S. HRG. 116–477

LEGISLATIVE HEARING TO REVIEW S. 3894, THE GROWING CLIMATE SOLUTIONS ACT OF 2020

HEARING

BEFORE THE

COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

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C O N T E N T S

Wednesday, June 24, 2020

LEGISLATIVE HEARING TO REVIEW S. 3894, THE GROWING CLIMATE SOLUTIONS ACT OF 2020

WEDNESDAY, JUNE 24, 2020

U.S. SENATE,
COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY,
Washington, DC.

The Committee met, pursuant to notice, at 10:09 a.m., in SD-G50, Dirksen Senate Office Building, Hon. Pat Roberts, Chairman of the Committee, presiding.

Present: Roberts, Boozman, Hoeven, Ernst, Hyde-Smith, Braun, Grassley, Thune, Fischer, Loeffler, Stabenow, Brown, Klobuchar, Bennet, Gillibrand, Casey, and Smith.

STATEMENT OF HON. PAT ROBERTS, U.S. SENATOR FROM THE STATE OF KANSAS, CHAIRMAN, U.S. COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

Chairman ROBERTS. I call this hearing of the U.S. Senate Committee on Agriculture, Nutrition, and Forestry to order.

Today, we will hear stakeholder perspectives on S. 3894, the Growing Climate Solutions Act introduced by Senator Braun and cosponsored by our Committee Ranking Member, Senator Stabenow.

I want to thank our witnesses for their willingness to participate in our first-ever hearing conducted in this fashion, where some participants are here in person and obviously some are joining us remotely through technology.

I want to thank Senator Braun especially for his hard work, and you would expect that from somebody who is a farmer and a forester from Indiana. Mike, thank you very much.

Senate S. 3894 would assist growers in monetizing voluntary conservation practices on their farms, ranches, forests, and businesses. This legislation establishes a program at the Department of Agriculture to certify third-party technical service providers who assist farmers to capture carbon credits through voluntary conservation practices.

The challenges that have confronted the entire food value chain during the COVID–19 pandemic have demonstrated the vital importance of stable and resilient food production. Over the past several months, farmers and ranchers have continued to do their work and the agricultural value chain continues to operate, though not without severe challenges.

Agricultural productivity has largely been stable. Our cows continue to graze in pastures and be finished in feed yards in Kansas and all other States. Crops continue to be planted and harvested. These kind of things do not wait.

At the same time, we have seen unprecedented disruption to the economy, and limits to our commuting, vacationing, and international travel have resulted in drastic, short-term declines in global greenhouse emissions.

A recent study published in the Journal "Nature Climate Change" has estimated that our global emissions have been cut by 17 percent as human travel during the global pandemic has slowed.

Maintaining the health of our planet for future generations is, of course, paramount, so is feeding the billions of people that populate the earth today and in the years ahead.

In order for these two distinct needs to be met, there must be meaningful acknowledgment and support for the role technology plays in feeding more and more hungry people. Growing demand and production must be balanced with consideration for impacts on soil, water, and other natural resources.

I want to emphasize the importance of accurate data in any climate-related discussion. How much have improved farming technologies and practices already accomplished in sequestering carbon? What roles should the Department of Agriculture have in gathering data and conducting analysis on greenhouse emissions?

There is certainly no other agency or committee in Congress that prioritizes and understands farmers, our producers, ranchers, private foresters, and rural agriculture businesses as well as the Department of Agriculture and our Agriculture Committees.

Farmers and ranchers manage unique risk, such as the weather, the global marketplace, agriculture production, tariffs. Further, regulatory burdens can add costs and hinder commonsense innovation.

Today, we will learn more about the actions that are already under way in the agriculture sector to address some of these challenges and opportunities.

With that, I recognize the Ranking Member of our Committee, Senator Stabenow, for any remarks.

STATEMENT OF HON. DEBBIE STABENOW, U.S. SENATOR FROM THE STATE OF MICHIGAN

Senator STABENOW. Thank you so much, Mr. Chairman. I really appreciate your holding this important hearing today, and it is my great pleasure to be partnering with Senator Braun in this effort.

Our world has changed drastically since the last time this Committee met. That is for sure. The COVID–19 crisis has affected every family in America. It has also tested the resiliency of our food supply and the strength of our farmers.

During this crisis, Congress has worked to address the countless challenges facing our food system. While we have passed several important relief packages, there is still more to do.

Mr. Chairman, I look forward to working with you to pass additional legislation that supports our families, farmers, and essential food supply chain workers in these difficult times.

We should also look for ways to support and fill in the gaps that remain in our supply chain such as those included in my Food Supply Protection Act, which I introduced earlier this year that I hope we will have an opportunity to discuss.

As we continue to address these urgent challenges, this crisis has also underscored the importance of providing long-term stability for our farmers who face uncertainty every single day.

I often say that agriculture is the riskiest business there is. Farmers know all too well how a sudden shift in the weather can change everything in the blink of an eye. Unfortunately, the climate crisis has caused these extremes to happen more and more often.

While farmers are uniquely affected by the climate crisis, they are also a critically important part of the solution. With the right support, our producers can cut down on their emissions and benefit from the adoption of practices to store more carbon in soil and trees. This is good for the environment and good for the farmer's bottom line.

The 2018 Farm Bill created new opportunities for climate-smart agriculture, including the landmark Soil Health Demonstration trials. However, much more is needed.

That is why Senator Braun and I introduced the bipartisan Growing Climate Solutions Act, along with our colleagues Senator Graham and Senator Whitehouse, to help farmers and foresters scale up sustainable practices and make money through voluntary carbon markets.

In the coming days, I am really pleased that Representatives Spanberger and Bacon will introduce this bipartisan bill in the House. Senator Braun and I have both been working with them for that to happen. We are very pleased that we will soon have a bipartisan bill in the House of Representatives.

Carbon markets offer agricultural producers an opportunity to create additional revenue streams. With all the uncertainty from COVID–19, trade, and weather, farmers need new market opportunities now more than ever.

At the same time, companies across the country are looking for ways to offset their emissions through carbon markets. That means farmers and foresters have an exciting opportunity to be rewarded for the voluntary, sustainable steps they are taking through generating and selling carbon credits.

For example, Detroit's own General Motors paid for an agricultural carbon project like this based on grasslands in North Dakota a few years ago, one of the first of its kind. Our bill will help the corn and soybean farmer in Michigan who is hearing about companies like GM and is asking me how they can have a credible process to store their carbon and have it measured accurately. They want to know how to get started.

That is what the Growing Climate Solutions Act does. The bill will set up a certification program at the USDA that will identify trusted outside experts for farmers to work with to help them through the carbon credit process. This will jumpstart climate-smart projects on farms, ranches, and private forests all across the country.

Producers can easily navigate a new one-stop-shop at USDA's website where they can learn about carbon markets and the type of practices farmers can adopt to get paid. USDA-certified technical assistance providers can help farmers decide what practices will work for them. After the practices are in place and a USDA-certified third party verifies that they followed all the appropriate procedures, they can enter the marketplace and sell carbon credits to a private buyer.

In order to start addressing the climate crisis in agriculture, I believe we need to focus first on voluntary, producer-led, and bipartisan policies that have broad support.

The Growing Climate Solutions Act has the support of over 50 farm and environmental groups, including the American Farm Bureau, the National Farmers Union, Land O'Lakes, and the Environmental Defense Fund, whom will be sharing their perspectives today.

Mr. Chairman, we have received letters and testimony from numerous companies and organizations expressing support for the bill, and I would ask that all of these be submitted for the record.

