



**STATEMENT FOR THE RECORD**

**Submitted to the U.S. Senate  
Committee of Agriculture, Nutrition, & Forestry**

**"Climate Change and the Agriculture Sector"**

**May 21, 2019**

**Room 328A Russell Senate Office Building  
Washington, DC**

Chairman Roberts, Ranking Member Stabenow, and members of the committee:

Thank you for holding a hearing to examine climate change and the effects on farmers. National Farmers Union (NFU) represents about 200,000 family farmers, ranchers and rural residents. NFU works to protect and enhance the economic well-being and quality of life for family farmers and ranchers and rural communities across the country.

Climate change is already having a significant impact on family farmers and ranchers. Changing growing seasons, precipitation patterns, and increasingly frequent and severe extreme weather events have all taken their toll. This spring, flooding left farm fields across the Midwest underwater. Meanwhile, growers across the Southeast are still working to recover from Hurricane Michael, which is one of only four category 5 hurricanes to make landfall in the United States. And wildfires in California, brought on by increasingly warm and dry weather, have caused more damage than ever before.

NFU has long been concerned with the ongoing and future impacts of climate change on agriculture and food security. In light of these concerns, NFU members at our 117<sup>th</sup> Annual Convention this spring passed a Special Order of Business supporting “policies, collaborations with consumers, and efforts throughout the agricultural value chain” that would help farmers adapt to and mitigate climate changes impact.<sup>1</sup>

NFU supports a comprehensive federal approach that would encourage and assist farmers in implementing climate friendly practices on their operations. Core elements of this approach include funding and promotion of the U.S. Department of Agriculture’s (USDA) existing voluntary incentive-based conservation programs; initiatives to expand on-farm energy production and biofuels; and measures to incentivize new markets and supply chains to help farmers diversify their operations. A strong investment in research must underlie these efforts. All of these initiatives are core to our principles of ensuring domestic and global food security and competitive markets. We urge you to consider policies that provide family farmers and ranchers the tools they need to curb future effects of climate change, increase their resiliency, and help make America’s family farms more economically viable.

### **Agriculture’s role in climate change**

U.S. farmers and ranchers are both contributors to and victims of climate change. While the sector accounts for less than 5 percent of the U.S. economy, it accounted for about 9 percent of total greenhouse gas emissions in 2017.<sup>2</sup> Many of these emissions are due to the nature of agricultural production: livestock emit methane; burning crop residues and tilling soil to prepare

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<sup>1</sup> See appendix.

<sup>2</sup> U.S. EPA. “Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2017.” April 11, 2019. Retrieved May 20, 2019. <https://www.epa.gov/sites/production/files/2019-04/documents/us-ghg-inventory-2019-main-text.pdf>

for planting releases carbon and other gases; and the application of certain fertilizer can release nitrogen and other greenhouse gases.

USDA has found that climate change will affect everything from what farmers can grow to where they can grow it. A 2015 report from USDA found that “U.S. agriculture faces significant changes in local patterns of precipitation and temperature over the next century, with implications for regional water cycling and water availability.” How bad things will get will depend on the severity of changes in local weather patterns, the availability of water for irrigation, and the ability of the sector to adapt.<sup>3</sup>

Should current weather conditions and changes persist, by 2080 crop production in some of the most productive parts of the country—particularly the Midwest and Northern Plains—will decline, while Mountain and Pacific Coast states will see a marked increase in dryland production, according to USDA. But those increases are unlikely to compensate for the production that is lost. The Corn Belt and Northern Plains account for about half of agricultural production in the United States, and projected declines in these regions account for 2.1 percent of their combined acreage.<sup>4</sup> Even as farmers undertake broadscale shifts in how and what they produce, USDA’s climate projections suggest they will have to make those potential decisions amid increasingly frequent and severe storms and droughts.

Unlike many other sectors, agriculture cannot only reduce its emissions but capture emissions from other sectors. Plants take up carbon from the atmosphere and deposit it in soil, making agriculture a key player in carbon sequestration. Practices like no-till, cover cropping, crop rotations and precision farming techniques will help unlock agriculture’s potential as a carbon sink. USDA and other players in the sector are working with growers to adopt these and other climate-smart practices, which can improve yields and encourage the storage of carbon in soil. We need to build upon these efforts to expand farmers’ access to the tools and information they need to mitigate and adapt to climate change.

