Farm Foundation
Accelerating people & ideas

Building trust and understanding at the intersection of agriculture and society.

ISSUE REPORT

February 2024

Limited Understanding and Differing Perceptions of Agricultural Sustainability Point to the Need for More Consumer Education

Executive Summary

Policymakers and agri-food businesses around the world are striving to accelerate the transition to more sustainable agricultural systems, including by encouraging consumers to purchase food products that are more sustainably produced. An issue with this strategy could arise if consumers' understanding of agricultural sustainability and the terms used to describe it deviate from producers' understanding. In these cases, market signals from consumers to producers and vice versa would be eroded by divergent lexicons, creating muddled market outcomes. Based on a survey of U.S. households and food systems experts, we find dramatic differences between consumers' and producers' understandings of what is meant by sustainable agriculture, particularly concerning the importance of economic sustainability. Overall, this report advocates for a shared understanding of sustainability goals facilitated through better communication and education around sustainable agriculture. A core takeaway for policymakers and agri-food businesses is the need for more consumer education about sustainable agriculture to make market approaches work.

By Trey Malone and Elise H. Golan

Dr. Malone is an agri-food economist on faculty at the University of Arkansas. In 2023, he served as Farm Foundation's Agricultural Economics Fellow for Sustainable Food Systems.

Dr. Golan is the director for sustainable development at the U.S. Department of Agriculture. In this role, she provides leadership in planning, coordinating, and analyzing the Department's policies and programs related to sustainable agriculture and sustainable food systems.

About this Issue Report

This Farm Foundation Issue Report provides an overview of the lexicon of sustainable agriculture. It also summarizes consumer understanding of what is meant by sustainable agriculture.

Policymakers and agri-food businesses worldwide are striving to accelerate the transition to more sustainable agricultural production. They have a range of tools to achieve this, such as incentive programs, environmental-use laws, and R&D. Increasingly, policymakers are turning to consumer demand as a tool to stimulate more sustainable agricultural production. The premise behind this approach is that increased demand for sustainably produced products, particularly when such demand includes a willingness to pay higher prices, could grow markets for these products and incentivize farmers to expand the use of sustainable production practices. This approach only works, however, if consumers' understanding of agricultural sustainability, and the terms used to describe it, is similar to policymakers' and producers' understandings. If not, market outcomes would fail to reflect consumer choice, eroding both market stability and producers' incentives to adopt more sustainable production practices.

In this paper, we explore consumer and producer perceptions of sustainable agriculture. We start with an overview of the official United Nations and U.S. government usage of the terms "sustainable development" and sustainable agriculture. We note the importance these official usages place on a holistic approach to sustainability that balances three dimensions of development: economic, social, and environmental. We then present the results of a survey of industry experts/producers and U.S. consumers exploring their perceptions of sustainable agriculture. Results reveal overall positive perceptions of the concept of sustainable agriculture but variation between the two groups with respect to the importance of economic sustainability and differences in the interpretation of the lexicon describing different sustainability production approaches. We then examine the ramifications of these findings for policies that seek to leverage consumer-driven market demand to stimulate more expansion of sustainable agricultural production. Our analysis highlights the need for sustainable agriculture policy and marketing strategies to consider the perspectives of all stakeholders and provide targeted education and outreach.

I. History and Usage of the Term "Sustainable" and Sustainable Agricultural Development

The notion of sustainable development and international efforts to advance it date back to the World Commission on Environment and Development's report "Our Common Future," or more commonly, the "Brundtland Report." In this report, the Commission defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Notably, this definition does not emphasize environmental sustainability, as was the case with the 1972 Stockholm Conference on the Human Environment, but rather establishes a more holistic approach recognizing the needs of current populations, including economic and social needs.

Over time, this holistic approach began to be generally described as the three pillars or dimensions of sustainable development: social, economic, and environmental. By the time of the RIO+20 Conference in 2012, the three dimensions of sustainability—or the three P's: people, planet, and prosperity—were firmly rooted as core to the notion of sustainable

development. They are reflected in the RIO+20 outcome document, the *2030 Agenda for Sustainable Development*, which includes the introductory commitment: "We are committed to achieving sustainable development in its three dimensions—economic, social and environmental—in a balanced and integrated manner." Furthermore, the text notes that the 17 Sustainable Development Goals and 169 targets included in the *Agenda* "are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental" *(United Nations, 2015).*

Reflecting the need to balance the three dimensions of sustainable development, the target for the Sustainable Development Goal on sustainable agriculture (SDG 2.4.1) includes indicators on economic, environmental, and social objectives **(Table 1)**.