Chairman ROBERTS. Without objection, so ordered.

[The letters can be found on pages 58 through 77 in the appendix.]

Senator STABENOW. Thank you.

Our farmers know that sustainability and profitability go hand in hand. This bill will help farmers improve their operations and build new revenue streams, all while addressing the root cause of the serious climate crisis.

I look forward to discussing this commonsense bipartisan bill today, and I look forward to continuing, Mr. Chairman, to work with you, Senator Braun and all of our colleagues to see that it is enacted as soon as possible.

Thank you so much.

Chairman ROBERTS. Thank you, Senator.

I welcome our panel of witnesses to the Committee this morning, and I recognize Senator Braun for introducing our first witness, Mr. Brent Bible.

Senator BRAUN. Thank you, Chairman Roberts.

I appreciate the Committee's desire to consider this legislation, and I am proud to introduce Brent Bible to the Committee this morning.

Brent is a first-generation Hoosier farmer who operates Stillwater Farms, a 5,000-acre grain production farm in Lafayette, Indiana. Since returning to the farm in 2007, Brent has been a leader in modern sustainable farming. He was an early adopter of cover crops and uses modern technologies to reduce fertilizer use and carefully managed soils.

In fact, Brent was instrumental in the development of the Growing Climate Solutions Act itself, as he understands the benefits that access to carbon markets can bring for American agriculture.

Over the last six years, Stillwater Farms has partnered with the National Corn Growers Soil Health Partnership as a demonstration farm to continue working on these techniques.

Brent is also farmer advisor to the Environmental Defense Fund.

Mr. Chairman, as a fellow Hoosier, I am looking forward to Brent Bible's testimony this morning. Thank you.

Chairman ROBERTS. Our next witness is no stranger to the Committee, President Zippy Duvall of the American Farm Bureau Federation, a third-generation farmer from Greensboro, Georgia. He raises both cattle and broilers on his operations. Zippy has served as president of the AFBF for over four years. He has helped lead their policy initiatives on issues like agriculture sustainability.

Prior to his current role, Zippy has a history of serving farmers through roles in both the American and Georgia Farm Bureaus.

Thank you for being here, Mr. Duvall.

Our next witness will be introduced by our distinguished Ranking Member.

Senator STABENOW. Thank you, Mr. Chairman.

I am pleased to welcome Rob Larew to the Committee this morning. Rob was elected National Farmers Union's 15th president earlier this year and previously served as NFU's senior vice president of Public Policy and Communications. Prior to joining NFU, Rob was the staff director of the House Agriculture Committee under the leadership of Chairman Collin Peterson, where he oversaw the panel's efforts during the 2008 and 2014 Farm Bills.

Rob was raised on a dairy farm in Greenville, West Virginia, and we are very happy to have him with us this morning.

Welcome.

Chairman ROBERTS. Our next witness is Mr. Jason Weller, our final witness this morning. He is the vice president of Truterra, LLC, which serves as the sustainability business of Land O'Lakes. In his role, he helps develop conservation solutions for the cooperative's members and owners. Jason is no stranger to Washington, having served in roles in the USDA's Natural Resource Conservation Service, the White House Office of Management and Budget, and two House committees.

I welcome all the witnesses, and, Mr. Bible, why don't you start us off.

STATEMENT OF BRENT BIBLE, CORN AND SOYBEAN PRODUCER, FARMER ADVISOR, ENVIRONMENTAL DEFENSE FUND, LAFAYETTE, INDIANA

Mr. BIBLE. Thank you Chairman Roberts, Ranking Member Stabenow, Senator Braun, and all the members of this Committee for the invitation to testify before you today. I applaud you for making sense of this new normal. I know this is a first time for you in terms of the way this hearing is done. This is the first time I have testified before a committee, so it does not seem any different to me.

What I will say is that as farmers, when we come up to a fence, we do not stop or turn around. We find the gate and walk through it, and I think that is what you have done by continuing this as normally as possible throughout this process.

As a first-generation farmer, I see myself as a typical but fairly representative and vital part of the food supply chain. My business partner and I operate Stillwater Farms, as Senator Braun mentioned, growing corn and soybeans mainly for seed production, eth-

anol, and food products over about 5,000 acres in three counties in west central Indiana.

I am also a member of the Indiana Corner Growers Association and Indiana Farm Bureau and by extension their national organizations, and I appreciate their support for farmers and for the work we are trying to accomplish today.

I am educated with a bachelor's of science from Purdue University in ag economics. Purdue taught me very well to be analytical, to be data driven, and to make decisions based on economic science.

Globally, farmers are more challenged than ever. We see increasing demand for our products but face massive headwinds, including trade barriers and climate change, similar to what Senator Stabenow alluded to earlier.

As these pressures mount, we continue to try to improve on how we manage our lands so that we can remain in business, and that is what sustainability is all about, doing more with less, finding ways to be economically sustainable and environmentally sound as well.

On my farm, we invest in conservation practices that lead to soil health, water quality, air quality, and reduced greenhouse gas emissions. This interest in investment led us to become a member of the Soil Health Partnership, a partnership between the National Corn Growers Association, Environmental Defense Fund, and other critical stakeholders.

My farm has spent the last six years conducting research trials on soil health and farming practices that benefit the environment in my area and in the world around me.

I have also spent that time as a voluntary advisor, farmer advisor to the Environmental Defense Fund. What is interesting there is that we many times share different perspectives on farming and agriculture in general, but we find ways to work together to create good solutions that are complementary to both entities, and I think that is an important distinction to make, especially in today's environment.

These practices and initiatives that we reach will not reach a broader farming audience if we cannot figure out how to scale up the current rates of adoption in conservation practices, and that is why I like the Growing Climate Solutions Act. It opens the door for farmer participation in a market-based system that rewards farmers for implementing conservation practices on their farms if they choose to do so.

Because of these results, we need Congress to step in and provide policies that incentivize further adoptions, and we have great programs at USDA that provide cost share for farmers to implement conservation practices, but government programs are not the only solution to our problem. We need real market-based options that allow farmers to individually make a choice and participate and then see the benefits to their economic bottom line.

I urge the Committee to examine this bill and work together to pass legislation that will put my farm and environment both on a path to success.

Thank you.

[The prepared statement of Mr. Bible can be found on page 34 in the appendix.]

Chairman ROBERTS. President Duvall.

STATEMENT OF ZIPPY DUVALL, PRESIDENT, AMERICAN FARM BUREAU FEDERATION, GREENSBORO, GEORGIA

Mr. DUVALL. Good morning, Mr. Chairman and Ranking Member Stabenow. I want to thank you all for the opportunity to visit with you today through the internet. We appreciate the opportunity.

I also want to thank you and other members of the Committee for all the things that you have done for American farmers and ranchers during this very difficult time. With all the market disruptions due to COVID–19, the pandemic, and the already distressed farm economy, keeping our farmers and ranchers in production is vital to our farm, our food security, and our national security, as most all you members of the Committee already know.

Thank you for supporting the measures to assist our farm businesses.

At the same time farmers and ranchers are working to keep our food on our plates, they continue to make great strides in sustainability, which brings me to the topic for today's hearing. I would like to provide a short snapshot view of agriculture's leadership in sustainability farming practices.

American agriculture accounts for less than 10 percent of the total U.S. greenhouse gas emissions, far less than transportation, electrical generation, and other industries.

Total carbon sink efforts by forestland management, land converted to forests, grasslands, and management of wetlands more than offset agriculture's total greenhouse gas emissions.