The USDA’s Natural Resources Conservation Service is using money provided in the farm bill to work with farmers to implement a host of practices aimed at leaving soil undisturbed and increasing plant biodiversity—key requirements for carbon sequestration in soil. And their efforts are working. Through these voluntary, incentive-based programs, the use of cover crops, a key tool in protecting soils, increased from 10.3 million acres in 2014 to 15.4 million in 2017, according to USDA.<sup>5</sup> Meanwhile, about half of corn, cotton, soybean, and wheat producers have

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<sup>3</sup> USDA Economic Research Service. “Climate Change, Water Scarcity, and Adaptation in the U.S. Fieldcrop Sector.” November 2015. Retrieved May 20, 2019.

<https://www.ers.usda.gov/webdocs/publications/45492/err-201.pdf?v=0>

<sup>4</sup> *Ibid.*

<sup>5</sup> USDA, National Agricultural Statistics Service. (2019) 2017 Census of Agriculture.

adopted limited or no-till practices on their farms.<sup>6</sup> These practices not only protect the soil, storing carbon instead of releasing it, but also curb runoff from fields that harms waterways.

Technology is helping farmers to mitigate and adapt to climate change. Farmers are using more efficient irrigation systems to increase yields while using less water. They are also deploying precision agriculture systems to limit the application of fertilizers and pesticides, which can both contribute to greenhouse gas emissions and potentially cause environmental harm.

Further, farmers are also increasingly interested in on-farm energy production, including wind and solar production, as well as producing crops for ethanol and other renewable fuels, which can play a key role in reducing American dependence on foreign fossil fuels and provide a new market for U.S. agricultural goods.

### **Building on Current Policy to Address Climate Change**

While the work U.S. farmers and ranchers are doing is important to reduce emissions, provide energy alternatives, and make farms more resilient, it needs to be done on a larger scale. To achieve broader adoption of mitigation practices and greater carbon sequestration by farmland, NFU recommends that Congress and the administration expand USDA's existing incentive-based conservation programs, promote and incentivize biofuels and on-farm energy production, and encourage market-based incentives for farmers to adopt climate friendly practices.

#### ***Conservation programs***

USDA and farmers and ranchers know what practices work to sequester carbon and promote agricultural resilience, but they are neither easy nor inexpensive to implement. For example, cover crops help to capture and keep carbon in the soil, and increase resiliency to drought and flood. However, planting them comes at a cost to farmers in the form of seed, time, energy use, and short-term impacts on yields. Increased funding and staff for USDA conservation programs will be key in any effort that aims to address agriculture and climate change.

The Environmental Quality Incentives Program (EQIP) and Conservation Stewardship Program (CSP) are USDA's main tools for providing funding and assistance to farmers to implement conservation practices on agricultural lands. NFU believes that both programs have a key role to play in the battle against climate change. We applaud Congress for leveraging each program to help farmers adapt to and mitigate weather volatility, a key product of climate change, in the 2018 farm bill.

The 2018 farm bill established Conservation Incentive Contracts within EQIP, targeting the program for longer-term, management-focused conservation. It also allows for higher reimbursement rates for state-designated high-priority practices. Going forward, we encourage

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<sup>6</sup> Clesson, Roger, "No-till and Strip-till Are Widely Adopted but Often Used in Rotation with Other Tillage Practices." USDA ERS. March 13, 2019. Accessed May 20, 2019.

Congress to examine ways to specifically prioritize EQIP for conservation practices that are most effective at sequestering carbon.

NFU is also grateful that the farm bill calls for better coordination between EQIP and CSP. It is critical that we encourage farmers to install and maintain comprehensive conservation systems. This change allows farmers to seamlessly take advantage of both programs' benefits. We are also glad the CSP was further leveraged for climate-smart production with the establishment of a bonus payment for cover crops and a supplemental payment for advanced grazing management.

