



Sustainability by any other name

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Stewardship, conservation, organic, sustainable, climate smart, soil health, carbon farming, and regenerative agriculture are among the common terms floating around in the agriculture universe to describe the systems that lead to better outcomes for farmers, their communities, and the environment. There is a great deal of commonality in the recommended farm practices among these systems. Photo by Jason Johnson, USDA-NRCS Iowa.

This article is brought to you by the SPARC Initiative created in partnership between the American Society for Agronomy, the Agricultural Retailers Association, Environmental Defense Fund, and Field to Market: The Alliance for Sustainable Agriculture to empower trusted advisers to deliver services that drive continuous improvement in the productivity, profitability, and environmental outcomes of farmers' operations. Learn more about the SPARC Initiative and access additional resources, including the six-module series on sustainability at www.fieldtomarket.org/SPARC.

There is increasing interest across agricultural supply chains in growing crops in ways that are better for the environment, support communities, and make farming more profitable. With so many initiatives springing up recently, including markets for soil carbon sequestration, water quality improvements, and other ecosystem services, it is becoming increasingly difficult to navigate the options and sift out opportunities for crop advisers and the growers they serve.

By now, every crop adviser has heard time and time again that U.S. agriculture production has to change its ways to remain economically viable, support vibrant rural communities, and protect the natural environment. How we collectively achieve that “triple bottom line” is the topic of countless articles, presentations, and board room discussions. For the past several years, a number of initiatives have emerged to bring

producers and their trusted advisers into those discussions and chart a path forward. Each new initiative seems to come with its own set of terms, which can lead to confusion and even reluctance by farmers to participate. Indeed, the rapid evolution of terminology, what it all means, and how to best communicate that to growers can be challenging for even the most seasoned crop adviser. This article will review some of that terminology and explore how to talk about sustainability with growers to support them and ensure they benefit from these emerging opportunities.

Stewardship, conservation, organic, sustainable, climate smart, soil health, carbon farming, and regenerative agriculture are among the common terms floating around in the agriculture universe to describe the systems that lead to better outcomes for farmers, their communities, and the environment. The good news is that once you get “on the ground,” there is a great deal of commonality in the recommended farm practices among these systems, and embracing one system including the associated set of terms, in most cases, does not imply exclusion of any other. It behooves those of us working closely with growers to stay nimble and understand that a solid foundation in one system is in fact a passport to the others. Another thing to remember is that some of these systems have precise definitions established by state and national governments, whereas others are more open to interpretation.

Defining Terms

Organic Agriculture

Organic agriculture is strictly defined because the USDA has developed and applies a federal standard with a strict certification process (and associated paperwork) for labeling purposes. For an agricultural product to be eligible for organic certification, it must be grown without the use of “prohibited substances”, which include most synthetic inputs, ionizing radiation, and genetic technologies (USDA Agricultural

Marketing Service, [2021](#)). The USDA standard for organic crop production mandates that none of these prohibited substances have been used on the land for three years before the harvest of the first organic crop. Further, soil fertility and pest management is achieved with cover crops, crop rotation, and tillage. Organic certification generally carries a price premium for downstream companies as this term is more familiar to consumers who are willing to pay more for food and fiber produced without chemicals that they may, correctly or not, perceive as unsafe. That price premium for organic foods is typically passed along to the farmer in higher prices for crops grown organically, which helps to offset the costs of adopting the organic practices and going through the certification process.

Regenerative Agriculture

The term **regenerative agriculture** has become quite popular in the past few years and is an example of a system with a definition that is open to interpretation. There is no federal standard for regenerative agriculture, and one striking aspect is the lack of consensus of a definition. Newton et al. ([2020](#)) did a literature review to compare and contrast various definitions offered by organizations working in this space. Some definitions focus on agronomic *processes*, such as eliminating tillage or avoiding synthetic crop inputs, while other definitions center around environmental *outcomes* like improved soil health or water quality. Many food companies have announced initiatives supporting regenerative agriculture in their supply chains, including General Mills, Nestle, and Danone. General Mills ([2021](#)), for



One of the outcomes of climate smart agriculture is to bring about enhanced resilience to climate shocks such as floods. Photo by Keith McCall (USDA-NRCS).

example, has an outcomes-based definition that emphasizes ecosystems and communities. The company has several pilot programs across the United States and Canada that offer growers the opportunity to attend a Soil Health Academy to deepen their understanding of the principles of regenerative agriculture and receive one-on-one technical support as they implement changes in the field.

