National Farmers Union
UNITED TO GROW FAMILY AGRICULTURE

July 31, 2020
Mr. Stephen Censky, Deputy Secretary
United States Department of Agriculture

**Re: [Docket ID USDA-2020-0003] Solicitation of Input from Stakeholders on Agricultural Innovations**

Dear Deputy Secretary Censky:

National Farmers Union (NFU) appreciates the opportunity to provide input on the U.S. Department of Agriculture's (USDA) research and informed product goals as put forth in April 1, 2020 *Solicitation of Input from Stakeholders on Agricultural Innovations*—part of the Department's Agricultural Innovation Agenda (AIA). NFU works to improve the wellbeing and economic opportunity for family farmers, ranchers, and rural communities through grassroots-driven advocacy. NFU is a general farm organization with about 200,000 members across the country from all segments of agriculture. We believe that "the family farm is the keystone of a free, progressive, democratic national society, as well as a strong America, and is the basis of a safe, secure and stable food system."[1] NFU's members know that innovation is critical for family farmers and ranchers to continue to raise safe and reliable food, fuel, and fiber.

USDA has released the AIA as U.S. family farmers and ranchers face an uncertain economic future—a reality that the Department must keep at the fore as it moves ahead with sustainability-focused research and innovation efforts. Low commodity prices and unstable export markets have been exacerbated by the COVID-19 pandemic, which has roiled domestic markets and exposed weaknesses in the food supply chain and farm safety net. Farm debt is on the rise and bankruptcies are at the highest rate since 1981 despite record farm payments by USDA.[2] Family farmers and ranchers care deeply about their land and have for decades implemented conservation practices and adopted technologies to reduce inputs and protect natural resources. However, climate change presents new challenges that science is increasingly showing will require new tools and different solutions. At a time when farmers and ranchers are perhaps most in need of investment to ensure the climate resiliency of their operations, they often do not have the resources to do so. Losing a family farm not only ends

[1] *Policy of the National Farmers Union*, https://1yd7z7koz052nb8r33cfxyw5-wpengine.netdna-ssl.com/wp-content/uploads/2020/04/2020-NFU-Policy-Book-03312020.pdf, at 19.
[2] USDA Economic Research Service: https://www.ers.usda.gov/topics/farm-economy/farm-sectorincomefinances/assets-debt-and-wealth/

what could have been a generations-long way of life but also puts strain on the food supply and rural communities. USDA must work to ensure that the results and tools from the AIA are accessible to all farmers and ranchers in these difficult times.

As USDA and the agricultural sector talk about innovation, it must be done with a keen eye toward the looming effects of climate change. The changing weather and pest patterns, shifting growing seasons, and increasing extreme weather events caused by changes in the global climate system are the single biggest long-term challenge facing U.S. farmers and ranchers. To be sure, climate change is undoubtedly putting family farms, rural communities, and our food supply at risk. Agricultural research and innovation must look to create the tools farmers and ranchers need to increase the resiliency of their land and reduce their greenhouse gas (GHG) emissions. Farmers and ranchers are leading in the development of a climate-stable future, and USDA should ensure they have access to the resources and tools to succeed.

NFU's comments pertain to family farmers and ranchers, who raise the entire spectrum of agricultural products for a range of markets. Strong family farms and ranches are essential to the resilience of the food supply and rural communities. These comments aim to assist USDA as it works to identify research and innovation priorities and recommend improvements to the AIA that will work to promote family farmers and ranchers, rural communities, and all who rely on farming communities for safe and reliable agricultural products.

## I. USDA Innovation Values

Innovation and research that support a wide variety of farming practices and markets is necessary to create a safe and reliable domestic and global food system. However, the specific challenges farmers and rural communities face—including physical isolation and the intense consolidation of markets—present additional needs for a research agenda. While USDA's inquiry is limited to specific questions regarding "innovation clusters" distilled from The National Academies of Sciences, Engineering, and Medicine report *Science Breakthroughs to Advance Food and Agricultural Research by 2030*, USDA should realign the AIA to reflect:

- the harm to family farmers and ranchers caused by overproduction;
- the importance of sound scientific principles underlying USDA's research efforts;
- the need for adequate staff time and expertise at USDA; and
- the unique role of publicly funded research, in contrast with privately funded research.