TABLE 1: SDG 2.4.1 ON SUSTAINABLE AGRICULTURE REFLECTS THE 3 DIMENSIONS

Dimensions	Theme
Economic	Land productivity Profitability
	Resilience
Environmental	Soil health
	Water use
	Fertilizer pollution risk
	Pesticide risk
	Biodiversity
Social	Decent employment
	Food security
	Land tenure

In the United States, the U.S. Department of Agriculture (USDA) also embraces an approach to sustainability that balances the three dimensions *(USDA, 2023)*. This approach has its roots in the 1977 and 1990 "Farm Bills" *(USG, 1990)*, which also embrace the three dimensions, describing sustainable agriculture as an integrated system of plant and animal production practices having a site-specific application that will, over the long term:

- *satisfy human food and fiber needs;*
- *enhance environmental quality and the natural resource base upon which the agricultural economy depends;*
- *make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls;*
- *sustain the economic viability of farm operations;*
- *enhance the quality of life for farmers and society as a whole.*

II. Definitions of Other Common Terms

Embedded within debates on sustainability are many related similar concepts and approaches. With those concepts and approaches come other words within the lexicon of sustainable agriculture with their own specific definitions. Below is a list of some definitions for similar words and review articles that describe each word. That said, there are many possible definitions for many of these words and the USDA has not endorsed any of these.

Regenerative Agriculture:

Regenerative agriculture is an approach to farming that emphasizes soil conservation as a primary objective. It aims to regenerate and contribute to multiple ecosystem services, focusing on improving the environmental, social, and economic dimensions of sustainable food production. This approach involves enhancing soil health and biodiversity, optimizing resource management, and aligning agricultural practices with ecological principles to support sustainable food systems. The definition underlines the importance of soil as a fundamental element in regenerative agriculture, serving as the basis for a range of ecological and sustainable benefits *(Schreefel et al., 2020)*.

Resilient Agriculture:

Resilience can be understood as the capacity of agricultural systems to adapt and thrive amid unpredictable changes and challenges. It emphasizes the importance of designing and managing farming systems in a way that allows them to be flexible and responsive to unforeseen events, such as climate change, economic shifts, and societal transformations. This approach calls for a balance between maintaining efficiency in stable times and being adaptable in times of change, highlighting the need for agricultural systems to be dynamic and versatile in the face of uncertainty. The article underscores the significance of considering both the natural and socioeconomic aspects of farming in building resilience *(Darnhofer, 2021)*.

Climate-Smart Agriculture:

Climate-smart agriculture (CSA) is an approach that aims to reorient agricultural systems to support development and ensure food security under climate change effectively. CSA seeks to achieve three main objectives: sustainably increasing agricultural productivity and incomes, adapting and building resilience to climate change, and reducing and removing greenhouse gas emissions. The definition emphasizes that CSA is not a specific agricultural technology or practice but rather a way to identify and operationalize sustainable agricultural development within the specific context of climate change. It is an integrated approach to managing landscapes—cropland, livestock, forests, and fisheries—that addresses the interlinked challenges of food security and climate change *(The World Bank, 2023).*

Organic Agriculture:

Organic agriculture is a system that seeks to emphasize ecological processes, biodiversity, and cycles adapted to local conditions rather than the use of synthetic inputs, such as fertilizers, pesticides, and genetically modified seeds. It aims to promote and enhance agro-ecosystem health, including soil fertility, biological activity, and ecological balance *(Seufert et al., 2017).*

Regenerative Organic Agriculture:

Regenerative organic agriculture combines the principles of organic agriculture with practices aimed at actively revitalizing soil health and the ecosystem. Adopting regenerative organic methods

involves a holistic strategy focused on enhancing biodiversity, improving the water cycle, and increasing carbon sequestration in the soil. This approach is characterized by crop rotation, cover cropping, reduced tillage, and integrated livestock management. The goal of such practices is to contribute to long-term soil health and increased resilience against climate change *(Rodale Institute, 2023).*

Agroecology:

Agroecology integrates ecological principles and, in some cases, sociopolitical equity considerations with food production systems. For agribusiness firms, agroecology means prioritizing biodiversity, sustaining natural resources, and supporting the well-being of communities. This approach involves diversifying crops and livestock, promoting natural pest control methods, and enhancing soil fertility through organic practices. Agroecology also emphasizes local knowledge and community participation, ensuring that farming practices are adapted to specific environmental and socioeconomic contexts *(Wezel et al., 2009).*

Conservation Agriculture:

Conservation agriculture focuses on minimal soil disturbance, permanent soil cover, and crop rotation and diversification. This method emphasizes soil health and balances productivity with environmental stewardship. In other words, a conservation agriculture farming system aims to conserve and improve the soil, water, and biodiversity while maintaining or increasing crop yields *(Corsi & Muminjanov, 2019).*

III. Leveraging Consumer Demand to Incentivize More Sustainable Agricultural Production

A recent manifestation of global efforts to leverage consumer demand to stimulate greater use of more agricultural production is Sustainable Development Goal 12. This goal, which is on sustainable consumption and production patterns, seeks to leverage consumer choice to support more sustainable production patterns. It stresses the need to raise consumer awareness and information about sustainable development to engender more sustainable consumption patterns.