Further, we were pleased to see the increases in the Conservation Reserve Program (CRP) acreage and funding for the Agricultural Conservation Easement Program in the 2018 farm bill. Programs such as these protect land from development and take highly erodible land out of production. Together, they play an important role in climate change adaptation and mitigation.

### ***On-Farm energy***

On-farm renewable energy generation and energy-efficient systems can help farmers access new revenue streams and reduce their carbon footprint and input costs. USDA's Rural Energy for America Program (REAP) has supported more than 15,000 renewable energy system installations and energy efficiency improvements nationwide. However, the program remains heavily oversubscribed. NFU supports increasing REAP funding to meet demand and to target the program to projects with the largest climate benefits.

NFU supports "expanding the utilization of anaerobic digesters."<sup>7</sup> However, in most cases, our members lack the quantity of waste necessary to serve as adequate feedstock for large-scale digesters. We believe the Carbon Utilization and Biogas Education Program established in the 2018 farm bill, will provide an effective tool to promote the development of biogas systems that aggregate organic waste from multiple sources. We also encourage the committee to identify ways to encourage the proliferation of small-scale digester systems.

NFU also supports the Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program; and the Biomass Crop Assistance Program. Each of these programs can play critical roles in promoting the development of the bioeconomy, providing farmers with additional marketing opportunities.

### ***Renewable fuels***

NFU supports growth in the use of renewable fuels, including ethanol, and any climate programs should work hand-in-hand with the Renewable Fuels Standard (RFS) program.

Ethanol, a renewable fuel produced largely from corn, has broad benefits for the environment. As a renewable, domestically produced resource, it reduces U.S. dependence on fossil fuels, and creates a cleaner burning fuel when mixed with gasoline. Real-world evidence shows use of

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<sup>7</sup> P. 137 of NFU 2018 Policy Book

ethanol blends reduces emissions of carbon monoxide, particulate matter, air toxic chemicals, and greenhouse gases compared to burning petroleum gasoline. As we move to even higher-level blends of ethanol such as E20 + we see even more benefit as a higher-octane fuel, and the motor fuel can burn even more efficiently. This results in better overall air quality than when vehicles burn conventional gasoline, significantly improving public health.

The Energy Independence and Security Act of 2007 required EPA to conduct lifecycle GHG emissions analysis to identify the renewable fuels eligible to meet the various categories under the RFS program. EPA conducted this analysis for corn-based ethanol as part of the 2010 RFS rulemaking. Since that time, published studies and more recent data have improved the understanding of corn ethanol's lifecycle GHG impacts.<sup>8</sup> U.S. farmers have responded to demand and concerns by moving toward sustainable practices and intensification, not land expansion.<sup>9</sup>

### ***Market-based incentives***

Finally, Congress and the administration should take steps to incentivize and ease the way for new domestic markets and supply chains so that farmers can have more control over what they produce and have the freedom to make climate friendly choices on their land. More diversified crop rotations have soil health and environmental benefits that in the long run can make land more resilient to extreme weather and help soil capture carbon.

Due to consolidation, farmers and ranchers face few choices in the markets they buy from or sell to. Many of our members have argued that this consolidation has limited their opportunities to diversify their operations. Because farmers have limited access to diverse input options, they are often locked into a small selection of commodities. This has implications both for farmers' environmental and economic sustainability. To see lasting, market-based climate benefits from

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<sup>8</sup>See, e.g., ICF, *A Life-Cycle Analysis of the Greenhouse Gas Emissions of Corn-Based Ethanol*, Report prepared for USDA (Jan. 2017), available at [https://www.usda.gov/oce/climate\\_change/mitigation\\_technologies/USDAEthanolReport\\_20170107.pdf](https://www.usda.gov/oce/climate_change/mitigation_technologies/USDAEthanolReport_20170107.pdf).