Farmers continue to produce more food and fiber and energy with more efficiency than our parents and our grandparents did over two generations ago.

We have increased production 270 percent without using more resources. In fact, we would have to have nearly 100 million more acres in 1990 to match the same production that we had in 2018. Our advancements in sustainability are due to the adoption of technologies, and they are due to farmers overwhelmingly participating in voluntary incentive-based conservation programs.

As we continue to navigate trade challenges and the economic impacts that COVID–19 brings to American farmers and ranchers, we also face a very difficult headwind, yet we remain committed to smart farming, whether our farms are passed on to us by our parents or whether we started our own farms. Our farms and our land is our heritage.

Every farmer I know wants to leave their land, the air, and the water and also the farm and ranch businesses in better shape, better condition, than they found it. In fact, to achieve that goal, Congress must protect agriculture from undue burdensome regulation, and also we have to respect farmers' and ranchers' ability to innovate and solve problems.

The Farm Bureau's grassroots developed policy supports market-based incentives and compensation for farmers for planting crops and adopting farming practices that keep carbon in the soil. That is why we welcome opportunities to participate in emerging carbon markets.

The Growing Climate Solutions Act would create a certified program at USDA to help solve technical barriers to farmers. The forestland owners' participation in carbon credit markets are important, and the bill also provides the Secretary of Agriculture an advisory council that is made up of agricultural experts, scientists, producers, and others to ensure the certification program works for all participants.

The Growing Climate Solutions Act seeks to provide more clarity and guidance for farmers and ranchers who want to provide the ecosystem services that more and more consumers and businesses are demanding. This builds upon American agriculture's strong foundation of environmental stewardship and innovation.

I want to thank you, Mr. Chairman, for holding today's hearing, and I will be glad to take any questions after the other panelists speak. Thank you for having me today.

[The prepared statement of Mr. Duvall can be found on page 38 in the appendix.]

Chairman ROBERTS. Thank you, Zippy. Our next witness is Rob Larew.

STATEMENT OF ROB LAREW, PRESIDENT, NATIONAL FARMERS UNION, GREENVILLE, WEST VIRGINIA

Mr. LAREW. Good morning, Chairman Roberts, Ranking Member Stabenow, and members of the Committee. Thank you for the opportunity to testify today.

I am president of the National Farmers Union. We work to ensure that farm families and their communities are respected, valued, and enjoy economic prosperity and social justice. Thank you for highlighting agriculture's role as part of the solution to climate change. Even in this time of great uncertainty in public health, the economy, and our society in general, we cannot overlook this topic. We know that climate change is the single greatest long-term challenge for family farmers and ranchers, rural communities, and global food security.

The changing climate is affecting all aspects of our farms; however, we also know that farmers and ranchers, if provided the right tools, can help to reduce atmospheric carbon and other greenhouse gases.

National Farmers Union supports the Growing Climate Solutions Act, as it will help family farmers and ranchers engage in the market opportunities presented by carbon sequestration and would lend legitimacy to these voluntary carbon markets.

With strong private-sector participation, carbon markets can create a sustainable revenue stream for farmers. These systems allow companies to offset some of their emissions through the purchase of sequestration credits. This idea is not new. Carbon markets work.

In 2006, we partnered with North Dakota Farmers Union to create the National Farmers Union Carbon Credit Program, which served as an aggregator. Credits were earned by farmers or landowners on a per-acre basis with the use of no-till and reduced till cropping, long-term grass seeing, rangeland management, and forestry practices. These credits then were sold on the Chicago Climate Exchange, which was a voluntary carbon market. At its peak,

the program was the largest aggregator of agricultural soil credits in the United States and distributed more than $7.4 million to nearly 4,000 farmers across five million acres.

Between 2006 and 2010, these farms sequestered about $7.6 million tons of carbon. Unfortunately, in 2010, the Chicago Climate Exchange folded, but corporate, consumer, and farmer interest in the concept remains. The Government must encourage these activities while ensuring adequate protection for farmers. There are many ideas on the best way to do this.

For example, a member of this Committee, Senator Bennet, supports that farmers and ranchers should have access to a carbon sequestration tax credit as Congress has enacted for other industries. Others are proposing that USDA create a carbon bank within the Commodity Credit Corporation that would serve as another buyer of carbon offsets from farmers.

A combination of these ideas is needed to ensure a stable and effective carbon market. Climate legislation should also consider protections for farmers from bad actors, faulty market efforts, and corporate consolidation, and include a variety of tools that address the needs of the full range of farms.

Furthermore, we support growth in the use of renewable fuels, including ethanol, as part of a climate program. When compared to petroleum and gasoline, the use of ethanol blends reduces emissions of carbon monoxide, particulate matter, air toxic chemicals, and greenhouse gases.

In conclusion, there should be no uncertainty about the role of family farmers and ranchers in addressing the climate crisis. We stand ready to be part of the economy-wide solution to reduce total greenhouse gas emissions.

Thank you to the authors of the Growing Climate Solutions Act, Senators Braun and Stabenow, for their leadership. The National Farmers Union looks forward to working with this Committee to ensure this and any climate legislation meets our needs.

Thank you.

[The prepared statement of Mr. Larew can be found on page 43 in the appendix.]

Chairman ROBERTS. Thank you, Mr. Larew.

Jason Weller.

STATEMENT OF JASON WELLER, VICE PRESIDENT, TRUTERRA, LAND O'LAKES, INC., ARDEN HILLS, MINNESOTA

Mr. WELLER. Good morning, Chairman Roberts, Ranking Member Stabenow, members of the Committee. Thank you very much for the invitation to Land O'Lakes to join the proceedings this morning, and it is great to be back before the Committee. It is great to see you all.

Before I begin, I just want to also compliment the Committee for its leadership and it support for farmers and for agriculture during uncertain times in the midst of the COVID pandemic as well as the following economic crisis that farm families are now having to confront and get through. I know the Committee—on behalf of my cooperative members and the family of Land O'Lakes, we really appreciate the support of this Committee as well as the ongoing sup-

port we know this Committee will provide farm families in the coming months.

My name is Jason Weller, and I serve as vice president at Truterra. I know many on the Committee know about Land O'Lakes, but it bears repeating that Land O'Lakes is a farmer cooperative as well as a cooperative of agricultural retailers. Through our family of agricultural retailer owners and thousands of farmer members, the Land O'Lakes enterprise touches about half of the harvested acres across the United States, and at Truterra, we are in the sustainability business as part of that cooperative system. We work with our progressive leading agricultural retailers to design and deliver sustainability services to their farmer customers, and we work with world-class food companies as well as leading conservation organizations in the United States and USDA to provide a complementary, voluntary approach to help farmers adopt conservation practices in their fields.

At its core, the Growing Climate Solutions Act is really about resiliency of both farmers as well as rural communities, and its resiliency is both an economic component of these farmers and rural communities as well as, of course, the environmental resiliency of those farms.

The bill anticipates a future class of commodities; in this case, environmental commodities, greenhouse gas credits. These credits have an opportunity to help farmers and ranchers to diversity their operations, generate new sources of income, while at the same time receive financial and technical support to adopt the practices and systems and machinery that ultimately will help them literally and figuratively weather the results of a changing climate.

The way this is possible, I am really excited about and we are passionate about at Truterra and with our family of agricultural retailers. It is the advent of that we are on a cusp of a revolution in precision conservation. It is going to be through amalgamation of data, machine learning, artificial intelligence, as well as working and forging that information with USDA practice standards and technology and modeling, also in putting all that information in the hands of farmers and their trusted agronomic advisors to make the best decisions on the farm, to enhance that farm's profitability, improve its efficiency, and ultimately improve the quality of the natural resources on that farm. The only say this is going to be possible, ultimately, is to have access, access to the internet.

