the USDA's Risk Management Agency (RMA), and the process can be lengthy and administratively burdensome. This discourages some insurance agents from writing them, as they often prefer policies that require less time and effort. Additionally, many farmers are unaware that WAs are even an option – partly due to limited agent experience or interest in offering them.

Other incentives and programs specifically targeting increased sustainability on farms

Many programs and partnerships are taking a "carrot" approach to encourage increased adoption of sustainable practices. Companies and organizations across the value chain are expanding their support for these efforts to meet growing downstream demands and fulfill their own corporate sustainability goals.

Table 3: Examples of programs supporting farmers as they implement sustainable production methods into their operations

ADM re:generations	*Libby's*	*The Blue Diamond Orchard Stewardship Incentive Program*
Supports the adoption of regenerative practices in various row crops	Supports growers' efforts to produce pumpkins sustainably	Supports almond growers adopting climate-smart and regenerative practices
Incentive: Per unit or acre monetary incentive	Incentive: Market access, monetary premium	Incentive: Per unit or acre monetary incentive

Source: ADM, Nestlé, Blue Diamond, RaboResearch 2025

New enrollment opportunities continue to emerge, ranging from large-scale national initiatives to smaller, locally driven programs. Even when not fully offsetting risks, premiums offer a welcome option that many producers are pursuing.

[8] National Sustainable Agriculture Coalition (2025). Uninsured: Federal Crop Insurance Program Leaves Most Farms Unprotected

[9] USDA ERS. Risk Management - Crop Insurance at a Glance

[10] USDA ERS. Crop insurance payments to farmers vary by farm type

Sustainability's path forward

Increasing the sustainability of agricultural production is essential – but it takes more than acknowledgment. It requires action and opportunities that farmers can count on. Farmers cannot carry this responsibility alone. If change is necessary, support for farmers must be shared across private industry, public institutions, regulatory bodies, and consumers. When farmers produce improved products with high-demand attributes, they expect the value to reflect the added cost and effort required – value that is often missing in current systems.

As economic pressures mount, farmers may welcome new opportunities to tap into emerging markets and unlock value – so long as the right resources are in place to support their decisions. Value propositions must align with farmers' efforts to produce superior products and clearly signal that stewardship, innovation, and risk will be rewarded. Innovation has long driven efficient, reliable production to meet the needs of a growing world.

A strong public-private partnership is needed to match new farming practices with farm safety net programs and other initiatives. Aligning proven, trusted support with the evolving needs of agriculture must be a priority. When farmers have the confidence to innovate and evolve, they're better positioned to take on the next challenge. Building a foundation for continuous advancement opens the door for downstream demand to translate into upstream reward – ensuring that positive change is not only possible but continually prioritized.

Because most risk support available to producers is administered through federal programs, checks and balances are essential to improve the current risk management structure. Congress is currently drafting a new farm bill, which could introduce additional tools to support sustainable agriculture. The growing attention on the Make America Healthy Again (MAHA) movement and increasing public calls to restructure the US food system may create momentum to include provisions that promote regenerative and climate-smart practices.

While tariffs and trade disruptions continue to challenge agriculture, President Trump has reiterated his administration's commitment to the sector. The One Big Beautiful Bill Act adds USD 66 billion in agriculture-related spending over the next decade, with nearly USD 60 billion directed toward farm safety net programs[11] – including higher reference prices under ARC and PLC, expanded crop insurance, and more flexible base acreage rules.

These boosts could create the economic conditions needed for farmers to invest in long-term resilience. However, if new funding simply extends existing risk management structures, it may reinforce the very barriers that limit innovation. Programs prioritizing certain crops and rewarding maximum production often discourage diversification, input efficiency, and other sustainable practices. Without structural reform to include diverse production methods, added support may further entrench conventional systems – leaving alternative approaches underprotected and underutilized.

If the right resources exist, will farmers adapt?

History and research[12] suggest they will, especially when support enables producers to reduce risk and build long-term resilience. Equipping producers with the necessary tools is an essential part of shaping the future of US and global agriculture.

[11] H.R.1 - 119th Congress (2025-2026): One Big Beautiful Bill Act | Library of Congress

[12] USDA NIFA. Safeguarding the Nation's Farmers

Imprint

RaboResearch
Food & Agribusiness
knowledge.rabobank.com

Eric Gibson	Crop Production Sustainability Analyst	eric.gibson@raboag.com

Disclaimer