<sup>9</sup> See, e.g., Bruce A. Babcock and Zabid Iqbal, *Using Recent Land Use Changes to Validate Land Use Change Models*, Iowa State University Center for Agricultural and Rural Development, Executive Summary (2014), available at <http://www.card.iastate.edu/products/publications/pdf/14sr109.pdf> ("The contribution of this study is to confirm that the primary land use change response of the world's farmers from 2004 to 2012 has been to use available land resources more efficiently rather than to expand the amount of land brought into production. ... Our conclusion that intensification of agricultural production has dominated supply response in most of the world does not rely on higher yields in terms of production per hectare harvested. Any increase in yields in response to higher prices would be an additional intensive response."); see also Renewable Fuels Association, *USDA Data Show Cropland Reductions in Counties with Ethanol Plants from 1997-2012*, April 3, 2017, available at <http://www.ethanolrfa.org/wp-content/uploads/2017/04/USDA-Data-Show-Cropland-Reductions-in-Counties-with-Ethanol-Plants-from-1997-2012-1.pdf>.

agriculture, the government needs to examine ways to curb consolidation in the agriculture industry and encourage markets that help farmers and ranchers improve their environmental stewardship. Doing so could also create more space for other market-based incentives for climate friendly production.

To be sure, there have been market-based carbon sequestration systems for farmers that have worked. From 2006 through 2010, North Dakota Farmers Union (NDFU) and NFU partnered to create a program that traded carbon credits on the Chicago Climate Exchange (CCX), which was a voluntary cap-and-trade program similar to the mandatory system enacted internationally under the Kyoto Protocol. NDFU served as the program's fiscal agent, selling carbon credits that were earned on a per-acre basis with land management practices such as no-till and reduced-till cropping, long-term grass seeding, intensive rangeland management, and afforestation. Along with storing carbon in the soil, the conservation methods implemented provided substantial fuel savings, improved soil tilth, water storage and water efficiency, and reduced soil erosion. At the program's conclusion when the CCX ceased in 2010, NDFU had distributed more than \$7.4 million to 3,900 farmers who sequestered carbon on over five million acres.

### **Conclusion**

Government efforts fund and promote on-farm conservation, expand on-farm energy production and biofuels, and assist farmers in diversifying their operations would be a boon to producers who are currently struggling in a depressed farm economy. Climate change mitigation and resilience could help to rebuild rural areas and ensure the longevity of America's family farms and ranches.

Thank you for the opportunity to submit a statement for the record on climate change and agriculture. We look forward to working with you to identify policies and solutions to this pressing issue in ways that strengthen our family farms and rural communities.

Sincerely,

A handwritten signature in black ink, appearing to read "Roger Johnson". The signature is fluid and cursive, with a large initial "R" and "J".

Roger Johnson  
President, National Farmers Union



## **FAMILY FARMING AND CLIMATE CHANGE 2019 SPECIAL ORDER OF BUSINESS**

Climate change jeopardizes the livelihoods of U.S. family farmers, ranchers, and rural residents. Without immediate and decisive action, climate change will disrupt all sectors of the national and global economy and pose risks to the food supply and human health and well-being. Farmers need to have a seat at the table as the new political frameworks to address climate change are being developed.

Family farmers and ranchers have been significantly impacted by the changing climate, which has caused shifts in growing seasons, altered precipitation patterns, and increasingly severe and frequent national disasters. At the same time, family farms are uniquely positioned to mitigate climate as healthy soils and vegetation remove existing greenhouse gases from the earth's atmosphere.

In order to empower family farmers to lessen the negative impacts of climate change, NFU supports policies, collaborations with consumers, and efforts throughout the agricultural value chain that:

- Support research, cost-share and other incentives to help family farmers install and manage practices and infrastructure that mitigate climate change and sequester carbon;
- Encourage USDA Climate Hubs to coordinate climate information, agronomic and risk management support, and programs that enhance marketing options to allow family farmers to effectively utilize opportunities to enhance profits while mitigating climate change;
- Encourage energy efficiency, renewable energy production, and further development of the bioeconomy on family farms and in rural communities;
- Encourage cooperation and collaboration among family farmers to build and expand market infrastructure that will allow consumers to choose agricultural products that create climate benefits;
- Provide new opportunities for family farmers to articulate their climate mitigation efforts with consumers through food processors and retailers;
- Protect family farmland from carbon intensive suburban sprawl development; and
- Protect competition in the markets that family farmers buy from and sell into, allowing for more opportunities to make decisions that benefit soil and the landscape rather than farming within the narrow prescriptive demands of excessively consolidated markets.