Sustainable Agriculture



Hugh Hammond Bennett, considered the “Father of Soil Conservation,” visiting an erosion-ravaged field. Photo courtesy of USDA/NRCS.

Sustainable agriculture is a term that has been in use for a long time. Field to Market: The Alliance for Sustainable Agriculture (<https://fieldtomarket.org>) offers an outcomes-based definition of sustainability: “Meeting the needs of the present while improving the ability of future generations to meet their own needs.” Sustainable agriculture should result in increased productivity as well as improvements in human health through access to safe,

nutritious food. It also supports healthy soil, water, air, and habitats by striving for continuous improvement in the environmental impacts of agriculture, such as reducing soil erosion, increasing biodiversity, or reducing the greenhouse gas emissions associated with a farm. Finally, sustainable agriculture helps agricultural communities prosper. In this definition, there is no prescriptive set of practices a grower must deploy to move toward sustainability. Programs developed by Field to Market, the Stewardship Index for Specialty Crops, the Dairy FarmSMART program, and others establish guidelines for how to measure the environmental impact of a farm operation and how to work towards achieving continuous improvement. These programs are

used broadly by the agricultural supply chain to engage growers in helping to meet sustainability commitments in both the public and private sector.

Conservation Agriculture

Another term that has been around for a long time is **conservation agriculture**. Some more experienced producers may be quite comfortable with this term. The United States is divided into 3,000 conservation districts, all with the shared mission to “coordinate assistance from all available sources—public and private, local, state and federal—to develop locally driven solutions to natural resources concerns.” And conservation is endemic to the Natural Resource Conservation Service and its post-Dust Bowl efforts to protect soil and other natural resources. The Conservation Agriculture Group at Cornell University (2021) offers a process-based definition that emphasizes minimal disruption of soil and biodiversity. The group goes on to suggest agronomic processes that should be followed, which are cover cropping, alternatives to burning crop residues, integrated pest management, and minimal tillage.

Climate Smart Agriculture



How we talk about these systems to the growers we serve depends greatly on the growers themselves and their personal viewpoints on the changing nature of agriculture.

Because of agriculture's complicated relationship to climate change, serving as a both the industry most vulnerable to its

Photo courtesy of the United Soybean Board.

impacts as well as a source of greenhouse gases, some organizations have embraced the term **climate smart agriculture**. Climate smart agriculture addresses both aspects of the relationship. According to the World Bank ([2021](#)), climate smart agriculture has three primary outcomes: Increased productivity to better feed the world, enhanced resilience to climate shocks like flood, drought, and shifting pest pressure; and, lower emissions of greenhouse gases into the atmosphere. While many initiatives supporting climate smart agriculture focus on developing countries facing significant food insecurity, the impacts of climate change on weather patterns in the United States are also causing new challenges for farmers. Adapting to these challenges by adopting practices that help soils retain water better, reduce soil temperatures, and adjust cropping systems and rotations also are considered climate smart agricultural practices. The hot topic in climate smart agriculture in the current moment is soil carbon sequestration—managing soils to increase their soil organic carbon content. The excitement is because practices that promote soil carbon sequestration both help lands adapt to climate change and the storage of more carbon in the soil contributes to overall reductions of carbon in the atmosphere, which is necessary to reduce the risk and impacts of climate change over time.

Investments That Yield Better Environmental, Social Outcomes

It should be noted that a farm may be USDA organic certified while simultaneously applying the principles of regenerative, sustainable, climate smart, or any of the other systems mentioned in this article. As stated previously, organic agricultural products fetch higher prices in the marketplace, which helps cover the costs associated with

organic certification. Unfortunately, there is no widespread price premium for crops produced under those other systems, and the downstream food companies do not enjoy higher prices for the resulting packaged goods. Implementing conservation practices like cover crops and no-till tend to have a steep learning curve and can be costly to implement. The cost of implementation often falls on the grower, but many companies are investing in their suppliers to support their transition to systems that yield better environmental and social outcomes.