In the United States, one of the USDA's flagship efforts to advance sustainable agricultural production aims to leverage consumer demand to create markets for climate-smart commodities and foods. The expectation is that these new markets will deliver meaningful benefits to support increased use of sustainable production practices. The USDA is investing more than $3.1 billion for 141 projects through this effort. Each project must include a plan to develop markets and promote the resulting climate-smart commodities.

The question for any policymaker seeking to leverage consumer demand to accelerate sustainable agricultural production is whether a large enough segment of consumers, when given the choice, will choose a more sustainably produced product over other products. Fundamental to this question is whether consumers understand the sustainability concept and lexicon well enough to make educated choices. If not, the question then becomes "what do consumers think they are buying when they buy sustainable agricultural products or other similarly marketed products?"

IV. Consumer and Producer Perceptions of Agricultural Sustainability

We now focus on understanding how distinct stakeholder groups conceptualize sustainability in agriculture. This inquiry delves into the interpretations of sustainability held by industry experts and U.S. consumers. By exploring similarities and differences between these viewpoints, we seek to reveal gaps in understanding that might erode market signals for more sustainable agricultural products and production. To be sure we included all relevant details in the survey, we conducted a pilot of qualitative interviews with eight Farm Foundation Round Table Fellows in June 2023. The final survey took approximately 5 to 10 minutes to complete.[1]

[1] The full survey instrument can be found in the Appendix.

To collect our sample of industry expert responses, we focused on the network within Farm Foundation. Farm Foundation comprises a diverse group of decision-makers spanning different roles within the agriculture sector, including producers, industry representatives, scholars, policymakers, and non-profit leaders. A total of 83 people from the Farm Foundation network and 1,033 from the consumer panel answered the survey. We used a "snowball" approach to our Farm Foundation sample, starting with an email to the Farm Foundation listserv and postings to their social media channels. Most of the Farm Foundation sample (79%) had over 15 years of experience in the agri-food system. This broad representation of stakeholders makes the Farm Foundation ecosystem a uniquely valuable sample for exploring differences in opinions about sustainable agriculture. Relative to a lay audience of consumers, we expect this sample to approach the concept of sustainability from a broader, systemic perspective as they are likely more well-versed in the nuances of agricultural policy and scientific research. Farm Foundation stakeholders are often involved in decision-making processes that can have a far-reaching impact on the agri-food system. As such, the collective opinion of the Farm Foundation ecosystem can serve as a bellwether for broader shifts in attitudes and practices related to sustainable agriculture, providing a multifaceted understanding of how sustainability is interpreted across different sectors.

Our second target group comprises a nationally representative sample of 1,033 U.S. consumers, collected via professional survey sampling company Qualtrics. As a more diverse group, we anticipate that their views on sustainability are influenced by their values, beliefs, and understanding of food production systems—which is likely to be limited *(van Bussel et al., 2022).* Though modern consumers are increasingly interested in where and how their food is produced, marketing, media portrayals, and popular discourse around food and agriculture will likely influence their understanding of sustainability. For them, sustainability might be more often equated with ideas like organic farming, local food, animal welfare, and fair trade. Collectively, these groups provide diverse insights into the perceptions of sustainable agriculture language. Differences and similarities between these demographic groups will likely reflect their perspectives and understanding of agriculture itself.

Our core objective is to understand perceptions and opinions about sustainable agriculture among the target groups. To do this, we focus on the terminology used in sustainable agriculture marketing to reveal core concepts and perceptions of sustainable agriculture between the groups. As these words become increasingly common, their meanings may

...continued on page 8

become diluted or misinterpreted *(van Bussel et al., 2022).* Identifying common themes in what people mean when they use these terms can create a more comprehensive dialogue surrounding sustainable agriculture.

Finding #1: Both Groups Have Positive Perceptions of the Concept "Sustainable Agriculture"

Figures 1A and **1B** reveal the varying perceptions of key terms related to sustainable agriculture between the two groups. **Figure 1A** represents the opinions of the Farm Foundation sample regarding various sustainability-related concepts. The data reveals a nuanced understanding and perception of these terms among stakeholders deeply involved in the agricultural sector. The terms "sustainable," "regenerative," and "climate-smart" generally received positive responses, highlighting a favorable view of these practices within the agricultural community. The term "organic" received a much less enthusiastic response from the Farm Foundation sample, suggesting a more complex or varied perception of organic agriculture among these stakeholders. This could be due to the multifaceted nature of organic farming, encompassing both its benefits and challenges, such as certification processes and market dynamics. **Figure 1B** presents the opinions of the consumer sample on the same set of terms. Like the Farm Foundation sample, consumers also positively view "sustainable" and "regenerative" agriculture, indicating a public appreciation for these practices. However, the consumer responses to "organic" are more favorable than the Farm Foundation sample. This could reflect a consumer association of organic products with health and environmental benefits.