That is why Land O'Lakes is proud through the American Project to be working with a broad array of organizations, including the American Farm Bureau Federation, to increase and expand broadband access in rural America, to be able to bring to market the promise and potential of not just this new class of environmental commodities, but also provide critical access to health care and education and other economic opportunities.

We commend Senator Stabenow, Senator Braun, and the other cosponsors of this legislation for their leadership and vision to continue the conversation but also to identify core building blocks that we believe will unlock these solutions to scale this new class of commodities for farmers and ranchers to take advantage of.

I know I speak for my Land O'Lakes colleagues and the families of our farmers and agricultural retailers that we stand ready to

work with the Committee and ultimately help bring these solutions to our farm community and to help agriculture succeed.

Thanks very much, and I look forward to the conversation.

[The prepared statement of Mr. Weller can be found on page 49 in the appendix.]

Chairman ROBERTS. We thank you, Jason.

Questions. President Duvall, your testimony includes the compelling statistic that U.S. agriculture production has increased by 270 percent since the mid–1900's. I do not know of any other part of our economy that has experienced that, and that is thanks to our farmers and ranchers and growers.

As climate change continues to gain attention in the United States and around the world—that is an understatement—do you believe it is appropriate for benchmarks established under S. 3894 or any carbon trading proposal to account for this progress?

Mr. DUVALL. Yes, Mr. Chairman. I really believe in that. I think our farmers have led the way for years and years in getting out ahead of climate change, doing things on their operations for many years now, to protect natural resources on our farms.

Just like I said in my statement, it is all farmers' desire to leave our farm, the air and the water and everything around our farm, in better shape than what we found it, and we do that through technologies that are being delivered to us through the research and development dollars that are being spent.

To account for what we have already done is very, very important.

Chairman ROBERTS. I appreciate that.

Jason Weller, my home State of Kansas is one of the most livestock-dense States in the country. We have long been home to millions of head of cattle raised for beef, and in recent years, we have also seen growth in both dairy and swine production.

Can you describe some of the most impactful environmental conservation practices that livestock producers are employing within your livestock and feed business unit?

Mr. WELLER. It is a twofold component. It is first, of course, supporting the farmers and coming up with on their dairy operations or livestock operations with the plan for how you feed the cattle and the livestock and the animals, but also how you manage the manure.

At Land O'Lakes, we have a lot of experience with this. We have examples of how our dairy producers are providing, I think, real leadership. For example, one of our producers in Pennsylvania on Reinford Farms, they have installed and are operating a very significant methane digester, and this digester is beyond just handling the manure on their operation. It is also taking in the food waste from up to 15 other grocery stores in its surrounding community. It is really a community digester, and this digester is ultimately generating significant energy. Over the course of the year, it is generating the equivalent to 1.5 million kilowatt hours of electricity, which is enough to power 100 homes.

What I think is relevant to this conversation, over the last decade, that one digester, that one dairy operation, has offset the greenhouse gas emissions equivalent to the land area of 79,000 acres of forestland in the United States in terms of total carbon se-

questration potential and benefit. That is just one of our dairy producers.

Ultimately, it is a combination of the feed. It is the agronomy practices that the farmers and the producers use to grow that feed and how the feed is managed, but then it is also the combination of conservation practices that farmers are using to manage the manure and turning that manure not just into a waste but ultimately into, hopefully, generating co-benefits, new revenue opportunities, as well as limiting the environmental impact of that waste stream.

Chairman ROBERTS. We thank you.

Zippy, back to you. Does your organization envision a role for the U.S. Department of Agriculture in any future carbon trading policy discussions? Obviously, I think the answer to that is yes. Compared to other Federal agencies, do you think the Agriculture Department is best able to lead any data collection and analysis that might be required? Do you have any thoughts on which Federal agency can provide the best available science on the reduction of carbon for various agriculture activities?

Mr. DUVALL. Yes. We think that any discussion around agriculture and climate change and any program that might be introduced through Congress should be through USDA. USDA is the one that understands agriculture. Our farmers and ranchers trust USDA. They know the people that are in their local communities that work for them. For farmers to participate in any voluntary program, they have to have that trust. I think it is essential that all that happen within USDA and through the discussions with Congress.

Chairman ROBERTS. We thank you, Zippy. Thank you very much.

I now recognize Senator Stabenow for any questions she may have within the five-minute rule.

Senator STABENOW. Thank you, Mr. Chairman. I heard that, five-minute rule. Okay.

Well, thank you to all of you for your testimony. and Mr. Duvall, we very much appreciate the Farm Bureau's strong support for the Growing Climate Solutions Act and the fact that you are with us today.

In your testimony, you talked about the financial opportunity for your members in gaining better access to the greenhouse gas marketplace that we are focused on in the bill. I wonder if you might just speak a little bit more about the importance in these uncertain times for producers to really think about new markets and new revenue streams.

Mr. DUVALL. Sure, Ms. Stabenow. I compare what we are going through to what I have experienced as a young man during the 1980's. Of course, this crisis that we are in has not quite reached that level, and hopefully, it will not. Back then, we were all scrambling, looking for something to generate income for our family farm so that we could stay there, and back then, it was diversification that came into the picture.

Now as we start discussing climate and policy around climate change and creating other markets, I think it is vitally important that our farmers be able to not only take advantage of these markets that could be available to us but also have the opportunity to

look back and see all the things that we have done in the past so that we can make our farms sustainable for the future.

What is important to the American people is that we all continue to keep our family farms there, and the only way we are going to do that is to make sure that they can make a profit and raise their families there and keep their lands up and take care of them. The way to do that is to find other revenues because so many things depend on trade. It depends on research. It depends on an extension delivering that to us, and of course, the work that we are doing on trying to take broadband across America to rural communities is really, really important. What you mention is vitally important to the sustainability of our family farm.

Senator STABENOW. Well, thanks so much, and I think our Committee across the board agrees with you about rural broadband and what needs to happen as well. We put substantial increases and authorized funding in the Farm Bill. We need to push to make sure that we are creating that connectivity across the country.

I certainly know in Michigan, this is a major issue. Thank you for mentioning that.

Mr. Weller, we are really glad you are back before the Committee and appreciate that you have been a real innovator in this space and now working for a company that is very focused on sustainability.

Could you speak a little more about the portion of your testimony where you remarked that without this legislation, U.S. agriculture risks falling behind its global competitors.

Mr. WELLER. The journey for sustainability at Land O'Lakes actually began on the dairy side. We are a 98-, almost 99-year-old dairy cooperative, and it was several years back that our customers started asking pretty in-depth questions around sustainability and then increasingly had expectations that we could share the data around the practices and ultimately the outcomes of the management activities our dairy producers used on their dairy. That was not just for U.S.-based companies. Those are global companies that we provide dairy ingredients to.

We have seen that now expand into the grain markets, and as I mentioned in my opening and in my testimony, we partner with world-class brands, including Campbell's Soup and with Tate & Lyle and Nestle Purina, and in working with them and in turn their customers, it had become very apparent to us that increasingly international companies and their working in international markets in different consumer preferences, their expectation is the American farmer, whether they are dairy producers, protein producers, or grain producers, have to have the data and ultimately the outcomes to be able to just not characterize the quality of the grain or the quality of the product, but also how, what was the system used to produce that food product.

