



April 29, 2021
Dr. Seth Meyer
Chief Economist
Office of the Chief Economist
United States Department of Agriculture
1400 Independence Avenue, SW
Washington, DC 20250

Re: Federal Register: Notice of Request for Public Comment on the Executive Order on Tackling the Climate Crisis at Home and Abroad (Docket Number: USDA-2021-0003)

Dear Dr. Meyer:

The National Milk Producers Federation (NMPF) and Newtrient LLC are pleased to submit the following comments on the Solicitation of Public Comment on the Executive Order on Tackling the Climate Crisis at Home and Abroad (Docket No. USDA–2021– 0003).

The National Milk Producers Federation, based in Arlington, VA, develops and carries out policies that advance the well-being of dairy producers and the cooperatives they own. The members of NMPF’s cooperatives produce most of the U.S. milk supply, making NMPF the voice of dairy producers on Capitol Hill and with government agencies. Newtrient LLC was formed by 14 leading dairy organizations and represents nearly all U.S. dairy farmers. Created to reduce the environmental footprint of dairy and make it economically viable to do so, Newtrient delivers innovative technology, manure-based products, and market-driven solutions to create added value for farmers, communities, and the environment.

U.S. Dairy Industry Commitment to Sustainable Production

The U.S. dairy industry’s sustainability successes have been intimately tied to the long-standing USDA work in research, education, and economics. Due to the foundational research from and extension outreach by USDA going back many decades, by 2007 producing a gallon of milk used 90 percent less land and 65 percent less water, with a 63 percent smaller carbon footprint than in 1944.¹ In 2009 and reaffirmed in 2013, the U.S. dairy industry and USDA committed to increase sustainability by reducing greenhouse gas (GHG) intensity 25% by 2020.² Preliminary analysis shows the goal is within reach with producing a gallon of milk in 2017 requiring 30% less water, 21% less land, a 19% smaller carbon footprint and 20% less manure than it did in 2007.³

In 2010, the U.S. dairy industry launched the National Dairy FARM Program: Farmers Assuring Responsible Management™ “to show customers and consumers that the dairy industry is taking the very best care of cows and the environment, producing safe, wholesome milk and adhering to the highest standards of workforce development.”⁴ Created by NMPF in partnership with Dairy Management Inc., the FARM Program helps ensure the success of the entire industry by demonstrating that U.S. dairy

¹ Capper, J.L., R.A. Cady, D.E. Bauman The environmental impact of dairy production: 1944 compared with 2007. 2009. Journal of Animal Science. 87:6 Pp 2160–2167. <https://doi.org/10.2527/jas.2009-178> 1

² Memorandum of Understanding Between United States Department of Agriculture and The Innovation Center for U.S. Dairy. April 2013. <https://www.usda.gov/sites/default/files/documents/usda-mou-innovation-center-us-dairy.pdf>

³ Capper, J.L., and R.A. Cady. 2020. The effects of improved performance in the U.S. dairy cattle industry on environmental impacts between 2007 and 2017. Journal of Animal Science. 98:1. Pp.1-14. <https://doi.org/10.1093/jas/skz291>

⁴ National Dairy FARM Program. 2020. <https://nationaldairyfarm.com/>



farmers are committed to producing the best milk with integrity. The FARM Environmental Stewardship platform provides a comprehensive estimate of GHG emissions and energy use on dairy farms with a suite of tools and resources for farmers to measure and improve their footprint.⁵ Today, organizations representing 99 percent of U.S. milk volume participate in the FARM Program, with almost 80 percent by milk volume participating in the FARM Environmental Stewardship area.

In 2018, the Innovation Center for U.S. Dairy convened leadership from across the industry to establish the U.S. Dairy Stewardship Commitment to document and demonstrate collective social responsibility progress in important areas including animal care, environmental stewardship, product quality and safety, workforce development and community contributions.⁶ As part of its collective commitment to provide the world responsibly-produced dairy foods that nourish people, strengthen communities and foster a sustainable future, last year the U.S. dairy industry set aggressive new environmental sustainability goals to become carbon neutral or better, optimize water usage and improve water quality by 2050.⁷

To reach these 2050 goals, the U.S. dairy industry will need to identify technological and other advancements that can accelerate improvements, enabling nimble adaptation and focusing on technology and practices that can be scaled for maximum impact. To meet these challenges, we have mobilized through the Net Zero Initiative (NZI) a partnership of the U.S. dairy community that seeks to unite the assets and expertise of trade, professional and industry organizations in a collaborative effort to create a path and growing portfolio of strategies and programs to achieve carbon neutrality, as well as significant improvements in water quality, through adoption of economically viable technologies and practices. USDA is an important part of this collaborative effort.