The overall positive response to terms like "sustainable" and "regenerative" across both samples suggests a growing consensus on the importance and value of these approaches in agriculture. However, the nuances in the perceptions of these terms, especially the less enthusiastic view of organic farming by the Farm Foundation sample, underline the complexity of sustainable agriculture's lexicon and the varied interpretations among stakeholders. This underscores the need for clear communication and education around these terms to align the different perspectives and foster a shared understanding of sustainability goals in agriculture. The relatively large percentage of consumer responses indicating "Neither Negative or Positive" opinions of the terms suggest uncertainly about their meaning, further underscoring the importance of education and outreach in the creation of markets for products differentiated by sustainability approaches.

FIGURE 1. RESPONSE TO THE QUESTION: "WHAT IS YOUR OPINION OF THE FOLLOWING CONCEPTS AS THEY RELATE TO AGRICULTURE? (1 - VERY NEGATIVE, TO 5 - VERY POSITIVE)"

FIGURE 1A. FARM FOUNDATION

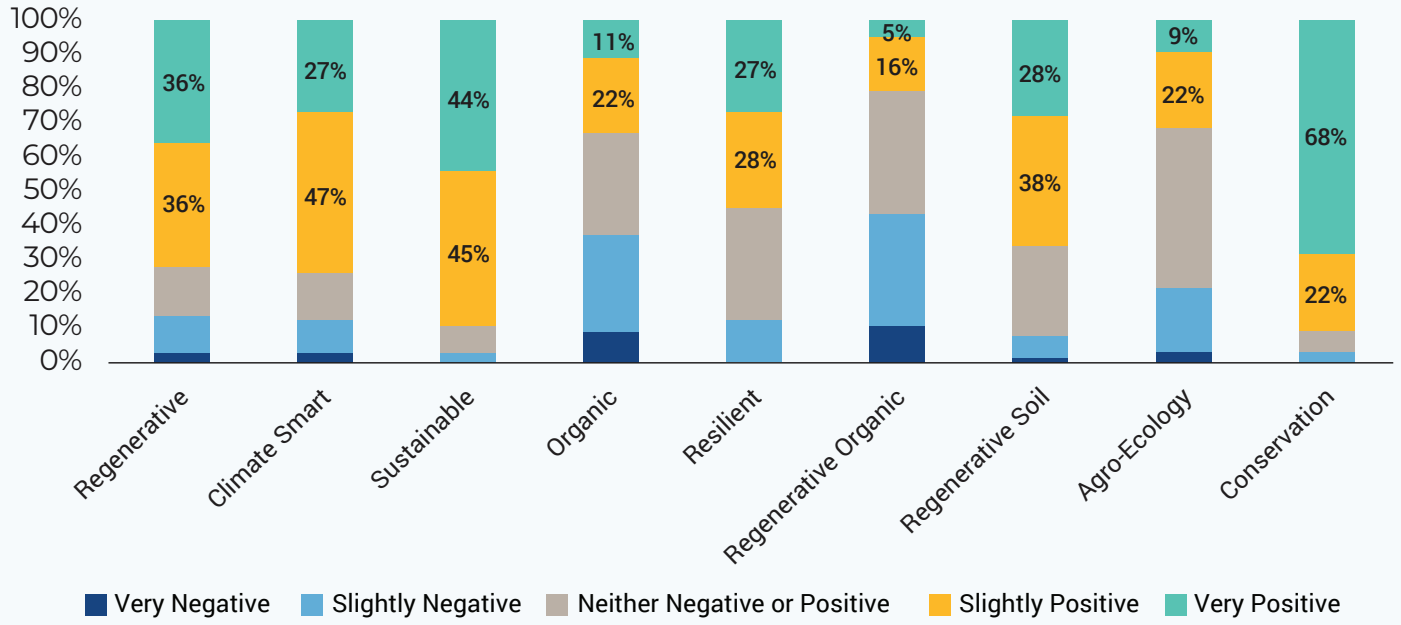
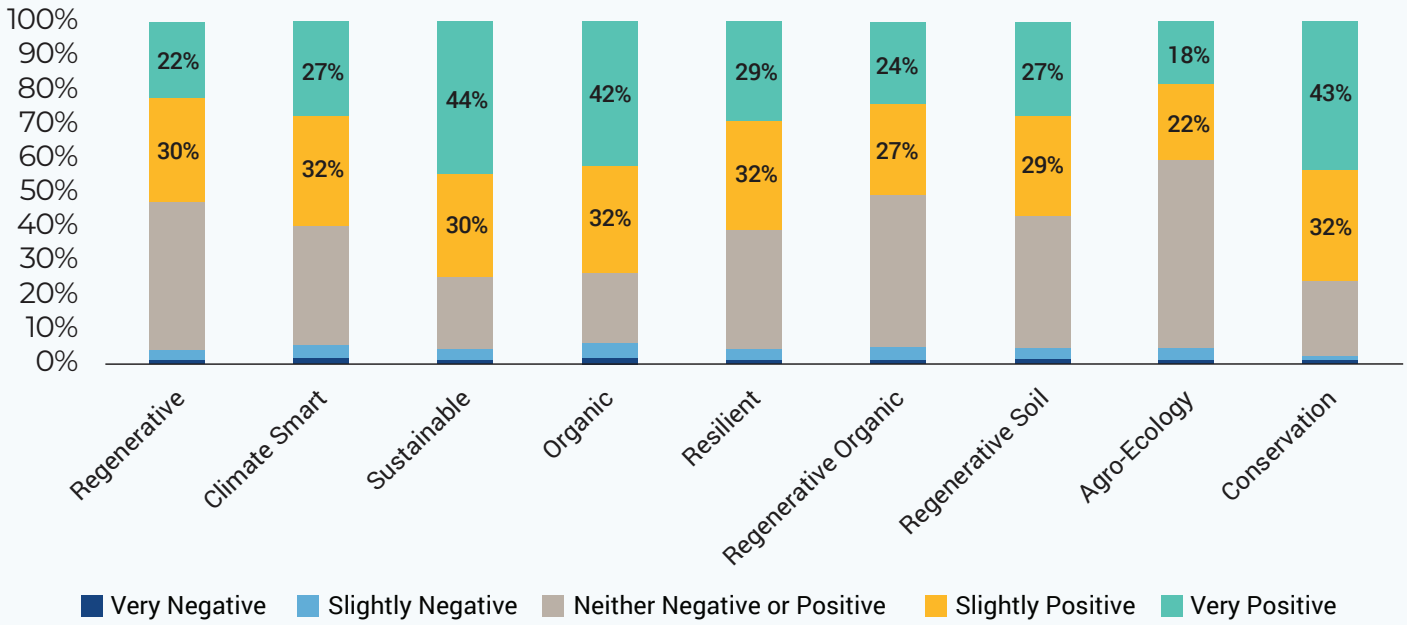