The American producer, it is no longer just only about premium and access to new incentives. Increasingly, we see a potential being a market access challenge, and the American farmer does not have access to this kind of ability to tell his or her story. We are concerned about the long-term potential impact about access to international markets and ultimately international food companies.

Senator STABENOW. What you are saying is that this kind of information in setting up a system with integrity in the USDA is going to be very important for our producers who obviously are selling in the global marketplace?

Mr. WELLER. Agree. Having USDA creating those standards, I think, will also create that independent trust that the international marketplace looks at.

Senator STABENOW. Thank you.

Thank you, Mr. Chairman.

Chairman ROBERTS. Senator Boozman.

Senator BOOZMAN. Thank you, Mr. Chairman, and thank you, Senators Braun and Stabenow and your cohorts, Graham and Whitehouse, for really pushing this forward. This is something that is timely, and anything we can do to help our farm community be recognized and receive value for the great work that they do is so important, along with helping the environment.

I guess my concern is as you read through the bill, you really wonder who is going to benefit. What we do not want—and I know what you do not want—are the third-party providers, the verifiers who are going to receive the USDA-certified label or the corporations who want to greenwash their businesses, that they are the real benefitters.

I worry a little bit about companies dictating how our farmers should farm. We all know that some companies have made environmental commitments without even engaging the farmers who supply the raw materials.

So, what I would like is a discussion. Tell me how we can ensure that the benefits go to the farmer.

I will give you an example. A few years ago, GSA started using the LEED certification program. Most of the trees in the country could not be used in building our government buildings. The trees could come from overseas, but American-grown trees did not qualify. How do we avoid problems like that? How do we make sure that the benefit, the value actually goes to the farmers and not the middle men and corporations?

We will start with you, Mr. Larew, if that is okay.

Mr. LAREW. Sure. Appreciate the question because it is an essential one, right?

Senator BOOZMAN. Right.

Mr. LAREW. I think one of the first things to ensure is that we first are looking at this as a voluntary private market. In that, farmers would have the option to participate or not. Assuming that the verification system is rigorous and does add that legitimacy to it, I think that USDA's role in this process it going to be critical to ensuring the trust that farmers can have and, quite frankly, the other players along the line, including corporations and consumers. Really, our focus is on making sure that farmers can trust that the market that we are going to be participating in is one that is legitimate and can be reliable for them, and that they are recognized for the public good that they are creating with their practices.

I think it is something that we will need to continue to look at throughout this process because another concern of ours, quite frankly, is anytime you are operating in a voluntary private market like this and you are commoditizing something, we also want to

make sure we are not, in doing so, incentivizing corporations from even buying up land or doing other practices that put family farmers at the sideline of this issue, where they should be central.

Thanks for the question.

Senator BOOZMAN. Thank you, and I agree with you totally.

Anybody else want to jump in on that? I do think this is a central question as we work through this.

You mention USDA, and I have a lot of confidence in USDA, but Secretaries come and Secretaries go. We have to make this such that we can make it as ironclad as possible.

Mr. BIBLE. Senator Boozman.

Senator BOOZMAN. Yes. Sure.

Mr. BIBLE. I will add just a couple quick comments. With USDA being in the process, I will echo what Mr. Larew said. That is very important, but I think what really it comes down to is that the farmer will be looking for economic signals in a free market. If the economic signal exists for a farmer to produce a certain product—in this case, it is a carbon credit—that farmer will respond and will benefit from that market signal.

We do a great job of producing a lot of corn, a lot of soybeans, a lot of cattle, whatever that commodity might be, when we are incentivized to do that within the marketplace. I think that is how this would work as well.

Senator BOOZMAN. Anybody else, quickly?

Mr. WELLER. Senator Boozman?

Senator BOOZMAN. Yes.

Mr. WELLER. Just to add to President Larew's and Mr. Bible's comments, from a farmer perspective-—and one of our farmers, Matt Rezac, who testified before your Committee last May, he talked about this best, where ultimately you need to work with who farmers trust.

For our model, working with the agricultural retailer, we are all about maximizing the value for the farmer, and we see what this legislation, this bill is actually providing the farmer, then, a way they can identify whom they can trust to help them generate the maximum value, but ultimately, then it helps buyers of these credits also have trust and confidence. They, in turn, feel confident what they are purchasing also has value.

Yes, as a cooperative, we are actually about maximizing return to the farmer, and we believe in this legislation's potential to help identify trusted advisors, but also a trusted system that ultimately the marketplace can rely on.

Senator BOOZMAN. Good.

Thank you, Mr. Chairman.

Chairman ROBERTS. Senator Brown?

Senator BROWN. Thank you, Mr. Chairman, very much.

Mr. Weller, good to see you again.

Both you and Mr. Bible mentioned the lack of high-speed internet in rural areas as a challenge to deployment of precision technology. We have heard from so many teachers, librarians, superintendents, small business owners, farmers all over our States—I think pretty much all of us have—about during thins pandemic as broadband being one of their biggest challenges.

This Committee has worked to improve broadband, but we have way more work to do, Mr. Chairman, Ranking Member Stabenow, and I am hopeful next year, we can reengage.

Mr. Weller, one question. From your time at NRCS, you know the Western Lake Erie Basin well. Run me through some scenarios and the types of soil health practices farmers there can implement and how widespread use of these practices, what I would hope would reduce runoff into the lake.

Mr. WELLER. I do know the Western Lake Erie well, and actually I was invited in 2014 after that initial crisis within the city of Toledo, that summer when it lost its water supply, and that was as well with the agricultural community. In trying to identify solutions in the Western Lake Erie Basin, ultimately, first and foremost, to give farmers the credit they deserve for their already excellent stewardship in that watershed, but also then how do we help them advance both the soil management, ultimately reduce the loss of sediment and phosphorus that is impacting the lake.

To your question on the practices, I really believe, as I said in my opening, we are on the cusp of a revolution and conservation, and what is required in the Western Lake Erie Basin is the ability to advise the farmer, help the farmer identify on their fields where they are losing their inputs as well as their losing their soil.

As in my testimony, that according to USDA, it is actually, on a micro scale, across that watershed, based on topography and terrain and soil type, it is really helping the farmer understanding the diversity in their fields across their operation and then prescribing the mix of practices, including the rotation of their corps, the residue management, the application and precision application of fertilizers and crop protection products, ultimately to drive profitability on a subfield scale. By chasing profitability and ultimately improving efficiency, you are reducing then the loss and the risk of loss in that field; in this case, loss of top soil, loss of nutrients into the tidal line or surface runoff, as well as loss of greenhouse gases in the atmosphere.

It is really ultimately a systems approach, but using prescription as a subfield scale, we think is going to be the solution to addressing both Lake Erie's water quality challenges as well as helping farmers in that watershed generate this new class of commodities, greenhouse gas credits.

Senator BROWN. Thank you.

You know there are obviously several members of this Committee representing the Great Lakes States and how important the Great Lakes is to our planet, of course.

Mr. Larew, thank you for your interest in soil health. In Ohio, we are proud to have one of the world's foremost soil scientists, Dr. Rattan Lal. There was a good story in NPR about him in the last couple of days. Two weeks ago, he was awarded the World Food Prize for his work on soil health. His work is focused on rebuilding soils and the role soil can play in mitigating climate change.

By his math, for about $16 an acre, we could dramatically reduce carbon emissions via number of on-farm ecosystem practices.

Mr. Larew, do you think farmers would be interested in and would utilize a tax credit based on the amount of carbon seques-

tered by deployment of these ecosystem practices that he has talked about?