### Production and Sustainability

USDA should reconsider the AIA's stated goal of "increasing agricultural production by 40 percent to meet the needs of the global population in 2050 while cutting the environmental footprint of U.S. agriculture in half." U.S. agricultural policy currently encourages what in some cases has proven to be the over production of certain agricultural products. Many farmers have stocks of corn, soybeans, dairy, and other goods that they cannot sell, which has pushed prices

below the cost of production. The rigid numeric goals regarding production and environmental stewardship in USDA's Solicitation of Input should not be indicators of success for American agriculture. The promise of prosperity through high volumes production has not delivered for U.S. family farmers and ranchers.

The AIA should instead call for the appropriate and profitable production of a safe and reliable supply of food and agricultural products to meet society's needs while bolstering farmers and their communities. This restatement reflects that progress, agricultural or otherwise, is best achieved by encouraging fair competition and balancing supply and demand.

This proposed framing also lays the groundwork for American agriculture to lead in establishing more equitable international trade policies and encourage knowledge sharing. NFU's policy on international trade calls for "flexibility for individual nations to provide economic safety net programs and address unforeseen production, market and trade circumstances."[3] It acknowledges that individual nations should identify and serve their own agricultural needs for their populations. USDA should set an example for agricultural leadership that meets global food needs without sacrificing future generations' ability to provide for themselves.

To be sure, as part of its research efforts, USDA should consider greater work on alternative economic policies for farmers, including supply management and other ideas that move away from models that encourage farmers to produce greater volumes of commodities. Certainly, the current system is not resulting in prosperity for U.S. farmers and ranchers.

A blanket call to increase production is not an effective or desirable way to satisfy global demand for agricultural products. Instead, USDA should work to balance supply and demand to ensure farmers receive an appropriate price that covers the true cost of production for the goods they produce. Ensuring a profit margin that encourages diligence and innovation among family farmers, would match supply and demand more effectively while reducing waste.

**Sound Scientific Principles**

NFU is opposed to efforts to politicize and manipulate scientific research and the communication of that research. Farmers cannot afford for the research and innovation they rely on to be put in question for non-scientific reasons. Unfortunately, there is a growing trend within contemporary politics to mistreat sound scientific evidence that calls for a response that the current Administration and Congress find unappealing. The Union of Concerned Scientists maintains a running list of examples where this administration has ignored sound science when

[3] P*olicy of the National Farmers Union* at page 85.

revising health and safety regulations and undermined valid scientific evidence in decision making processes. There are several instances where this has occurred at USDA.[4]

The AIA presents an opportunity to ensure the Department moves forward on sound scientific footing. It is in the best interest of U.S. farmers and ranchers for all USDA sustainability efforts to reflect the best science available.

**Customer Service**

USDA identifies coordination, uniformity, and efficiency as management priorities throughout the AIA. These are admirable and worthwhile goals that would benefit farmers when interacting with USDA while appropriately stewarding taxpayer resources. However, these goals should not outweigh the need to maintain experienced staff throughout USDA's agencies tasked with implementing the Agenda.

In recent years, USDA has left open staff positions vacant, potentially to the detriment of farmers and ranchers. Earlier this year, the head of the Natural Resources Conservation Service told Congress that the service had not hired to keep up with the rate of attrition and needed to fill about 1,200 positions.[5]

Experts are needed to advise farmers of best practices for their land, which can vary widely depending on crops, seasons, and methods of production. While uniform processes and efficiencies can certainly assist farmers in their interactions with USDA, it remains very important that the Department train and maintain experienced staff to ensure the many nuances of agricultural production and rural development are not overlooked. The entire agricultural economy, and all essential functions that rely upon it, should not be put at risk for want of time, resources, or job security among USDA staff.

**Public Research**

The AIA also makes frequent reference to aligning private and public research priorities. While such collaboration can be beneficial, privately funded research can limit farmer access to findings. It is critical that the results of publicly funded research remain in the public domain and that funding sources for private research be fully disclosed.