FIGURE 1B. CONSUMERS



Finding #2: Consumers and Industry Experts Define Sustainable Agriculture Very Differently, Particularly Concerning the Importance of Economic Sustainability

Figure 2 presents word clouds from ad hoc responses to the request to respondents to define sustainability in their own words. **Figure 2A** presents results from the industry expert panel. Their perceptions align closely with the United Nations' three pillars of sustainability, encompassing environmental, economic, and social aspects. This group's approach to environmental sustainability is evident through their emphasis on practices such as soil health enhancement, reduction of greenhouse gas emissions, and productivity. Economic sustainability is also a significant consideration, with "profitability" being the most common word linked to sustainable agriculture. Furthermore, the social dimension is not overlooked, as evidenced by their recognition of the importance of "farmers," "the next generation," "family," and "health." This multifaceted view reflects the stakeholders' deep involvement and systemic perspective of the agricultural sector, indicating their holistic approach to sustainability.

FIGURE 2. IN YOUR OWN WORDS, HOW WOULD YOU DEFINE "SUSTAINABILITY" IN THE CONTEXT OF AGRICULTURE?

FIGURE 2A: FARM FOUNDATION

By contrast, **Figure 2B** reflects consumers' views, indicating a more limited understanding of sustainability in agriculture. The consumer perspective predominantly focused on the environmental dimension of sustainability, with descriptors including the words "environment," "natural," "soil," and "land." A few word choices, such as "healthy" and "generations," suggest some attention to the social dimension of sustainability. No descriptors point to awareness of the economic dimension of sustainability. This suggests a gap in the comprehensive understanding of sustainable agricultural practices among the public.

