

Tips for Building Sustainable Farms

A white paper defining sustainable agriculture and providing information on how farmers and ranchers can adopt sustainable practices to benefit their operations, communities and the environment.

Farmers and ranchers across the U.S. are charged with a critical task: feeding our country and the rest of the world. The United States Department of Agriculture (USDA) reports that the U.S. is the world's largest agricultural exporter, with one out of every three acres being planted for exported products.

With so many people relying on it, the U.S. agriculture industry faces tough challenges in the coming decades. According to the Sustainable Agriculture Initiative (SAI) Platform, global population is expected to rise to 9.2 billion by the year 2050. A growing population means an equally growing demand for food. However, we're losing land and producers. The number of farms in the U.S. in 2012 was an estimated 2.2 million – 11,630 less than 2011. And land used for farming or ranching amounted to 914 million acres – 3 million acres less than 2011.

With the imminent issues of decreased land areas and an increased global population, farm and ranch land is more valuable than ever. Now, industry professionals are getting more serious about balancing their short-term production needs with longer-term, sustainable agriculture practices that increase future yields and still preserve the land.

UNDERSTANDING SUSTAINABLE AGRICULTURE

Sustainability is much more than being “environmentally friendly” or “green.” It's using natural resources in such a way that they aren't depleted or permanently damaged – cultivating and nurturing land that can be used indefinitely.

But viable land isn't the only aim in sustainable agriculture. There are also economic and social factors. According to the Sustainable Agriculture Research & Education (SARE) program of the National Institute of Food and Agriculture, USDA, those practicing sustainable agriculture embrace what it calls the 3 Pillars of Sustainability, which includes profit over the long term, stewardship of natural resources, and quality of life for farmers and their communities.

¹ Frequently Asked Questions About Agricultural Trade: USDA Foreign Agriculture Service (<http://www.fas.usda.gov/itp/Policy/tradeFAQ.asp>)

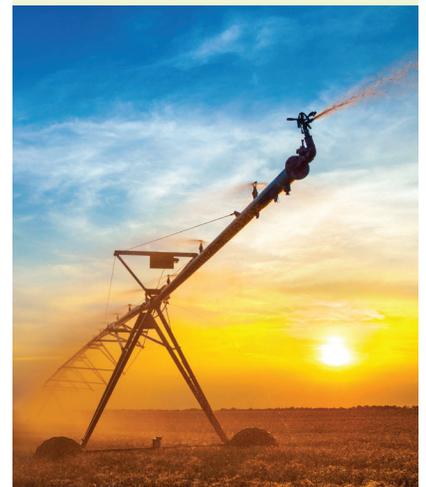
² Short Guide To Sustainable Agriculture: SAI Platform (http://www.saiplatform.org/uploads/Library/short_guide_to_sa_-_final%5B1%5D.pdf)

³ Farms, Land in Farms, and Livestock Operations 2012 Summary (<http://www.usda.gov/nass/PUBS/TODAYRPT/fnl0213.pdf>)

⁴ What is Sustainable Agriculture?: SARE (www.sare.org)

“Cultivators of the earth are the most valuable citizens. They are the most vigorous, the most independent, the most virtuous, and they are tied to their country and wedded to its liberty and interests by the most lasting bands.”

– Thomas Jefferson



TIPS FOR BUILDING SUSTAINABLE FARMS



Any producer, from a large industrial operation to a small family farm, can incorporate sustainable practices. But it's not a one-size-fits-all approach. The variety of sustainability options empowers each farm to consider its unique finances, environmental factors and social situations to create a tailor-made plan. Here are some additional tips for getting started.

Consider your natural resources

Did you know that, according to the USDA, agriculture uses approximately 80 percent of our country's consumptive water? Or that during an interview with TIME magazine, University of Sydney professor John Crawford said that the world has roughly about 60 years of topsoil left?

An important element of sustainable agriculture is determining where your resources come from and whether you're taking more than can be replaced. Natural processes, like erosion or drought, and farming practices, like tilling, can deplete water, energy, soil levels and nutrients, livestock feed and even our capital investments – more than we realize.

Consider solutions like implementing an efficient irrigation system, one that may include collecting rainwater to use in your fields. Or using solar, wind or alternative energies to improve your operating efficiencies while cutting down your use of fossil fuels and limiting your impact on the environment. Evaluate your operations to determine areas in which you could improve.

Feed your soil

The University of Kentucky Cooperative Extension Service notes that healthy soil is the foundation of a successful sustainable production. Essentially, proper soil management practices “feed the soil, and the soil feeds the crop.” Ensuring that your soil has the proper nutrient levels improves your land and helps you maximize your income with higher yields.

In “Farming in the 21st Century: a Practical Approach to Improve Soil Health,” the USDA Natural Resources Conservation Service lists four key things that improve the health of soil:

- 1 Manage more by distributing soil less.** Limit any kind of disruption to soil, such as tilling, compacting or improperly using inputs, such as fertilizers and pesticides.
- 2 Diversify your crops.** Biodiversity adds more nutrients to your soil and also helps keep weeds, pests and diseases at bay. You can accomplish this by rotating crops and planting a combination of cover crops.
- 3 Grow living roots throughout the year.** Root sugars help feed an underground food web, giving soil organisms the food they need to distribute nutrients that help plants grow.
- 4 Keep soil covered as much as possible.** Mulch, cover crops, crop residue. All of these covers protect soil from hazards ranging from rain and wind to weeds. Ultimately, they keep soil, and its nutrients, intact.

