



# Breaking New Ground

Innovative Solutions in Manure  
Management & Resource Recovery

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2015-2018 NEWTRIENT PROGRESS REPORT





*Dairy farmers are leading the way in sustainable practices and Newtrient is helping to unleash the value of nutrients and ecosystem services — benefiting farmers, communities and the environment.*

**RICK SMITH** | CEO, DAIRY FARMERS OF AMERICA AND  
FOUNDING MEMBER-OWNER OF NEWTRIENT LLC

For hundreds of years, people have nourished their families with milk from farm animals, and today our growing population requires more dairy foods than ever. This presents farmers with significantly more animal waste challenges: **what to do with it, where to put it, and how to manage its costs and environmental impacts.**

**ENTER...** Newtrient, using technology and innovation to create added value for farmers, communities and our environment.





“

Dairy farmers have great responsibility for the land, air and water they steward, and all of us who consume food share that responsibility: a young adult living in a big city, a family in suburbia, and the farmer making a living off the land all benefit from healthy foods and a healthy environment.

”

BRAD SCOTT | CHAIRMAN, NATIONAL DAIRY BOARD



Helping dairy farmers reduce their environmental footprint and making it economically viable to do so.

#### TECHNOLOGY CATALOG

Providing an unbiased view of today's manure management options



#### BUSINESS DEVELOPMENT

Advancing manure-based technologies and products



#### ECOSYSTEM SERVICES MARKETPLACE

Driving the adoption of a marketplace that generates both environmental and economic benefits



## LETTER FROM OUR CEO AND BOARD CHAIRMAN



As Newtrient LLC enters its third year, we want to share Newtrient's progress toward a new economic future for dairy. Our company's mission to reduce the environmental footprint of dairy, and make it economically viable to do so, continues to be a defining issue for dairy. Newtrient's forward-thinking founding organizations can each be proud of Newtrient's early progress in shaping this new industry.

Our well-received Technology Catalog has already been used by thousands; industry leaders are acknowledging the tangible services Newtrient provides; and regulators seek Newtrient's counsel on dairy's valuable contribution to improved soil health, water quality and water quantity. Support has been wide ranging, from federal agencies to environmental leaders.

We continue to bring an entrepreneurial approach to Newtrient's work, spurring technology advancement and breaking new ground in delivering financial value to farmers as they adopt manure management and nutrient recovery technologies and practices.

Still, transforming an industry will take time, commitment, outreach, and skillful advocacy with a broad spectrum of stakeholders.

Our talented team reaches beyond staff to include technology experts and academia, policy professionals and cooperative and industry leaders. We also have a network of important collaborative partners including Dairy Management Inc., the Innovation Center for U.S. Dairy and National Milk Producers Federation (NMPF).

Whether you are a dairy farmer, policy maker, NGO, academic or technology innovator, we invite you to learn more about Newtrient as we advance solutions to environmental and economic challenges that will shape the future of food and farming for generations to come.



Steven Rowe  
CEO, Newtrient LLC



Greg Wickham  
CFO, Dairy Farmers of America  
Newtrient Board Chair

Our communication activities are expanding our reach to key audiences and influencers about Newtrient's three strategic priorities:

- Technology Catalog
- Business Development
- Ecosystem Services Marketplace





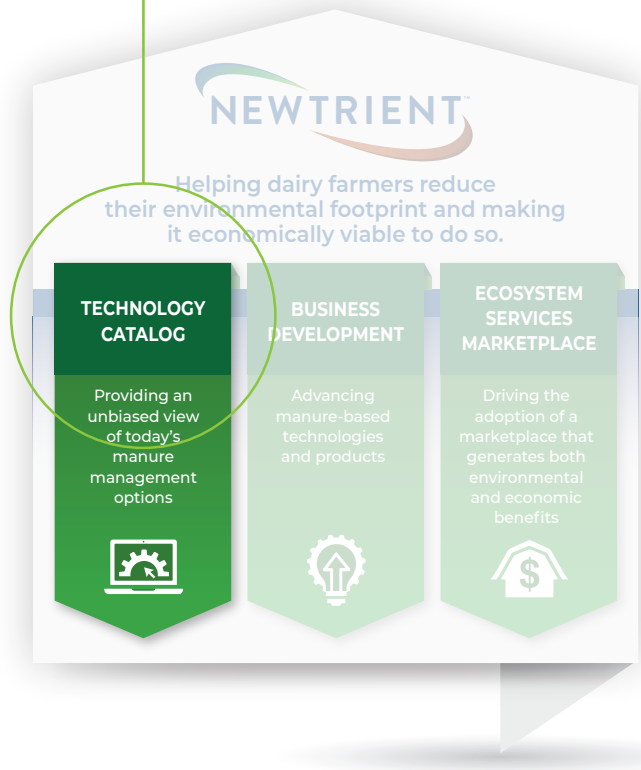
“The need for nutrient recovery is becoming well known. What’s not well known are the tools and technologies that are available. Newtrient’s technology catalog fills this industry need. We now recommend that anyone who needs to learn more about nutrient recovery technologies start by going to [newtrient.com](https://newtrient.com).”