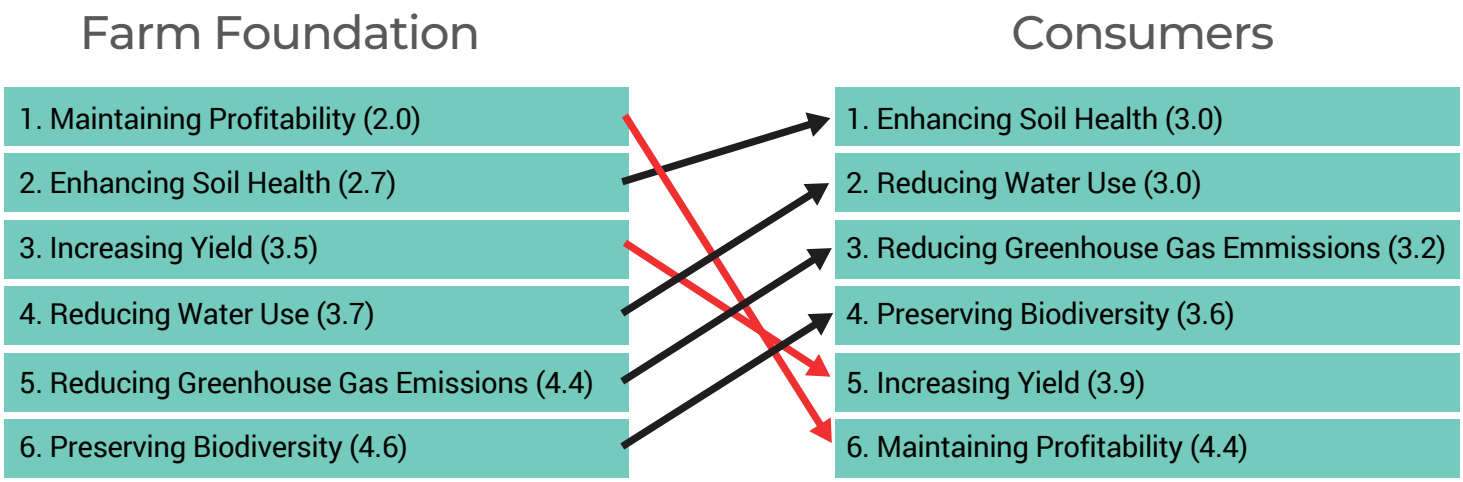
In summary, we find broad overlap in the way both samples describe the importance of preserving resources for future generations, a slight overlap in recognition of the importance of social sustainability, but no overlap in the perceptions of the importance of economic sustainability. In the next section we examine this finding on economic sustainability in more detail.

FIGURE 2B: CONSUMERS

Finding #3: Consumers Do Not Understand the Importance of Maintaining Profitability and Increasing Yield for Sustainable Agriculture

Figure 3 presents responses to how survey participants ranked the importance of the different environmental sustainability characteristics and in relation to economic sustainability. Findings show that maintaining profitability is seen as the most important attribute for sustainable agriculture by industry experts but least important for the consumer sample. Similarly, industry experts recognize the importance of increasing yield, while the consumer sample ranks increasing yield only slightly more important than maintaining profitability. Taken together, these findings suggest that the importance of economic viability has not been successfully communicated to the broader public as a primary concern for sustainable farming. On the other hand, enhancing soil health is rated highly by both, but with heightened emphasis from the consumer sample. Reducing water use and reducing greenhouse gas emissions are similarly ranked by both groups, indicating a shared understanding of the importance of these factors in sustainable practices. Preserving biodiversity ranks higher among the consumer sample, which may reflect a broader ecological perspective from the general public compared to the more production-focused view of the Farm Foundation sample.

FIGURE 3. PERCEPTIONS OF ATTRIBUTES IMPORTANT FOR SUSTAINABLE AGRICULTURE



Footnote: Respondents were asked, "Please rank the following attributes in their order of importance for sustainable agriculture."

These figures indicate a common emphasis on soil health. However, differences emerge in the prioritization of yield maximization, biodiversity preservation, and profitability, with the industry experts leaning towards production efficiency, while the consumer sample reflects broader ecological concerns over industry-specific needs. While these insights underscore the varied perspectives and priorities of different stakeholders in the agri-food sector, they also provide some opportunities for consumer education on the importance of profitability in adopting sustainable agricultural practices.

V. Discussion/Conclusion: Without Consumer Education, Market-Based Approaches to Incentivizing More Sustainable Agriculture Will Not Work

Even though there is a U.S. position on sustainability, it turns out that this is not what consumers mean when they hear it. The average consumer does not appear to associate sustainability with profitability. This creates a need to reaffirm the importance of economic viability in pursuing sustainable outcomes. This research provides nuanced insights into how influential agricultural stakeholders perceive and define key sustainability concepts. While "sustainable" agriculture was seen positively by both groups, definitions varied considerably, highlighting the need for clearer communication. This stakeholder survey demonstrates mostly positive views on leading sustainability terminology but uncertainty around precise meanings. Better outreach and education could clarify definitions and principles for sustainable farming. As consensus builds, standards and metrics should be developed to match agreed-upon priorities like soil health and greenhouse gas reductions. With clearer communication and greater alignment on core concepts and goals, agricultural stakeholders will be better positioned to advance integrated sustainability outcomes collaboratively. Despite that gap, we can all agree on preserving environmental resources for future generations. That desire to maintain current resources for future needs might create an opportunity to consider profitability within a more holistic lens of the agri-food system.