USDA should work with an eye toward long-term research needs. Farmers and other stakeholders rely on the Department to bring forth innovative developments that are essential to agriculture's progress but may not result in near-term profit. Excessive emphasis on

[4] Union of Concerned Scientists, "Attacks on Science." July 2, 2020: https://www.ucsusa.org/resources/attacks-on-science

[5] Davies, Steve. "NRCS Hiring 1,000-plus employees to bolster field offices." Agri-Pulse. 29 April 2020: https://www.agri-pulse.com/articles/13569-nrcs-hiring-1000-plus-employees-to-bolster-field-offices

coordination between public and private agricultural research endeavors robs independent family farmers of needed innovation and reduces viable paths toward transformative discovery.

Private research funding has long focused on commercially useful applications and technologies that can be easily patented, while publicly funded agricultural research looks at the key building blocks of agriculture.[6] To be sure, governments invest in agricultural R&D to address a range of social objectives other than food production or food security—including environmental protection, food safety and nutrition, and other social issues. Public research and development is more likely than private research and development to produce technologies that have wide use across different technologies and regions, and a high social rate of return. For example, innovations related to animal husbandry practices, the conservation of natural resources, and management practices that reduce pest and weed pressure rely on public funding. Companies tend to underinvest in fundamental sciences and pre-commercial science and technology platforms because financial returns are insufficient.

## II. USDA's Innovation Clusters

In addition to the underlying values USDA should follow while developing and implementing the AIA, NFU also offers the following input on barriers and challenges farmers face as they look to increase the sustainability of their operations and potential areas for additional research.

NFU is concerned about the lack of reliable broadband service in rural areas, which can limit which farmers have access to new and innovative tools in agriculture, and the escalating costs of technology related to genome design, digitization and automation. Further, NFU encourages ongoing USDA efforts on research into the development and expanded use of biofuels and systems-based farm management that may reduce overall need for inputs amid other benefits.

### Broadband Availability

In many farming communities, adequate access to broadband internet remains a significant challenge. Only about two-thirds of rural residents say they have broadband internet at home, limiting their access to important technology.[7] Insufficient internet access will undermine each of USDA's innovation clusters, and hinder efforts to conduct and disperse research.

To improve internet access in farming communities, USDA should work with the Federal Communication Commission (FCC) to expand the pool of broadband providers that contribute to the Universal Service Fund (USF). USF enables connectivity in challenging environments, focusing on schools, libraries and low-income households in rural communities. To ensure

[6] USDA ERS: https://www.ers.usda.gov/amber-waves/2016/november/us-agricultural-rd-in-an-era-of-falling-public-funding/

[7] Perrin, Andrew. "Digital gap between rural and nonrural America persists." Pew Research Center, 31 May 2019: https://www.pewresearch.org/fact-tank/2019/05/31/digital-gap-between-rural-and-nonrural-america-persists/

sufficient and predictable funding, the FCC must consider anticipated demand forecasts for services that are supported by each Federal universal service support mechanisms over periods that are sufficiently long to allow for adequate planning.

USDA's Rural Utility Service should also work to facilitate highspeed rural broadband expansion through rural utility cooperatives.

**Cost of Technology**

As the companies that produce agricultural inputs, seeds, data management, and automated software and equipment continue to consolidate, the costs to farmers will likely increase—adding to an already steep burden caused by consolidation in other areas of agriculture. With fewer players in the market, prices will rise as high-tech options increase and more affordable inputs that rely on older technologies are phased out. For example, the price of seeds have increased by about 30 percent annually in recent years due to increased technology and fewer options in the marketplace.[8] As of 2015, 85 percent of the U.S. corn seed market is controlled by the four largest firms while 76 percent of the U.S. soybean seed market is controlled by the four largest firms, according to USDA.[9] High prices for these technologies and tools limits farmers' access to them, putting some farms at a disadvantage. This is especially worrisome for smaller and less well-capitalized farms.

As USDA develops and implements the AIA, the Department should ensure that smaller or less-capitalized farmers are not priced out of innovation due to privatization and consolidation. The resilience of the agriculture and food system depends on a wide variety of scale and marketing practices for family farms and ranches. Maintaining diversity among funded projects, such that research and innovation priorities reflect the true and necessary diversity of American agriculture, will require USDA to prioritize tools for smaller and financially leaner farm operations. This is imperative to ensure farms of all sizes and production practices can be competitive and to recognize that a wide range of farms will be needed for a stable long-term food supply.