We are pleased to offer the following comments on the questions posed in the USDA request for public comment on President Biden’s Executive Order.

1. Climate-Smart Agriculture and Forestry Questions

A. How should USDA utilize programs, funding and financing capacities, and other authorities, to encourage the voluntary adoption of climate-smart agricultural and forestry practices on working farms, ranches, and forest lands?

USDA should continue to make voluntary conservation programs, financial assistance and technical assistance available to producers. USDA should look to increase opportunities for “bundles” of conservation practices that have a synergistic impact to improve climate resilience, reduce greenhouse gas emissions and sequester carbon. USDA must also expand opportunities for producers to use innovative technology through USDA programs – both conservation cost-share assistance and rural development programs. We also believe climate agriculture and forestry strategies must be equitable and not economically or environmentally disadvantage any group. Strategies should improve the environment while producing the most benefit possible for all while minimizing societal costs.

⁵ FARM Environmental Stewardship. 2020. <https://nationaldairyfarm.com/dairy-farm-standards/environmental-stewardship/>

⁶ Innovation Center for U.S. Dairy. 2018. The U.S. Dairy Stewardship Commitment. <http://commitment.usdairy.com/>

⁷ Innovation Center for U.S. Dairy. 2020. New Environmental Goals Including Carbon Neutrality and Cleaner Water with Maximized Recycling by 2050. <https://www.usdairy.com/sustainability/environmental-sustainability>



The responses to the additional sub questions of question #1 provide details on existing USDA programs and new strategies, partnerships and carbon markets.

1. *How can USDA leverage existing policies and programs to encourage voluntary adoption of agricultural practices that sequester carbon, reduce greenhouse gas emissions, and ensure resiliency to climate change?*

USDA programs can aid dairy producers in making substantial impacts by adopting climate smart practices, aligning the USDA climate strategy and the dairy industry goals to achieve net zero carbon emissions by 2050. While livestock operators have been utilizing NRCS programs, the past offerings of NRCS programs have substantially neglected the areas of manure and feed management, areas that will have a major impact on reducing carbon emissions. We are pleased to offer comments on new and innovative approaches USDA could take to address the shortfalls in manure and feed management strategies.

Dairy producers are interested in new approaches to feed management that can reduce enteric methane emissions and subsequently reduce GHG emissions from dairy production. Enteric methane emissions, including gas released from cow eructation, account for approximately 1/3 of a dairy farm's GHG footprint. We recommend that NRCS review the existing feed management practice standard considering ongoing developments and research in the area of feed management to reduce enteric emissions. New feed amendments that reduce GHG emissions and routine milk analysis -- such as milk urea nitrogen, which can be used to refine dairy cow diets to reduce ammonia volatilization and overall nitrogen from animal waste -- should also be included in Environmental Quality Incentives Program (EQIP) practices and conservation practice standards.

USDA should also consider establishing a transition program for switching rations to reduce environmental impact. This program could begin with a review of the rations, similar to an energy audit, and then cover the costs of test rations, implementing recommendations, taking actions to reduce enteric emissions, and moving to high quality feed which has proven to have great impact on enteric GHG emissions. These approaches to feed management would greatly improve the assistance that can be provided to dairy operations and could result in substantial environmental benefits.

Nutrient management is a resource concern in several regions of the country and USDA programs could increase the practices available for assistance to dairy producers. Advanced nutrient management practices and additional practices consistent with a Comprehensive Nutrient Management Plan should be eligible for cost-share assistance. Manure analysis, alternatives to remove manure from phosphorus limited areas, equipment calibration, and related activities should be practice options for dairy operators. USDA NRCS should also include practices focused on water recycling (reclaimed water use), recycling of liquid waste and the adoption of advanced nutrient recovery technology. Using enhanced nutrient recovery technology prior to the precision application of nutrients is another practice USDA NRCS should include in practice options. Finally, in this arena, we recommend that USDA establish a conservation practice standard for a 4R type approach for dairy manure as a fertilizer. These practices and technology can improve water quality and reduce greenhouse gas emissions and are approaches that could be deployed today.