Results from this study have several implications for better communication strategies to promote sustainable agriculture. Differences in interpretations and understanding of sustainability language can confuse and hinder effective communication. Acknowledging and addressing these discrepancies can support the development of tailored communication strategies for each target group. Underlying these communication strategies would be an understanding of the subjective values of each group, such as their motivations, concerns, and aspirations related to agriculture and food consumption. These recommendations aim to facilitate more effective dialogue, promote understanding, and drive greater adoption of sustainable practices across the agri-food system.

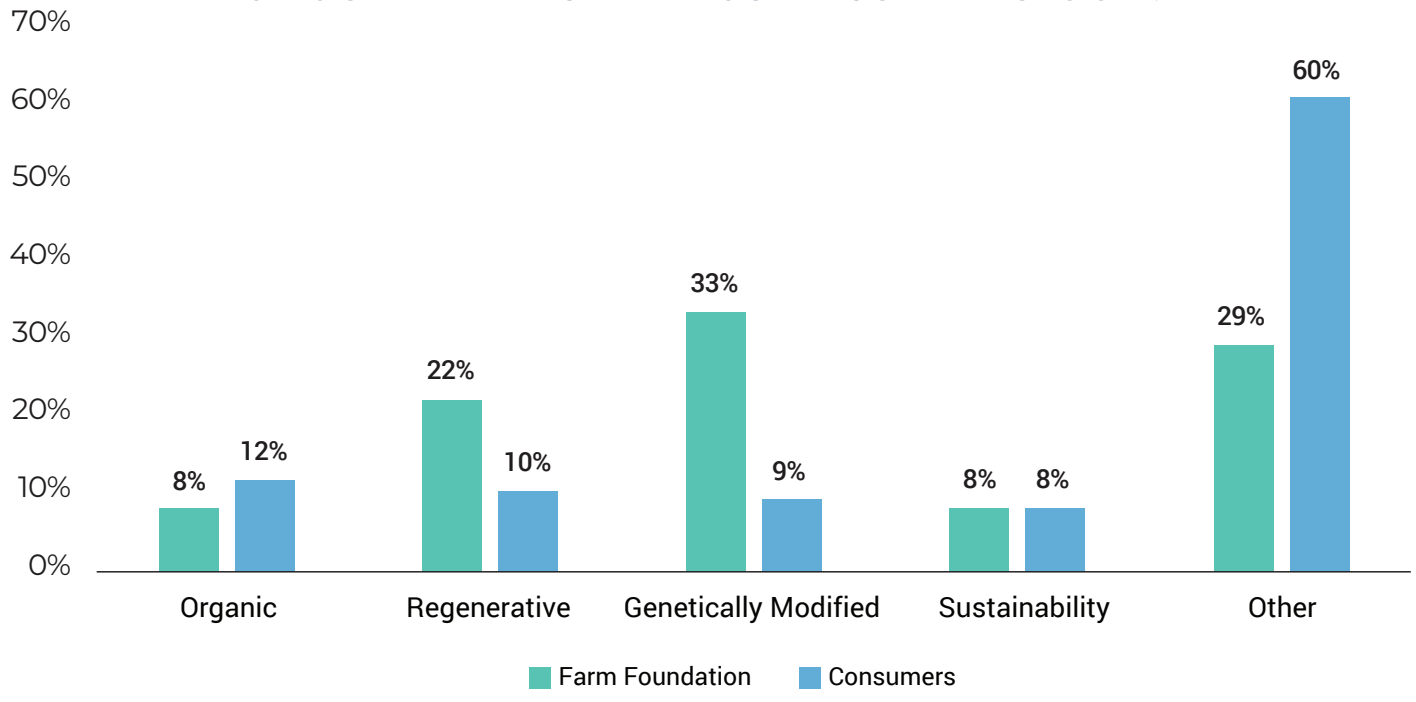
The results revealed nuanced opinions on terms like "organic," "sustainable," and "regenerative," with general positivity towards the latter two. Our findings underscore the critical need for improved communication and education strategies in the field of

...continued on page 14

sustainable agriculture. They highlight the importance of developing a shared understanding of sustainability concepts among stakeholders. For policymakers and communicators, this means not only simplifying complex scientific and economic concepts for public consumption but also ensuring that the language used in sustainability discourse is accessible, consistent, and reflective of current understandings and practices. Bridging the communication gap between agricultural experts and the general public is essential for fostering a broader and more accurate understanding of sustainability in agriculture. This shared understanding is pivotal for advancing sustainable practices that are supported by both the industry and consumers, ultimately contributing to a more sustainable future for the agri-food system.

Results also suggest that consumers are often aware of what they don't know. **Figure 4** offers insights into the most misunderstood terms within the realm of sustainable agriculture. In an open-ended question, we asked participants to write the term they believe to be most misunderstood. One particularly striking result is that four words rose to the top for both samples. Both samples indicated that "organic," "regenerative," "genetically modified," and "sustainability" were the least understood. This is comforting, as it emphasizes that consumers in our sample appreciate that there are many relevant concepts that they do not currently understand. The terms consumers find most misunderstood likely reflect the areas where public awareness and education efforts must be intensified. It's crucial to note that consumer perceptions greatly influence market trends and policy directions, making their accurate understanding of sustainability terms essential for effectively implementing sustainable practices.