**Biofuels**

NFU supports growth in the use of renewable fuels, including ethanol, and urges USDA to continue supporting the Renewable Fuels Standard (RFS) and look to increase usage of renewable fuels and higher-level blends of ethanol. Through the AIA, the Department should

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[8] https://www.choicesmagazine.org/UserFiles/file/cmsarticle_540.pdf

[9] Soybean and corn seed numbers from:
James M. MacDonald. "Mergers and Competition in Seed and Agricultural Chemical Markets." Amber Waves, USDA Economic Research Service. April 2017.
https://www.ers.usda.gov/amber-waves/2017/april/mergers-and-competition-in-seed-and-agricultural-chemical-markets/

work with the Environmental Protection Agency (EPA) and other actors on research and innovation to advance wider adoption of renewable fuels.

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

***USDA should continue expanding the use of higher biofuel blends.***

While NFU fully supports USDA efforts to expand E15 infrastructure, we ask the Department to incentivize even higher-level blends of ethanol. This will be key to a more sustainable and climate friendly future for America. Argonne National Laboratory and the National Renewable Energy Laboratory (collectively NREL) cites increased vehicle efficiency, increased acceleration and significant reductions in GHG emissions among the demonstrated benefits of mid-level ethanol blend fuels.[10]

Supporting infrastructure for mid-level ethanol blends will assist in the transition to high-octane fuels. Mid-level ethanol blends as high-octane fuels replaces petroleum-based octane additives with a cleaner, renewable fuel. The use of higher blends of ethanol would reduce emissions of particulate matter and air toxics such as benzene, toluene, and xylene. Mid-level ethanol blends are the most cost-effective, high-octane fuels available today.

Increasing access to higher ethanol blends would also significantly benefit farmers and rural communities, the economy, U.S. energy independence and security, and the environment. A transition to ethanol-based higher-octane fuels would reduce GHG emissions, provide new sustainable markets for farmers, and would reduce prices for consumers. In testimony before Congress, a representative of General Motors stated that increasing minimum octane levels would be "a win for all industries and, most importantly, consumers."[11]

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[10] Tim Theiss, *et al.*, *Summary of High-Octane Mid-Level Ethanol Blends Study*, ORNL/TM-2016/42 (July 2016), Attach. to Comments of the Renewable Fuel Association, Sept. 26, 2016 (EPA-HQ-OAR-2015-0827-4174, available at www.regulations.gov).

[11] Written Testimony of Dan Nicholson, General Motors Vice President of Global Propulsion, Before the House Committee on Energy and Commerce Subcommittee on Environment, Hearing on High Octane Fuels and High Efficiency Vehicles: Challenges and Opportunities, at 1, Apr. 13, 2018, *available at* https://docs.house.gov/meetings/IF/IF18/20180413/108122/HHRG-115-IF18-Wstate-NicholsonD-20180413.pdf.

There is precedent showing the positive effects of higher-level blends in broader use. E30 use has expanded in state automobile fleets under the Governors Biofuels Coalition with no adverse effects on vehicles. Ethanol is also less expensive than gasoline and can decrease costs at the pump.[12] States like Nebraska and South Dakota have taken the lead in midlevel ethanol blends and seen great success. Meanwhile, automakers are looking at higher compression engines to improve thermal efficiency and fuel economy, work that the AIA should encourage.[13]

***USDA should work with EPA to update lifecycle GHG emissions analysis and modeling on air quality benefits in relation to ethanol.***

Recent assessments show continued improvements in GHG lifecycle analysis, finding greater emissions reductions for ethanol compared to petroleum gasoline than EPA has estimated. 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, new data have improved the understanding of corn ethanol's lifecycle GHG impacts. These newer studies show greater GHG emissions reductions associated with corn ethanol, which is even more pronounced where more unconventional sources of petroleum and heavier crudes are being used for gasoline today than in 2005 – the baseline used under the RFS.

Despite these finding of the benefits of increasing use of renewable fuels, EPA has rejected requests to update the RFS lifecycle analysis. USDA must work with EPA to correct this.