I appreciate Farmers Union support for this concept. How does a tax credit—how would you structure it to ensure farmers are using it and we get the climate benefits we want?

Mr. LAREW. Thank you for the question. I think it is an important one because it also highlights the fact that we are probably going to need a series of tools to provide incentives to farmers to continue to be able to adopt these climate friendly practices, which also improve soil health.

I think specifically to a carbon sequestration tax credit that NFU does not have specific policy, but it certainly aligns very closely with the types of incentives that we are looking for that we think farmers certainly would be able to take advantage of.

There is an obvious challenge, at least initially, with the idea in that for a lot of farmers, as we talk about the economy and the struggles that farmers have, a tax credit is not necessarily available to them unless there is also a way to make that transferrable, and so there are certainly ways to tie that in with existing markets out there and other players, that if done correctly and fairly to farmers would enable them to potentially take advantage of that and provide additional incentives for them to adopt these practices.

We certainly support the concept and look for a suite of these types of tools. Thank you.

Senator BROWN. If you would, if you and the Farmers Union and for that matter the Farm Bureau and Land O'Lakes and all of you would work with us on that, we would love to do that in the upcoming months.

Thanks, Mr. Chairman.

Chairman ROBERTS. We thank you, Senator.

Senator Hoeven?

Senator HOEVEN. Thank you, Mr. Chairman.

My first question is for Mr. Duvall. How do we make sure that any program we set up along these lines is farmer friendly, we make sure that it works for farmers, that it does not create a mandate or a burden, it truly is something that is voluntary and a benefit to our farmers and ranchers?

Mr. DUVALL. Yes, sir. Thank you for the question.

That is so important. Every law that you all work on and work tirelessly on to pass has great intentions, and then a lot of times in the rulemaking, it kind of gets twisted around a little bit.

Clear rules that help us be able to identify how do we do this—we are already hiring multiple consultants on different levels of our businesses. We do not need another program that is so complicated that we have to hire another consultant to help us with it. To make it clear and make sure that the rules, and the bill is clear enough that the rules are going to end up being something that farmers can trust and have it more brief than lengthy.

We got into that trouble with some of the other rules that were passed down to farmers in the past, and our farmers have a very difficult time staying within the guidelines of those programs because the rules are so complicated. They need to be in a way that they cannot change with one Secretary or one administration to the other.

Senator HOEVEN. Well, on that, if we end up using some kind of third-party verifier or something in these programs, talk about that for a minute. Again, how do you make sure you have got somebody out doing those evaluations in a way that helps our farmers and ranchers and does not feel like another compliance kind of thing? You know what I mean?

Mr. DUVALL. Hopefully, it would be organizations that already exist that we already have trust in.

Senator HOEVEN. You mean like the Farm——

Mr. DUVALL. You know, trust goes a long way.

Senator HOEVEN [continuing]. Bureau or Farmers Union, like that?

Mr. DUVALL. Well, possibly.

Senator HOEVEN. Yes.

Mr. DUVALL. Possibly, that could happen. Yes, sir.

I would think our State farm bureaus would welcome the opportunity to try to provide that, and I cannot speak for Farmers Union. I would think they would too.

I think if it is put together correctly, it could be something that our organizations could help with.

Senator HOEVEN. Yes. Well, then I am going to go to Mr. Larew with kind of the same question. How do we make sure it is farmer friendly and a role for our farmer organizations to play in actually making it work in a way that benefits the farmers and ranchers? I mean, our farmers and ranchers got so many challenges. We do not want to add challenges. We want to add opportunities.

Mr. LAREW. It is a great question, and again, from Farmers Union perspective, all of these questions from our view is it has to be from the farm family and rancher perspective. Is this going to work for them? Is this incentive based? Is it voluntary, and is it based on sound science and practices that are going to work for that particular area?

We know that farming is quite different from one area to the other. Looking at North Dakota in particular, you step outside the Red River Valley, and agriculture shifts pretty dramatically across the State, so making sure that we do not have a cookie-cutter kind of approach to these practices.

I think that this also really stresses the other complementary component to all of these questions, and that is the need for really additional sound investment in core research at USDA to make sure that as we look at these practices and as we look at soil health practices and climate-friendly farming practices, that the data and the research behind the decisions that we are making out there are based on sound science, and farmers can trust and rely on that information. That along with recognizing that farms come in various sizes and styles across the entire country, that is going to be a key piece to making sure that farmers in particular are central to this. Thanks for the question.

Senator HOEVEN. Yes. I think you make a real important point that one size does not fit all. There is incredible diversity across agriculture. I think that is a really good point, and I appreciate it.

I would just finish up and ask both Mr. Bible and Mr. Weller, any other thoughts would make this easier for farmers to use, just

any big ideas or key ideas you have to make it easier for farmers to use?

Mr. BIBLE. For me, just establishing that process that USDA serves as a certifier and bring some credibility and legitimacy to the process, I think that makes it easy for farmers to be able to go to a central location and find out information about the program and be able to participate with some level of trust from that standpoint.

Senator HOEVEN. Mr. Weller?

Mr. WELLER. I think the key is that it's not a USDA market, that USDA will be the one essentially certifying the competency of the people providing the technical assistance to the farmer, so really bringing a tool set of different practices and agronomic expertise to the farmer and ultimately putting the farmer in control of making the best decisions of what is good for their farm or ranch. It is also then the competency of the verifiers. In the end, it is not a USDA marketplace, and I trust in USDA's ability to help ensure the integrity of the science and the practices. Ultimately, Senator Hoeven, to your point, it is ultimately maximizing the flexibility of the farmer to make the best decision for their farm or ranch.

Senator HOEVEN. Thank you.

Thank you, Mr. Chairman.

Chairman ROBERTS. We thank you, Senator.

Senator Klobuchar?

Senator KLOBUCHAR. Thank you very much, Mr. Chairman and Ranking Member. Thank you for having this hearing today. It is very important.

The Growing Climate Solutions Act would help farmers gain access to new revenue streams through private-sector environmental markets while also establishing a process that I think is really important to certify that greenhouse gas emission reductions can both be quantified and verified.

Senator Thune and I actually worked on a provision in the last Farm Bill based on our Agriculture Data Act to improve the use of advanced data analysis to help farmers identify the most effective conservation techniques that would have the greatest benefit, both for our climate and our farmers' bottom line.

Mr. Bible, could you briefly talk about how you use data, and would you find it helpful for the Department of Agriculture to release studies that compare data across disciplines, like comparing yield rates to rates of cover crop adoption?

Mr. BIBLE. As I alluded earlier, my training is in ag economics from Purdue University. That discipline taught me to look at things from a data-driven perspective, no matter what I am analyzing, so to be analytical in my process.

The business decisions that we make on the farm every day centered around what does the information tell us, what does the data support, what does it tell us, and what is an economically good decision to make for our operation.

I will note that what we find more and more all the time, that economic decisions and environmental decisions are complementary. They go hand-in-hand, and we are finding that more and more every day.

Certainly, any information that we can have that is reliable data, statistics, whether that come from USDA or third party—university data has historically been very important, university extension data. Any of that that is available, that helps us inform better decisionmaking, is certainly important.

Senator KLOBUCHAR. Okay. Thank you.

Mr. Weller, welcome remotely from my home State. We are very proud of Land O'Lakes in our State, and I wanted to ask you about this. The bill would help reduce emissions by providing farmers with technical assistance on participating in carbon markets. At the same time, the legislation has the potential to improve sustainability throughout the agricultural supply chain by bringing greater value to renewable fuels.

Can you talk about how providing access to carbon markets for farmers could help drive emissions reductions across the biomass supply chain, including the positive effects on biofuels and biobased products?