FIGURE 4. OF THE TERMS WE HAVE DISCUSSED, WHICH DO YOU BELIEVE IS THE MOST MISUNDERSTOOD?



ENDNOTE

The findings and conclusions in this paper are those of the authors and should not be construed to represent any official USDA or U.S. Government determination or policy.

FURTHER READING

Corsi, S., & Muminjanov, H. (2019). ***Conservation Agriculture: Training guide for extension agents and farmers in Eastern Europe and Central Asia.*** Rome: Food and Agriculture Organization of the United Nations. https://www.fao.org/3/i7154en/i7154en.pdf

Darnhofer, I. (2021). Resilience or how do we enable agricultural systems to ride the waves of unexpected change? ***Agricultural Systems, 187***, 1-5. https://doi.org/10.1016/j.agsy.2020.102997

Deconinck, K., Jansen, M., & Barisone, C. (2023). Fast and furious: the rise of environmental impact reporting in food systems. ***European Review of Agricultural Economics, 50***(4): 1310-1337. https://doi.org/10.1093/erae/jbad018

Food and Agriculture Organization of the United Nations. (2019). ***SDG indicator 2.4.1 Proportion of Agricultural Area Under Productive and Sustainable Agriculture***. https://www.fao.org/3/ca5157en/ca5157en.pdf

Malone, T. (2023). Perspective: Leveraging shared passion for sustainability to nurture collaboration in international trade. ***Farm Foundation***. https://www.farmfoundation.org/2023/11/30/perspective-leveraging-shared-passion-for-sustainability-to-nurture-collaboration-in-international-trade/

Pervis, B., Mao, Y., & Robinson, D. (2019). Three pillars of sustainability: in search of conceptual origins. ***Sustainability Science, 14***, 681-695. https://doi.org/10.1007/s11625-018-0627-5

Rodale Institute. 2023. Regenerative Organic Agriculture. ***Why Organic? Organic Basics***. https://rodaleinstitute.org/why-organic/organic-basics/regenerative-organic-agriculture/

Schreefel, L., Schulte, R. P. O., de Boer, I. J. M., Schrijver, A. P., & van Zanten, H. H. E. (2020). Regenerative agriculture–the soil is the base. ***Global Food Security, 26***, 1-8. https://doi.org/10.1016/j.gfs.2020.100404

...continued on page 16

FURTHER READING *(continued)*

Seufert, V., Ramankutty, N., & Mayerhofer, T. (2017). What is this thing called organic? How organic farming is codified in regulations. ***Food Policy, 68***, 10-20. https://doi.org/10.1016/j.foodpol.2016.12.009

The World Bank. (2023). Climate Smart Agriculture. ***Understanding Poverty – Topics***. https://www.worldbank.org/en/topic/climate-smart-agriculture

U.S. Department of Agriculture. (n.d.). Sustainability. Retrieved December 2023. https://www.usda.gov/oce/sustainability

United Nations. (1987). ***Report of the World Commission on Environment and Development: Our Common Future***. Oxford: Oxford University Press. https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf

United Nations. (2015). ***Transforming our World: the 2030 Agenda for Sustainable Development.*** https://sdgs.un.org/sites/default/files/publications/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf

United Nations. (2015). Transforming our World: the 2030 Agenda for Sustainable Development. Resolution adopted by the general assembly on 25 September 2015. ***(A/RES/70/1)***. New York: United Nations.

USG. (1990). Section 1404(17) of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (7 U.S.C. 3103(17) and the Food, Agriculture, Conservation, and Trade Act of 1990 (FACTA), Public Law 101-624. ***Title XVI, Subtitle A, Section 1603, GPO, NAL Call#KF1692.A31 1990***. Washington, D.C.

van Bussel, L. M., Kuijsten, A., Mars, M., & van't Veer, P. (2022). Consumers' perceptions on food-related sustainability: A systematic review. ***Journal of Cleaner Production, 341***(130904). https://doi.org/10.1016/j.jclepro.2022.130904

Wezel, A., Bellon, S., Doré, T., Francis, C., Vallod, D., & David, C. (2009). Agroecology as a science, a movement and a practice. A review. ***Agronomy for Sustainable Development, 29***, 503-515. https://doi.org/10.1051/agro/2009004

Farm Foundation
1301 West 22nd St., Suite 906
Oak Brook, IL 60523-2197
farmfoundation.org

facebook.com/thefarmfoundation
twitter.com/farmfoundation
linkedin.com/farm-foundation
youtube.com/thefarmfoundation