PATRICK SERFASS | AMERICAN BIOGAS COUNCIL



## TECHNOLOGY CATALOG

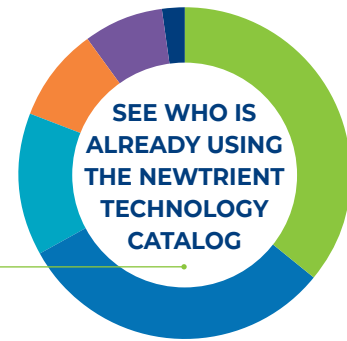
*Providing an unbiased view of today’s manure management options.*



Each dairy farmers' manure management and nutrient management needs are unique. There's no shortage of innovative technologies promising to provide solutions. Still, it can be a challenge to identify the best solution for each farm and business.

The Newtrient Technology Catalog provides dairy farmers with the latest industry information, technology updates, case studies and credible evaluations to make the best decisions for their particular businesses.





- 36% Dairy farmers and agriculture leaders
- 31% Technology and product vendors
- 14% Food and beverage/ other businesses
- 9% Academia
- 8% Government and policymakers
- 2% Financial investors

#### RESULTS:

- Provided technology insights and evaluations to more than **4,000** farmers, technology vendors, researchers and policy makers.
- Created a trusted **9-point scale** to universally evaluate and rate all technologies.
- Identified and evaluated over **260** manure-management and nutrient recovery technologies.
- Presented **Newtrient Recognized** and **Emerging Technology** seals to the most promising technologies in the market.
- The **Newtrient Technology Catalog**, the most comprehensive manure management and resource recovery tool ever developed, was honored with the **American Biogas Council Innovation of the Year Award in 2017**.

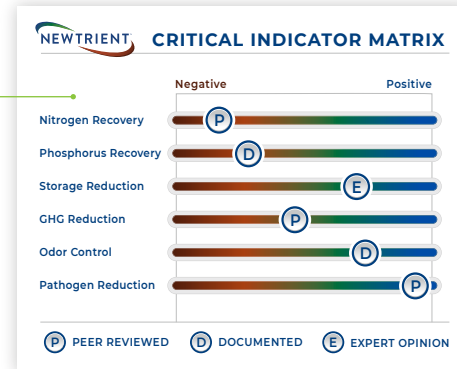


#### LOOKING AHEAD:

- The catalog's next evolution will include a **critical environmental indicator** assessment to rate technology types on specific environmental indicators (greenhouse gas emissions, nitrogen and phosphorus recovery, storage reduction, pathogen reduction and odor control).

Newtrient works with dairy farmers, cooperatives, researchers, investors and technology innovators to help farmers and the entire industry make more informed decisions regarding manure management and nutrient management opportunities.

The team continues to evaluate emerging technologies as they mature and reassess current technologies to validate findings and information.



*The open-access, online Technology Catalog is a valuable information resource for farmers looking for the manure management solutions for their operations.*

CHRIS VOELL | EPA AGSTAR



Mark Stoermann



James Wallace



Jerry Bingold



Frank Mitloehner



Elijah Smith



Rajesh Chintala

## Building a Credible Technology Team

**Newtrient's Technical Advancement Team (TAT)** is the first of its kind to engage such a team of globally respected academia and technical experts to evaluate and score individual technologies on common criteria.

The team includes innovative and practical professionals, versed in all aspects of nutrient recovery, to add value from dairy manure. Each team member brings something different to the table, representing technical expertise in environmental management systems, nutrient recovery, renewable energy, environmental asset markets and sustainability issues. This Team's collective beneficial effect results in helpful insights, and positive outcomes for farms and our food system, communities and environment.



Garth Boyd



Matt Sutton-Vermeulen



Mark Kieser



Dana Kirk



Curt Gooch



Craig Frear





“We are just beginning to realize the benefits of manure. Manure has nitrogen, phosphorus and other valuable nutrients we need to unlock economic and environmental solutions. Newtrient is driving new products to market that maximize the nutrients in manure and reduce the need to produce commercial fertilizers.”