Expansion of conservation practices for dairy operations could provide farmers additional pathways to improve both air and water quality through USDA conservation programs. USDA

NRCS should explore a new conservation practice standard for silage management that could provide benefits for reducing GHG emissions, reducing leachate water loss and improving water quality from proper storage and management practices. Additionally, innovative approaches to using cover crops on dairy feed production such as inter-seeding, aerial seeding, approaches to extend growing seasons, and various cover crop approaches for dairy operations where there has not been adoption of cover crop practices will provide water quality and carbon sequestration benefits. For example, targeting the adoption of cover crops following silage harvest has great opportunity to improve water quality, increase carbon sequestration and reduce greenhouse gas emissions. USDA NRCS should also review Conservation Stewardship Program (CSP) enhancements that restrict the ability to graze and harvest cover crops, as these restrictions reduce the interest of livestock operators in trying cover crops through CSP. For Rural Development programs, the Rural Energy for America Program (REAP) could include additional points to project scores for digesters accepting food waste. Additionally, energy audits could be expanded and improved to include areas specific to dairy operations.

2. *What new strategies should USDA explore to encourage voluntary adoption of climate-smart agriculture and forestry practices?*

We suggest that USDA examine the following areas for new approaches and strategies the Department could take to further the adoption of climate smart practices:

- **Productivity:** identification of additional milk production efficiency that can be realized through genomics, precision breeding, feed efficiency, and animal health and management
- **Enteric Emissions:** increased understanding of methods to decrease enteric emissions through genomics, precision breeding, precision feeding, and feed additives
- **Feed Production:** increased understanding of conservation practices that can be implemented to improve soil carbon sequestration and decrease nutrient runoff; and identification of additional feed production efficiency that can be realized through genomics, precision nutrient management, and harvest optimization
- **Manure & Nutrient Management:** increased understanding of technologies and conservation practices that can be implemented related to manure management, leading to reduced environmental impacts and improved utilization of nutrients contained in manure

For example, USDA energy programs could facilitate the expansion of renewable fertilizer by expanding the eligibility for grants and financial assistance to cover the technology and systems to generate manure-based fertilizer products. This technology is commercially available, and the financial assistance provided would have a significant impact in reducing the GHG emissions, helping to meet climate goals.

B. How can partners and stakeholders, including State, local and Tribal governments and the private sector, work with USDA in advancing climate-smart agricultural and forestry practices?

NMPF encourages USDA to use the Conservation Innovation Grant program, including the new On-Farm Conservation Innovation Trials, to look at new technology and data collection efforts that could facilitate farmer understanding of climate smart practices and on-farm decision making. In addition, increasing USDA staff participation in learning opportunities to understand new technologies and how these may fit within USDA programs would be beneficial. The ability for new, innovative technologies and



approaches to be studied and eligible for cost-share funding will be important to reaching our climate goals.

Dairy cooperatives are key partners that are engaging in the Net Zero Initiative. They work directly with dairy farmers and are a trusted resource. Because of their active relationship with dairy farmers and involvement in the Net Zero Initiative co-ops are a natural fit for USDA partnership and should be eligible for technical assistance grants to increase on-farm practice adoption. This would support efforts to increase the adoption of climate smart agricultural practices to reach climate goals. Technical assistance and continued outreach to work with dairy producers one on one will be essential to engage these producers based on the site-specific needs of their operation. Each dairy, regardless of size, can contribute to the dairy industry's Net Zero goals, and technical expertise will be needed to find those practices that work for each individual operation.

Demonstration farms based on regional dairy production systems will provide educational opportunities both in terms of dairy producers learning directly from other dairy producers and in terms of research, testing and exploring new technology and practices to understand those that have the greatest impact and their related economic feasibility. USDA should look to expand funding for these types of demonstration projects with partners, such as Newtrient, that can assist in assessing the technology, impacts and economic feasibility of new technology and practices.

C. How can USDA help support emerging markets for carbon and greenhouse gases where agriculture and forestry can supply carbon benefits?