Mr. WELLER. The system of practices that ultimately this legislation anticipates to help farmers generate credits, in this case, greenhouse gas credits, will also be then the same system and suite of practices that biobased products and biobased energy, fuel products, ultimately need.

For example, on the West Coast, there is a whole coalition of States led in part by California, Oregon, and Washington that are looking at the low carbon fuel standards, and so this is a way for ethanol products and other biobased energy products to create credits that go into those marketplaces. In order to generate the credits, the farmers and ultimately that energy supply chain needs to have the data and the outcomes to demonstrate how these biobased products ultimately creating that credit potential can allow these energy products to access into those marketplaces.

It is also beyond just creating the credit and ultimately marketing this energy product. It is then helping the farmers with incentives through and support from the greenhouse gas credits to help them adopt the system, the suite of technology of conservation practices, new machinery that will ultimately help them create results that the marketplace is looking for.

Senator KLOBUCHAR. Thank you.

Mr. Larew, my last question here, it is sort of along the same lines but about the biofuels market. Senator Grassley and I have worked together on a number of initiatives, as have others on this Committee through the years, and right now, something like half the biofuel plans are idled or slowed down. Of course, these exemptions, small refinery exemptions—and Senator Grassley and I have introduced some legislation for relief on this, but as making it so much worse.

Could you, Mr. Larew, just talk about the challenge that we are facing? I know Mr. Bible is well aware of this, but I will have him followup in writing. Can you talk about that briefly?

Mr. LAREW. Yes. I appreciate it because for Farmers Union, biofuels production is very much aligned with our climate strategy as well.

Senator KLOBUCHAR. Exactly.

Mr. LAREW. It is a climate and a consumer-friendly development, and what the EPA is doing with the current barriers and the small refinery exemption waivers is really a huge disservice not only to farmers and ranchers and rural communities, but to the Nation, who is trying to look for alternative fuels and climate-friendly solutions.

We are very excited to be one of the primary litigants against EPA recently on some of those waivers. The 10th Circuit ruled in our favor, and we are hopeful that in spite of continuing effort to seek even additional waivers that they will use the court's ruling on that to stand behind the RFS in a solid way.

Thank you.

Senator KLOBUCHAR. Thank you.

Thank you, Mr. Chairman.

Chairman ROBERTS. Senator Hyde-Smith?

Senator HYDE-SMITH. Thank you, Mr. Chairman and Ranking Member Stabenow, for holding this hearing, and I certainly want to thank those witnesses down there that have agreed to serve on the panel today. It has been very beneficial.

My question is for President Duvall, Zippy Duvall, and I want to thank him for his great leadership as well at the Farm Bureau and his advocacy for farmers and ranchers that has benefited this entire country, I can safely say.

Mississippi is blessed with more than 10 million acres of farmland and almost 20 million acres of timberland. We have a high enrollment in the CRP and the WRP programs in our State and other conservation programs authorized by the Farm Bill.

In many instances, as we have discussed, producers and private landowners find it difficult to access carbon markets, and that the process is often difficult or it is too convoluted to achieve wide adoption.

Your home State of Georgia and Mississippi are a lot alike, and could you speak a little more on how the legislation we are reviewing today might benefit our farmers and private landowners?

Mr. DUVALL. Sure, Senator, and thank you so much for the question.

I think it gives us the opportunity to, like I said earlier, diversify our income. I think the secret to making this happen is information. Farmers need the information and data to be able to drive their decisions, and then we talk about small family farms where they are not used to hiring a consultant, so they are not used to having lawyers on staff full-time. They are going to depend on their extension services and the land-grant colleges to help to lead them in that thought process of whether or not this option is available for them on their farm and whether or not it would be profitable for them to be able to diversify their income.

I think information is a big thing. How do we get the information out there? How do we get that information to them through a trusted delivery system? The extension service is always—for a small family farm, that is always the delivery system that they trust.

Senator HYDE-SMITH. Thank you, and I sure appreciate Farm Bureau. I appreciate the mask that I have today that has got "Farm Bureau" on it. Thank you so much.

Mr. DUVALL. It is looking good on you, Senator.
[Laughter.]
Chairman ROBERTS. Has the Senator concluded?
Senator HYDE-SMITH. I am done.
Chairman ROBERTS. Thank you, Senator.
Senator Bennet.
Senator BENNET. Thank you, Mr. Chairman, and thank you very much to the witnesses for participating in this hearing. We really appreciate it under these circumstances.

Mr. Bible, in answer to a question that Senator Klobuchar asked a few minutes ago, you said that increasingly on your farm, you are seeing the economic health of your farm is tied to the sustainability of the farm, and that environmental practices and economic practices, I think you said more and more are going hand-in-hand.

We are seeing a lot of that in Colorado, but I think it would be useful if you could expand on your answer and talk a little bit about what you are seeing in that regard.

Mr. BIBLE. Certainly. It spans a few different areas. One is certainly in the practices that we choose to participate in, and it really is by a farm-level or field-level decision, that in many times, no-till practices, sometimes cover cropping are two examples of things that certainly tend to increase productivity on particular farms that do not have the same organic material or the same water retention abilities as other farms. We find that when we engage in certain environmentally friendly practices that we are also increasing the productivity and the resiliency of those farms. They may not be our highest-producing farms, but over changes in weather, changes in climate year to year, we see some stability that will develop.

Then is also spans the technology and the equipment side of things. We have made investments and continue to make investments in equipment year over year that allow us to operate much more efficiently.

Part of our farm is irrigated, center-pivot irritation, and we found that investments in technology within that allows us to variable rate water and allow us to use that more efficiently.

It is not just in how we treat the soil, but it is other things that go into the total operation across the board.

Senator BENNET. The soil is an important part of all of this, obviously, because that is the only way you can pass a farm to the next generation.

In Colorado, that part of the country, we know our history, and we know when we had the Dust Bowl, we had to respond to that. We had to change the practices, and the result of that is we have family farms today that we would not otherwise have had we not done that. I think we are on the cusp of that sort of a revolution right now. You heard it from the testimony of the representative of Land O'Lakes.

Since you were kind enough, Mr. Larew, to mention my bill, I wanted to give you an opportunity to talk about it a little bit more.

As I think the Chairman knows, I released a draft bill last year to provide tax credits for farmers, ranchers, and foresters who are taking steps to store carbon in their land. We modeled it after the

45Q credit that is available to the energy sector. I think our sector should have the benefit of that as well.

Could you talk a little more about how the Growing Climate Solutions Act might set the stage for more public-sector initiatives such as a tax credit to increase carbon sequestration in the land sector and create value for our farmers, ranchers, and foresters?

Mr. LAREW. Certainly. I appreciate the question.

I think that what is important to note is that the Growing Climate Solutions Act, by setting criteria for the third-party verifiers lends that legitimacy to the marketplace–sends the signal that there is more structure in place, if done correctly, with very rigorous accreditation and also with making sure that bad actors and other market forces are performing well for farmers.

I think that will set the stage very nicely for additional suites of incentives that would also allow farmers to innovate and take advantage of additional climate-friendly practices. Part of that certainly could include a carbon sequestration tax credit, much like your bill has perceived so far.

As I noted before, we do need to make sure that it operates in a way that serves family farmers and ranchers primarily, and we need to make sure since they do not have many cases of a tax burden because of economic conditions that we are incentivizing any transfer in a way that again keeps family farmers and ranchers on the land and that we are not inadvertently setting up incentives for corporate land grabs to also take advantage of those.