**DAN DEGROOT** | DAIRY FARMER, SKYRIDGE FARMS AND NEWTRIENT  
BOARD MEMBER FOR FOUNDING MEMBER-OWNER, DARIGOLD



# BUSINESS DEVELOPMENT

*Advancing companies, technologies and products that deliver a new economic future for dairy.*



Manure has been the preferred fertilizer for hundreds of years, containing nitrogen, phosphorus, potassium and other valuable nutrients. Newtrient drives the adoption of innovative technologies and manure-based products that achieve maximum value of manure from barn to market.

One of Newtrient's primary roles is to provide industry insight, technical expertise and business discipline to vendors, service providers, farmers, cooperatives, investors, policy makers and NGOs. These efforts advance the goal of growing the economic return to farmers while providing Newtrient with project-based revenue through fee-for-service activities.





## BUSINESS DEVELOPMENT

Newtrient has assessed several promising companies, technologies and products, from all business sectors, in search of innovative solutions with the potential to deliver economic and operational opportunities to farmers.

### RESULTS:

- Evaluated several emerging manure management and nutrient recovery solutions to determine dairy viability.
- Served as an incubator and accelerator for technology vendors and product developers.
- Provided technical and business assessments (due diligence, financial risk and potential environment and economic gains) for farms, regions and cooperatives.
- Facilitated the selection of on-farm technologies and vendor contracts.

### LOOKING AHEAD:

- Newtrient is expanding the manure-based product market to generate new revenue streams for dairy farmers.
- **Expanding dairy options in the packaged retail market.** We know that there are valuable components in manure that people seek and buy, including nitrogen, phosphorus, fiber and good biological matter that support soil health and improved water quality and quantity outcomes.

Newtrient creates new markets for these manure components by turning them into product opportunities. For example, Newtrient is working with an innovative dairy fiber processor that can take the fiber from manure and develop a viable, packaged retail product for sale to the lawn and garden industry. This is just one of several opportunities to deliver a large-scale, expedited path to market for manure-based products.



Newtrient is helping to create an organized market that takes manure from



BARN



FIELD

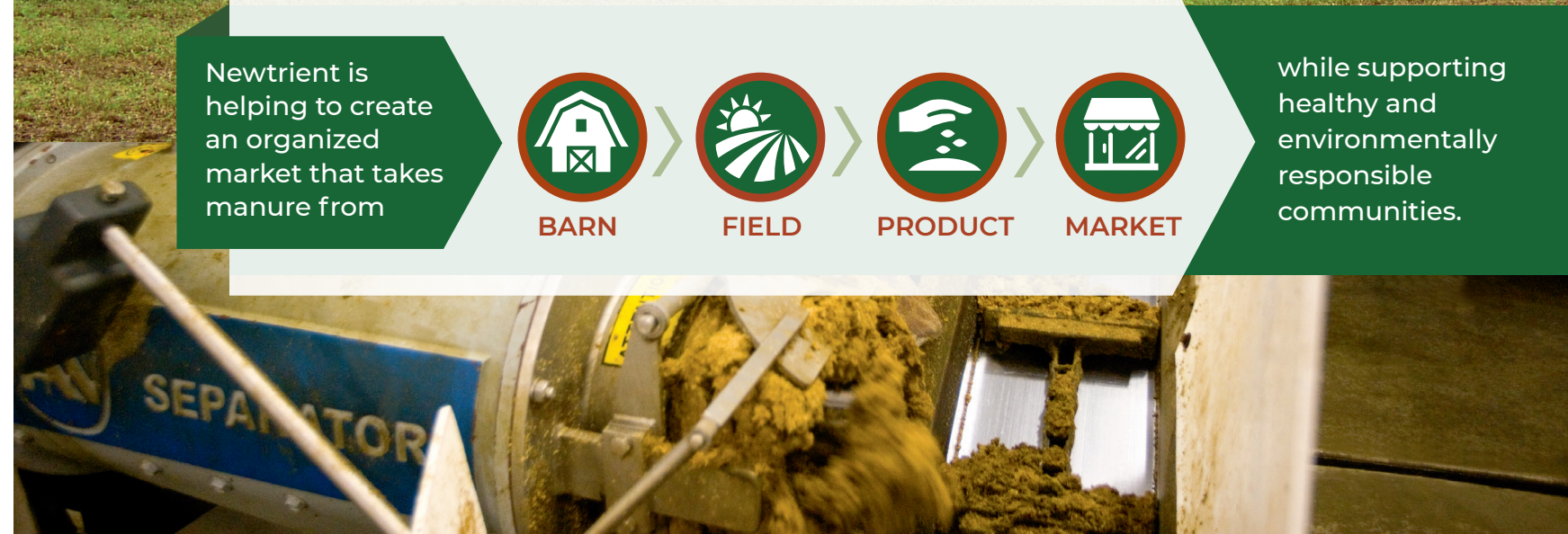


PRODUCT



MARKET

while supporting healthy and environmentally responsible communities.