One concept that has been proposed is to use USDA's Commodity Credit Corp. spending authority to set up a carbon bank to support emerging markets for carbon and greenhouse gases sourced from agriculture. USDA should implement a pilot program to test and refine the role of a carbon bank. USDA should ensure that the proposed carbon bank is inclusive of all sources of reducing carbon and greenhouse gases including feed production, enteric emissions, manure and nutrient management and on-farm energy use and efficiency. USDA should also ensure that the proposed carbon bank includes a mechanism to reward early adopters of practices and technologies to reduce carbon and greenhouse gases, most of whom are not eligible to participate in private carbon markets. A pilot program would allow USDA to better understand the role of a carbon bank in establishing prices for carbon and greenhouse gas reductions.

Another area that USDA could support emerging markets for carbon and greenhouse gases sources from agriculture is to assist in the development of protocols for practices and technologies for which protocols do not currently exist or where protocols may exist but have no or limited use. From a dairy producer perspective, gaps in protocols exist in the following areas: enteric emission reductions, displacement of commercial fertilizer use through nutrient recycling/efficiency, manure treatment and energy efficiency.

D. What data, tools, and research are needed for USDA to effectively carry out climate-smart agriculture and forestry strategies?

As outlined in an earlier question, management of enteric emissions will have a significant impact on dairy's methane emissions. Additional research and quantification of the impacts of different feed management systems and approaches to managing a dairy cow's diet to impact enteric emissions is an area where USDA should focus additional research. In addition, coordination and consultation with



other agencies reviewing feed additives to reduce enteric emissions is needed to allow for new innovations to continue to move through the regulatory system and be available to dairy producers.

Data

The dairy industry uses data from several sources, including USDA to support estimates and calculations in the dairy life cycle assessment and create the framework of calculations for FARM ES. NMPF encourages expanding USDA data collection to support refining dairy feed calculations, to provide data to calibrate models, and to maintain an independent data source for reporting on the dairy industry's progress toward its 2050 goals.

The USDA Agriculture Resource Management Survey (ARMS) tracks the economics, production practices and resource management of various crops and livestock sectors and is a primary source for information on the adoption of resource management practices on farm. However, key dairy feed crops – alfalfa and corn silage – are not surveyed by ARMS. Expansion of ARMS to include alfalfa and corn silage would improve the data source for reporting on conservation practices adopted for feed production and would support the data analysis of these crops. NMPF appreciates USDA's receptiveness to this feedback and values the ongoing dialogue on this topic.

The USDA National Animal Health Monitoring Systems (NAHMS) Survey is an excellent source of dairy specific information and the USDA's Animal Plant Health Inspection Service (APHIS) works directly with the dairy industry to develop the survey to meet the need of the dairy industry. In 2014, the survey covered extensive questions on the management of dairy operations and the data was used to issue a special report on nutrient management on dairy operations.

Research

The U.S. dairy industry has identified research gaps associated with quantifying and assessing the environmental and agronomic impacts of technologies, products, and practices in dairy feed production. It is an industry priority to fill this knowledge gap by quantifying the impacts of adopting no or minimal tillage, cover crops, innovative crop rotations, and novel fertilizer sources (including new manure-based fertilizer products) on soil carbon sequestration potential, environmental and agronomic outcomes and soil health benefits. Further research and focus on genome design provide an opportunity for the industry to produce more milk with a reduced carbon footprint, utilizing less antibiotics and with fewer replacement animals. The utilization of genomics and precision breeding can drive improvements in milk production efficiency, feed production efficiency, enteric emissions, feed production and manure and nutrient management. Additionally, the use of genomic selection, and other selective breeding techniques, to develop dairy cattle that are more resistant to heat represents an opportunity for increasing milk production in impacted regions.

Technology Tools

Deployment of precise, accurate and field-based sensors to collect information in real time can drive improvements in milk productivity, enteric emissions, feed production and manure and nutrient management. While the industry has seen significant automation in many areas, there remain several areas where increased research and study could represent a great opportunity for improvement. Areas of opportunities include: In-field sensors for monitoring soil and crop conditions, soil carbon content and GHG losses; edge of field sensors to detect nutrient losses; instrumentation for real time monitoring of harvest to optimize the feed value and digestibility;



real time detection of mycotoxin and testing of feed ingredients; daily monitoring of the milk and activity data for each cow and manure nutrients. However, information is only useful if you can access it. For this reason, in addition to the actual sensors and instruments there is a real need for the continued expansion of high-speed communications infrastructure that is suitable for use over a broad area to allow all the data and information that can be gathered to be accessed and analyzed.