***USDA should work with EPA to improve emissions modeling to better account for the air quality benefits of ethanol.***

EPA's current emissions model, known as MOVES2014, may not accurately reflect the air quality benefits of ethanol use. Third-party reviews have shown that MOVES2014 may be inadequate in estimating the exhaust emissions of gasoline blends containing more than 10 percent ethanol. The results for mid-level ethanol blends have been shown to be inconsistent with the scientific literature for both exhaust emissions and evaporative emissions, including results from real-world testing. The problems with MOVES2014 have been tied to data that misrepresents the actual parameters and composition of mid-level ethanol blends. USDA

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[12] *See, e.g.,* Presentation, The Changing Economics of Ethanol Blend Fuels, Scientific Update on Biofuels Sponsored by the Environmental and Energy Study Institute, Sept. 18, 2014, *available at* https://www.eesi.org/files/Dean-Drake-091814.pdf.

[13] Comments of the Alliance of Automobile Manufacturers on Draft Technical Assessment Report at 71, Sept. 26, 2016 (EPA-HQ-OAR-2015-0827-4089, available at www.regulations.gov); *see also* Eric Tingwall, *Automakers See Big Potential in Raising the Octane of Regular Unleaded Fuel*, Car & Driver, Feb. 7, 2018, https://www.caranddriver.com/news/a16750854/automakers-see-big-potential-in-raising-the-octane-of-regular-unleaded-fuel/.

should work with EPA to conduct a new study that better reflects mid-level ethanol blends and update its model.

Biofuels offer important environmental benefits over fossil fuels while providing stability for farmers and rural communities. As USDA develops and implements the AIA, the Department must invest financial and staff resources in research, accurate modeling, and other efforts to expand biofuel production and use.

**Systems-Based Farm Management**

Technology alone cannot solve all the climate and environmental issues affecting farmers and ranchers. While technologies such as genome design, automation, and software tools can be helpful, systems-based farm management has the greatest potential to ensure that farms and ranches of all sizes can remain productive and both environmentally and economically sustainable. This is particularly important amid the growing challenges stemming from the ongoing global pandemic and climate change. USDA is right to include systems-based management in its innovation clusters as this is a space that all farmers and ranchers can use and benefit from. It is also an area that has not been the focus of private investment. There is a need for considerable publicly funded research into best practices based on crops, soil types, soil microbiome, "beyond the farm gate" value chain considerations such as local meat processing, and other factors.

Effective deployment of systems-based management will require significant participation and data from family farmers and ranchers—USDA should work do develop methods of data collection that protect privacy and do not impede farm and ranch operations.

Systems-based management may not result in increased yield of a given crop, but it will make farmers and the agricultural value chain more reliable and resiliant overall, mitigating potential shocks such as sudden scarcity in essential inputs or equipment or the effects of extreme weather. Management practices like extended crop rotation, cover crops, and managed grazing all work to increase the health of the soil and its beneficial organisms. These practices also help farmers and ranchers reduce inputs, saving money, fuel, and time and limiting applications of chemicals into the environment. In many cases, these management practices also assist with water quality and quantity issues, wildlife habitat, and climate resiliency—reducing some of the risks inherent in agriculture. Systems-based management may also reduce capital needs, lowering barriers to entry for beginning farmers and ranchers.

Maintaining fidelity to a systems approach will maximize the beneficial impacts of the AIA while aiding the Department in avoiding or mitigating negative impacts. It will also contribute to diverse and vibrant agricultural production by lowering bars to entry and supporting different methods of production and marketing.

## III. Conclusion

While NFU appreciates USDA's commitment to progress, the proposed research and innovation clusters and implementation of the AIA should recognize the importance of appropriate and equitable agricultural production. The AIA is an opportunity for USDA to strongly and publicly commit its resources to sound scientific principles, superior customer service, publicly funded research, and the success of U.S. family farmers and ranchers. NFU encourages the Department to support heightened rural broadband access, access to technology and innovation for all farmers, expanded biofuels use, and systems-based farm management as it develops plans to implement the AIA pursuant to the innovation clusters it has identified.

NFU stands ready to offer any additional support and assistance within our means that USDA may find valuable in developing and implementing the AIA in order to secure a viable and productive future for American family farmers and ranchers and the reliability of the U.S. food and agriculture system.

Sincerely,

Rob Larew
President, National Farmers Union