*“Dairy is uniquely positioned to deliver societal benefits including improved soil health and water quality and other ecosystem benefits. However, we need to establish a market that rewards investment and creates value for consumers, local communities and dairy farm families.”*

JED DAVIS | AGRI-MARK / CABOT CREAMERY COOPERATIVE



# ECOSYSTEM SERVICES MARKETPLACE

*Developing market-based solutions that sustain healthy ecosystems.*



Farmers have always been at the center of food production. More recently, we've identified a market-based approach that would allow farmers to do more than produce food — to improve the environment.

Technologies and practices that most effectively preserve and recycle nutrients are also opening doors to unleash the new markets that deliver abundant food, sound economics and societal environmental benefits including improved soil health, greenhouse gas emission reductions, and water quality and quantity improvements.





Newtrient is working within key dairy states to introduce market-driven environmental solutions. The solutions monetize ecosystem benefits, like improved soil health and water quality, and deliver incentives for farmers who are actively adopting sustainable practices to protect and enhance the environment. It's a win for farmers, a win for communities and a win for consumers.

To advance this approach, we've secured state and federal grant funding to deliver expertise, models and solutions needed to build a trusted, credible market-based approach within key dairy states. This includes standardized protocols and verifiable water quality outcomes that will provide certainty to both the buyers and the sellers who participate in the services marketplace.

**RESULTS:**

- In our nation's capital, our team has forged excellent relationships with policymakers, both in the administration, at the EPA and U.S.D.A. (securing funding commitments for our work), and on Capitol Hill where we regularly educate members of Congress and their staff on dairy industry efforts.
- **California** is seeking dairy industry solutions to lower greenhouse gas emissions, and Newtrient has taken steps to advise California Air Resources Board (CARB) and Department of Food and Agriculture (CDFA).
- In the **Central Rangelands**, Newtrient joined efforts with the Noble Research Institute and other subject matter experts and practitioners to advance a marketplace system driven by soil health,

carbon sequestration and water quality and quantity improvements on agricultural working lands.

- In **Wisconsin**, Newtrient is working to introduce a trusted, credible program that would expand the state's three existing water quality trading programs.
- In **Pennsylvania** Newtrient is engaged in efforts supporting the state's Coalition for Affordable Bay Solutions that focuses on the state's procurement obligations and seeks to have pollution prevention efforts on farms compete financially with municipal wastewater treatment facilities.

- In **Vermont**, Newtrient received U.S.D.A. and state grants to develop a protocol under which farmers can generate credits for sustainable environmental practices. This protocol, translating farm practices into water quality benefits for the Lake Champlain watershed, will be customizable for other states.

Today's farmers want to do more than supply nutritious, affordable food. They want to meet society's demands and help contribute to a healthy environment for future generations.

**LOOKING AHEAD:**

We continue to source grants and outside funding, establish relationships and working groups at the state and federal level and provide solutions that advance this market-based approach, starting in key dairy states and moving beyond.

**GRANTS****\$370k**

**NRCS GRANT**  
for Ecosystem  
Services Marketplace  
Advancement

**\$150k**

**LAKE CHAMPLAIN  
BASINS PROGRAM  
GRANT**  
in Vermont

**\$160k**

**VERMONT  
LEGISLATION AND  
CLEAN WATER  
GRANT**



These 14 organizations, representing almost all dairy farmers in the U.S., created Newtrient to discover innovative ways to reduce the environmental footprint of dairy and to make it economically viable to do so. They recognize the need to bring manure management technologies and providers together with dairy farmers, researchers and other stakeholders in order to seize the opportunities from manure and other environmentally sustainable practices.



“Newtrient, through its forward-looking founders, has built a solid foundation in the emerging area of manure management and resource recovery. Early actions to advance innovative technologies, products and markets will have far-reaching implications on the environment, economy and communities and deliver future solutions for farmers.”

BARB O'BRIEN | PRESIDENT, INNOVATION CENTER FOR U.S. DAIRY

Visit [www.newtrient.com](http://www.newtrient.com) or email us at [info@newtrient.com](mailto:info@newtrient.com)



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