

GSR Solutions Advances Bolt-On Regenerative Organic Platform for Dairy Farms and Digesters

Validated biotechnology that enhances dairy farm digester and non-digester operations while reducing nutrient runoff risk and creating valuable organic products

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-- On National Inventors Day (Feb. 11), [GSR Solutions](#) is highlighting its

proprietary, bolt-on nutrient recovery platforms that help dairy farms, food

and beverage processors, anaerobic digester facilities, and wastewater

operators capture excess nitrogen and

phosphorus from liquid waste streams and convert them into valuable regenerative organic

fertilizers, while improving water quality outcomes and supporting nutrient management goals.



Dairy cows supporting day-to-day farm operations (Courtesy of Green Mountain Dairy Farm)

“

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— *Bill Rowell, Green Mountain Dairy Farm*

GSR’s waste-to-value innovation has been recognized through the Global Nutrient Recycling Challenge, organized by federal agencies in collaboration with livestock-industry partners, and by the American Farm Bureau Federation.

Results for dairy farms, digester operations, local communities, and watersheds

“Nutrient management requires a custom plan to help minimize nutrient runoff from fields into local waterways,” USDA’s Natural Resources Conservation Service (NRCS) states in water-quality guidance on nutrient management.

"Managing nutrients in manure and wastewater is a priority for protecting soil and water resources. Waste treatment and nutrient management practices can help address on-farm nutrient challenges and support water quality goals. Demonstration efforts evaluating nutrient recovery approaches, including one demonstrated with GSR Solutions, can expand the options producers can consider as part of conservation planning in different farm settings," said Travis Thomason, NRCS State Conservationist, Vermont, USDA-NRCS.

GSR's platform is designed to separate nitrogen and phosphorus from nutrient-rich liquid effluents and reduce nutrients in the remaining liquid fraction, helping farm and digester operators lower nutrient discharge risk and strengthen water stewardship outcomes. GSR has shown nutrient capture performance of up to 95% in Stage 1 and over 99% in Stage 2, alongside multi-year validation under operating conditions, reflecting a focus on deployable solutions that can be integrated into existing workflows.

Benefits for farms, industry, and infrastructure partners

Green Mountain Dairy Farm implemented the GSR BOLT™ nutrient recovery platform and has generated commercial organic fertilizers over multiple years of operation.

"It is understood that clean water is of importance to everyone. GSR Solutions has developed a process that separates phosphorus and nitrogen from the farm waste stream, thereby reducing the nutrients of the liquid effluent to a small fraction of its original content and converting them into marketable organic fertilizer," added Bill Rowell, who farms with his brother at Green Mountain Dairy Farm. "Those nutrients now compartmentalized can either be sold as organic fertilizer or transported to fields requiring the nutrients. The GSR process will afford the farmers more options when planning the required load for each of the fields. The GSR system has now



Dairy Farm with Cow Power Operation (Courtesy of Green Mountain Dairy Farm)



Manure-derived liquid effluent before treatment and after nutrient recovery treatment. (Courtesy of GSR Solutions)

proven its waste-to-value technology and is now ready for further expansion to produce fertilizer for commercial purposes.

For dairy farms and industrial operators, GSR's nutrient recovery approach is intended to provide practical options for managing manure and wastewater effluents while creating valuable outputs. For infrastructure and project partners, including digester operators, utilities, and wastewater stakeholders, the platform's bolt-on design is intended to support integration and scalability across different facility types, helping align operational needs with conservation objectives and water quality goals.

Recognition for innovation

GSR earned early recognition through the Global Nutrient Recycling Challenge, a federal interagency-led effort that drew submissions from around the world to accelerate affordable, adoptable technologies that recover nutrients from livestock manure and convert them into valuable products. Prior to the COVID-19 pandemic, a panel of more than 30 experts representing federal environmental, agriculture, and energy agencies, livestock and farming, farmer organizations, the food industry, and other stakeholders identified GSR as one of a handful of "win-win" solutions for the environment, farmers, and the economy. In a late-2024 congratulatory letter to GSR Solutions, Zippy Duvall, President of the American Farm Bureau Federation, wrote, "Your (GSR's) groundbreaking agricultural innovation serves as a beacon of excellence in a time where sustainable and innovative practices are more crucial than ever." The letter recognized GSR Solutions' Ag Innovation Challenge honor. Since then, GSR has further refined its platform and enhanced its commercial product offerings for 2026 and beyond.

A bolt-on platform built for real facilities

GSR's nutrient recovery solutions are designed to integrate into operations with different infrastructure profiles, including GSR-AD-BOLT™ for anaerobic digester sites, GSR-FLO™ for non-digester farms and industrial operations, and GSR-BC™ for specialized industries with unique nutrient management needs.

"National Inventors Day is about the kind of innovation that can be installed and operated in the real world," said Anju Krivov, President & CEO, GSR Solutions. "We built GSR's nutrient recovery platforms to help operators close the nutrient loop, reduce discharge risk, and create reliable value products from waste streams."

Select organic fertilizer products are available through the [NutriHarvest® online](#) marketplace as well as local and regional retailers. GSR works with dairies, anaerobic digester developers and operators, food and beverage processors, municipalities, utilities, and energy project partners.

For more information, technical details, or partnership inquiries related to nutrient recovery deployment, contact GSR Solutions.

About GSR Solutions

GSR Solutions develops biotechnology platforms that convert organic waste, including livestock waste and organic residuals from farm operations, food industries, and anaerobic digesters, into value-added products such as organic fertilizers, plant nutrition and crop-care biologicals, and alternative fuels. Its proprietary processes treat nutrient-rich waste streams and recover phosphorus and nitrogen, supporting resource stewardship and addressing challenges across the food, water, and energy sectors. Learn more at grsoln.com.

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