5 Irrigation & Water Use: <http://www.ers.usda.gov/topics/farm-practices-management/irrigation-water-use.aspx#.UbtjgEplHN5>

6 What If the World's Soil Runs Out? (<http://world.time.com/2012/12/14/what-if-the-worlds-soil-runs-out/#ixzz-2Wa8bTBLF>)

7 Sustainable Agriculture (<http://www.uky.edu/Ag/CDBREC/introsheets/sustainableag.pdf>)

8 Farming in the 21st Century: A Practical Approach to Improve Soil Health: http://soils.usda.gov/sqi/management/files/21st_century_soil_health_factsheet.pdf





Recycle, reduce, reuse

Many unique recycling practices can lessen a farm's environmental impact, such as converting animal waste into nutrient-rich fertilizers and compost, recycling plastics, scrap metal, feed bags and other materials that would normally go to the landfill, and using ATVs instead of other vehicles to reduce fuel consumption and emissions.

Closely examine your current operations to identify areas in which you could recycle materials, reduce energy or material consumption, and reuse natural resources. County extension offices and state Farm Bureaus often provide resources, recycling services and educational programs to help you generate more ideas.

Take a strategic approach that includes variety

In her article "Top 10 Sustainable Farming Practices", Diana Bocco notes that following these practices can promote more diversity throughout sustainable operations:

- Integrated pest management, which employs several methods to control insects and other unwanted pests throughout your operations.
- Attracting beneficial animals, such as birds, bats and ladybugs, that feed on harmful insects and not on your crops.
- Managed grazing, which rotates livestock grazing areas. It's beneficial because not only is your livestock adding more variety to its diet, but it also helps fertilize the land, control weeds and reduce erosion.

Another option is to plant natural wind breaks. According to the University of Nebraska Extension, not only can wind breaks such as trees and shrubs protect people, animals, buildings, crops and natural resources, but they also can generate additional sources of income through lumber or produce (if planting fruit trees). Rotating and planting a diverse spectrum of crops, as mentioned earlier, also boost diversity in your operations.

Don't confuse "sustainable" with "organic"

It's common to confuse two practices that both aim to create more ecologically sensible agricultural practices. However, regulations differ between the two.

According to the University of Kentucky Cooperative Extension Service, sustainable agriculture doesn't follow a standard set of rules, because it's tailored to the needs of an individual operation. Conversely, anything deemed "organic" is regulated by the USDA and is grown or raised according to the USDA National Organic Program.

While sustainable agriculture promotes ecological health, organic practices aren't always guaranteed to be better for the environment. Even though it's labeled "organic," the process to bring organic product to the shelves can still cause damage and threaten public health in a variety of ways – especially when carried out on a large industrial scale. According to the Responsible Nutrient Management Foundation, organic practices can degrade ecosystems.

"There is nothing inherently wrong with organic production, but sustainable agriculture takes it a little further," said Troy Bancroft, president, Responsible Nutrient Management Foundation. "When people hear 'organic' they may think that no chemicals or fertilizers are applied, which can be an inaccurate assumption. To control weeds, tillage is more regularly performed, which can lead to increased soil erosion."

⁹ <http://www.explorebeef.org/protectingresources.aspx>

¹⁰ Top 10 Sustainable Farming Practices (<http://dsc.discovery.com/tv-shows/curiosity/topics/10-sustainable-farming-practices.htm>)

¹¹ Windbreaks in Sustainable Agriculture Systems (<http://nac.unl.edu/documents/morepublications/ec1772.pdf>)



TIPS FOR BUILDING SUSTAINABLE FARMS



Find good, reliable labor

One of the key benefits of sustainable agriculture is that it boosts local economies and communities by hiring a reliable workforce – one that also holds a vested interest in the success of local agricultural operations. Find people who are fully committed to sustainable agriculture and aren't afraid of rolling up their sleeves to implement these practices.

Diversify financially

Profitability lies at the heart of an ecologically sustainable operation. Without it, producers clearly won't be in business. Many operations have someone who's able to help support the farm with a non-farm day job. Without a second external source of income, it can be difficult for a farm or ranch to remain viable. That's why it's important to create an operation management structure, which you can develop with the help of legal or tax professionals.

"We also recommend starting with a cashflow projection for at least the next 12 months, which gives you a clearer view of your financial landscape," said Warren Graeff, market manager, PNC Bank. It can help you decide if you need supplemental income, plan where that extra income will come from, and determine how you will manage, invest and spend your funds."

Enjoy your life

"Why do farmers farm, given their economic adversities on top of the many frustrations and difficulties normal to farming? And always the answer is: 'Love. They must do it for love.' Farmers farm for the love of farming."
– Wendell Berry, *Bringing it to the Table: Writings on Farming and Food*

There's no denying that farming and ranching is hard work. Burnout and fatigue are common plagues among the workforce. The most successful farmers continually remind themselves of why they do what they do... and know when to call it a day. As you implement sustainable practices in your operations, always remember the "whys." For many, it's because they like to know that they're leaving their land in better shape than they found it, for their work today and for generations to come.



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The Responsible Nutrient Management® Foundation has been formed by industry leaders who share a common concern. To equip the ag industry and consumer with the resources and knowledge necessary to meet the world's growing need for quality food and fiber through increased production, sustainable economics, and the practice and promotion of environmental stewardship.

pnc.com/agriculture