E. How can USDA encourage the voluntary adoption of climate-smart agricultural and forestry practices in an efficient way, where the benefits accrue to producers?

USDA programs must continue to expand practice options to address critical areas of need by each sector of agriculture production. For dairy operations, manure management is an area where USDA NRCS can provide additional options to producers and have a significant impact on the adoption of climate smart agricultural practices. Technology, often expensive for dairy operations to install without financial assistance, can result in environmental improvements related to climate and water quality, and provide additional financial benefits to producers over the longer term.

USDA NRCS has been overly restrictive in the approach to offering assistance to livestock operations, neglecting to include innovative approaches to manure management. We are aware that there are statutory restrictions on some elements of CSP as it relates to animal waste storage, but CSP could be used to offer manure management practices for soil health benefits and cover crop adoption that would expand the options available to livestock producers. We recommend USDA NRCS investigate the following approaches:

- Include advanced manure recovery technologies prior to land application for drainage water management.
- Include adding manure and manure products as soil amendments for conservation crop rotations and soil health management.
- Modify enhancements for residue and tillage management for no till to increase plant available moisture to include using animal wastes and compost to meet the enhancement objectives.
- Applying compost amendments from crop or livestock residues to improve soil health.

Dairy producers are looking for opportunities to improve water use, making the most of the water by recycling water (reclaimed water use) several times throughout the dairy barn, installing well meters, and finally as irrigation water. USDA NRCS should help producers to innovate and improve upon water use, measurement and recycling (using reclaimed water) at dairy operations. These options will reduce water consumption and ensure that it is used on dairy operations in the most efficient manner.

Programs should be reviewed related to renewable energy production to increase funding for the adoption of anaerobic digestion and other technologies that reduce GHG emissions from manure and/or offset fossil fuel usage. Most important to this effort is the establishment of long-term markets and incentives that allow enough return on these projects to encourage development.

The waiver authority for conservation programs from adjusted gross income requirements is important for dairy operations to participate in USDA conservation programs. This much-needed provision will better enable larger dairy producers to access EQIP and other important conservation programs.



2. Biofuels, Wood and Other Bioproducts, and Renewable Energy Questions

A. How should USDA utilize programs, funding and financing capacities, and other authorities to encourage greater use of biofuels for transportation, sustainable bioproducts (including wood products), and renewable energy?

B. How can incorporating climate-smart agriculture and forestry into biofuel and bioproducts feedstock production systems support rural economies and green jobs?

C. How can USDA support adoption and production of other renewable energy technologies in rural America, such as renewable natural gas from livestock, biomass power, solar, and wind?

The Administration should update and continue the [Biogas Opportunities Roadmap](#) originally published in August 2014. Biogas systems offer a cost-effective and profitable solution to reducing methane emissions, diverting waste streams and producing renewable energy. The Roadmap identified sites that produce biogas and opportunities to increase the use of biogas through investment, innovation and market development.

USDA should also promote manure-based fertilizer and look closely at programs administered by the Department to ensure they are meeting the climate policy objectives of the Biden Administration and USDA. Specifically, we are concerned about a petition before the National Organic Standards Board (NOSB) seeking to classify aqua ammonia extract from dairy cattle manure as a non-synthetic nitrogen fertilizer. Manure-based aqua ammonia holds great promise for expanding the supply of organic nitrogen for United States organic crop production and facilitating further growth of that industry by enabling organic crop producers to provide adequate N without over-applying P. These two benefits will improve the sustainability of United States organic cropping systems. We believe that science demonstrates the soil and crop benefits of ammonia extract from dairy cattle manure as a nitrogen fertilizer and that it should define as non-synthetic. Additional information on this subject can be found in the [April 5, 2021 comments to the NOSB](#).

Conclusion

One of the greatest opportunities that exists for dairy farmers is their ability to provide real solutions to many of today's biggest environmental challenges like carbon emissions, soil health, water quality and water quantity. Embracing new practices and technologies is key to making America's dairy farmers an environmental solution while providing wholesome and nutritious dairy products to the U.S. and the world.

Sincerely,

Chris Kopman
General Manager
Newtrient LLC

Jamie Jonker, Ph.D.
Chief Science Officer
Vice President Sustainability, Scientific Affairs
National Milk Producers Federation