One example of that investment includes a three-year project in Kansas and Missouri between Country Crock and No-till on the Plains (PR Newswire, [2020](#)). Together, they are investing in soil health education and cost-share to plant cover crops to improve soil health and reduce greenhouse gas emissions from fields. Growers participating in the project, which covers approximately 13,000 acres, will be compensated \$10/acre to help cover the cost of cover crop seed the first year.

Cargill, Target, McDonald's, and The Nature Conservancy have partnered on a beef sustainability project in Nebraska that aims to remove up to 150,000 metric tons of carbon dioxide from the atmosphere (Cargill, [2020](#)). Leveraging \$8.5 million in public and private funds, participating corn and soy growers will receive technical and financial assistance to implement regenerative farming practices that will not only improve climate outcomes, but also improve soil health and productivity.

It would appear that most of these systems significantly, if not completely, overlap in terms of actual farm operations. All of the systems mentioned so far support the same basic outcomes and encourage similar suites of practices, which in turn, have multiple benefits (Table [1](#)). For example, cover crops are encouraged, when feasible for the cropping system and location, in organic, regenerative, sustainable, conservation, and climate smart agriculture because they are known to have significant positive impacts

on environmental outcomes. Cover crops build soil carbon and may help mitigate climate change. Cover crops also can improve water infiltration into the soil, thereby preventing or slowing water-induced soil erosion and promoting soil health and better water quality downstream.

Table 1. Comparing principles and practices of various agricultural systems

Principles and practices	Agriculture system				Climate
	Sustainable	Regenerative	Conservation	smart	
Organic					
Emphasize soil health	X	X	X	X	X
Keep soil covered	X	X	X	X	
Minimize soil disturbance	X	X	X	X	
Maintain living roots year-round	X	X	X		
Diversify crop rotations	X	X	X	X	X
Increase soil carbon	X	X	X	X	X
Integrate livestock		X			
Encourage cover crops	X	X	X	X	X
Restricted synthetic inputs					X
Increase productivity	X			X	
Remove CO ₂ from atmosphere	X			X	
Prohibit GM traits					X
Requires certification					X

The organizations that sponsor these projects rely on agronomic experts with established relationships with growers, so the opportunities for CCAs to deliver the technical assistance in projects like these are many. To stand out and be recognized, CCAs are encouraged to pursue advanced certifications, such as the Sustainability and 4R Nutrient Management Specialty certifications. Be sure your profile is up-to-date in the CCA directory (www.certifiedcropadviser.org/certifications/professional-search), so project partners can find you. Or you can take a more proactive role and look for projects in your area by visiting Field to Market's Continuous Improvement Accelerator Project Directory (<https://members.fieldtomarket.org/members/projects>) to see where you can plug in.

Code Switching

Finally, how we talk about these systems to the growers we serve depends greatly on the growers themselves and their personal viewpoints on the changing nature of agriculture. Early adopters are more likely to readily embrace new terms like regenerative agriculture. These are the growers who demonstrate their leadership by hosting farm tours and field days showcasing their no-till fields. But when advising more traditional growers who are skeptical of new technologies and terminology, it might be better advised to talk in terms of "stewardship." This doesn't represent a specific system of production, but an attitude or approach. For some, stewardship has biblical connotations about preserving our shared resources for the betterment of humankind. Growers participating in Field to Market's Continuous Improvement Projects will likely respond well to "sustainable," and those with good relationships with their local NRCS office, may prefer "conservation." No two farmers are the same; consider their individual differences when deciding the best way to talk to them about implementing new or different practices that improve their farm's environmental

impact.

Your Help Is Needed!

Please help us better understand how effective the SPARC resources are in helping you deliver sustainability services to the growers you serve. Please take this quick survey (<https://bit.ly/3tYcrPL>) to share your thoughts.



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