



# U.S. SOYBEAN FARMERS MAKE PRODUCTION DECISIONS TO PROTECT WATER QUALITY

Water is a vital part of any agricultural production system, and proper management is essential to conserve its use and control its movement.

Water can become the vehicle for soil erosion and nutrient run off. U.S. soybean farmers are doing their part to ensure their place in the water cycle has a positive impact. Where beneficial, farmers incorporate water conservation practices, such as:



**Buffer strips** on field edges, along streambeds and other water sources, to slow rain or irrigation water movement out of the field and to filter sediments and nutrients before they reach surface water sources.



**Grass waterways** that can slow excess rainwater and direct its movement through the field.



**Field terraces** that collect excess rainwater into drains that move it safely off the field.

Since 2012, the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service Water Quality Initiative (NRCS) has partnered with thousands of farmers to enact soil conservation practices on more than 960,000 acres in priority watersheds.<sup>1</sup> In 2020 alone, NRCS invested more than \$30 million in this Water Quality Initiative, expanding water quality protection in vulnerable watersheds. The USDA's Wetland Conservation Provisions are designed to help farmers preserve the environmental functions of wetlands, such as flood and sediment control, groundwater recharge, water quality and wildlife habitat.

Just as managing water movement from the field plays a key role in controlling soil erosion, **nutrient management** prevents crop inputs from leaving the field, further protecting water quality. Soybeans rarely need nitrogen applications, but they do benefit from potassium and phosphorous. And phosphorus contributes to eutrophication and algal bloom in water sources if allowed to leave the fields where it is applied. So making sure nutrients are applied carefully and used efficiently is key to a sustainable farming operation.

Many soybean growers integrate the **4 Rs of Nutrient Stewardship**. This framework supports proper nutrient applications to improve sustainability and farm profitability:

- **Right Source** – Using the correct nutrient(s) for the crop.
- **Right Rate** – Applying only the amount the crop needs.
- **Right Time** – Providing fertility to the crop when it needs it, and when the nutrient won't be lost to evaporation or run off.
- **Right Place** – Placing the nutrients where the plant can most easily access them.

Yet another important aspect of protecting water quality is the **efficient use of irrigation water**. Most U.S. soybeans do not require irrigation, only 8% of U.S. soybeans are irrigated.<sup>2</sup> Farmers who manage irrigated production also use soil probes, sensors and other technologies to minimize their reliance on irrigation to optimize their crop.



U.S. soybean farmers are using in-field and edge-of-field practices to make sure that their place in the water cycle has a positive impact. Water quality and quantity is an important aspect identified in the U.N. Sustainable Development goals (SDG). The use of these farming practices also contributes to the U.S. Soy farmers long-term impact on many of the U.N. Sustainable Development Goals (SDG), especially SDG 2—Zero Hunger. Specifically, SDG Target 2.4, says, “By 2030, ensure sustainable food production systems and **implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.**”

1. “National Water Quality Initiative.” Natural Resource Conservation Service.  
<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/water/?cid=stelprdb1047761>.

2. “Soybean Irrigation.” Soybean Research & Information Network, August 6, 2020.  
<https://soybeanresearchinfo.com/agronomics/soybean-irrigation/>.

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