Senator BENNET. I think that is a very important point. I look forward to working with you on that.

Mr. LAREW. Thank you.

Senator BENNET. Mr. Chairman, thank you.

Chairman ROBERTS. Senator Thune.

Senator THUNE. Mr. Chairman, thank you and Ranking Member Stabenow for holding today's hearing to consider the Growing Climate Solutions Act.

I also want to thank our witnesses for appearing before the Committee today and for your input on this issue.

I know you have probably covered some of this ground, and I apologize I had to be at another hearing at the Commerce Committee, but I want to ask the question for all the witnesses. Maybe you could do it quickly and sort of summarize your answer. What do you see as the biggest obstacle that farmers and ranchers face when it comes to accessing carbon markets, and how are producers currently accessing these markets?

Mr. BIBLE. I can go first on that.

The biggest barriers are knowledge or lack thereof about the process and then trust, trust that you can be involved with a third party that is going to be fair with you from a farmer perspective. I think those are the barriers that I see. I think this bill does a good job of addressing that.

Senator THUNE. Mr. Larew.

Mr. LAREW. I would certainly agree with that. I think knowledge—farmers are great at farming and at trying to distill a lot of information, but for the efforts that are out there right now, these contracts are enormously complex, and there are a lot of questions. Setting up a system similar to one that is envisioned by this bill

would at least set up a structure so that farmers can trust the information, make sure that they can get their questions answered, and can believe in the system and the market itself.

Senator THUNE. How are they currently accessing the market? That is a second question, then.

Mr. LAREW. There are certainly a couple players right now in this marketplace. Indigo is one of the companies that is out here right now, and farmers are able to kind of access that individually.

Again, I think that one of the limitations for additional acreage being signed up is the lack of knowledge and being able to tap into those markets.

Senator THUNE. Mr. Duvall and Mr. Bible, both of you mentioned ethanol in your opening remarks, and built on the efficient and cleaner farmer practices we are discussing today, we know that American ethanol and biodiesel are driving significant emissions reductions. Could you speak to the importance of having accurate up-to-date greenhouse gas modeling from EPA, especially how it might further support green farming or create trade opportunities?

Mr. Bible and then Mr. Duvall.

Mr. BIBLE. Okay. Two things that I will say, it is vitally important for us to have that information wherever it comes from, whether it is EPA or USDA, and second, I will say that the issue that we faced in the ethanol market with EPA and issuing those waivers that we faced, that has been a tremendous challenge, and the fact that we have a government entity that has put up a barrier to that market is deeply concerning to me.

Senator THUNE. Mr. Duvall.

Mr. DUVALL. Yes, Senator. We think it is vitally important that we be able to measure that and have something that we can have trust and depend on.

The ethanol, biodiesel in 2019 reduced green house gas emissions by the amount equivalent of 17 million cars being taken off the road.

When you start talking about data for your constituents and the people out in the public to support programs that we are trying to utilize on our farms, they got to have the data to be able to see what we are actually doing and what is producing and how it is helping the environment.

The ethanol industry is a great industry. It is an infrastructure in a lot of our rural communities out there. Not only the cars depend on it and being energy independent, but also the animal sector depends on a lot of the byproducts for feed stuff. It is a vital piece of the rural economy of this country and the infrastructure that was created to not just help rural America but to help America be energy independent, and in doing that, we have done some tremendous—made some tremendous strides in protecting our environment.

Senator THUNE. Thank you.

Mr. Bible, Mr. Larew, very quickly, greener farming practice does not only add value to the crop, but lower the lifecycle greenhouse gas emissions for biofuels. Cellulosic biofuels lower this carbon intensity even further. Could you speak to the importance or perhaps the detriment, I should say, of the EPA inaction when it comes to

supporting technologies like corn kernel fiber that would bolster environmental efforts in the ag space?

Mr. LAREW. Yes. I mean, very briefly, I think that EPA has been the primary barrier to a lot of additional success that we can have in the reduction of greenhouse gases in ethanol and technology, particularly on the cellulosic side, but also, quite frankly, on traditional—even as we are improving through agronomic practices, et cetera, and processing, the story for green-based ethanol in general. EPA continues to be a barrier not only for the waivers that they have issued, but also for barriers against higher blends, which would be able to move us even further and continues to be a strong and smart climate solution.

Senator THUNE. Thank you.

Mr. BIBLE. I will just echo that thought very briefly that there are tremendous opportunities for ethanol markets going forward, grain, cellulosic, on and on, and the EPA certainly should not be a barrier to those emerging markets.

Senator THUNE. Thank you.

Thank you, Mr. Chairman.

Chairman ROBERTS. Members should know that we have votes at 11:30. We are going to try to keep going here. If we can make our remarks somewhat brief, why, that would be appreciated.

Senator Gillibrand.

Senator GILLIBRAND. Thank you, Mr. Chairman.

As you all know, farmers are dependent upon a stable climate for their livelihoods and way of life and acutely exposed to the impacts of climate change, whether flooding, drought, or spread of invasive species and crop pests.

I agree with you, as you said in your testimony, that, quote, climate change is the single greatest long-term challenge facing family farms and ranchers, rural communities, and global food security.

We need to address this challenge head on, and our farmers have a unique and important role to play. What more can we be doing to engage our farmers and agricultural communities particularly where there is a lot of skepticism around climate science and the need to reduce fossil fuels?

Mr. LAREW. I appreciate the question.

For our membership and our farmers and ranchers across the country, they have recognized the challenges and the changing climate and the direct effect that it has on their operations. They are very much focused on solutions, and as this debate and conversation continues, recognize the opportunities, some of which we are talking about today, tapping into markets.

For farmers and ranchers, I think that, first and foremost, they are interested in leaving their lands in better condition. They are also interested in sustaining that operation into the far future, and so making sure that they can do that not only in a sustainable way, but quite frankly, an economically viable way is going to be critically important.

As we get additional data about the value that many of these climate-friendly practices bring to their operations, I think that information will go even further in building that level of trust. That tied to the incentives that are market-based, potentially also those in-

centives with the existing suite of voluntary incentive-based programs at USDA and conservation, all of these types of things are certainly welcome by farmers and will continue to be adopted by them as they see the value that it brings to their operations.

Senator GILLIBRAND. In addition to the legislation we are examining today, what are other policies and support from the Federal Government that would make it useful to helping farmers become less dependent on fossil fuel, and what are the biggest barriers to powering our farms with more renewable energy? Do any of you have thoughts on what Congress could do to incentivize farmers to use more wind and solar power to electricity and transition to cleaner farm equipment in a way that is cost effective?

Mr. LAREW. Senator, I would just jump in first on reiterating that one of the, I think, central roles that Congress could certainly play in helping support this whole culture is really investing even further on basic research, basic research through USDA on climate-friendly solutions and what those outcomes actually are, making sure that we have credible, validated information with which we can make other policy and obviously land practice decisions in a credible way.

I think that making sure that the information we have out there is very much science driven is a really important role that the Federal Government can play.

Mr. WELLER. I would just add to this, and this is built upon President Larew's remarks, but also to echo Mr. Bible's remarks earlier.

Senator, I think the conversation with the producer really has to be anchored, in our experience, first and foremost, in how do practices and technology help that farm be more profitable.

Setting aside the climate change conversation, which sometimes can lead to a tangent that is not necessarily a productive conversation, if you first approach the farm, understanding a business operation, what is the mix of practices and systems that is going to help that farm be more successful from a production but more importantly a profit standpoint, if you anchor the conversation in profitability, that ultimately can lead to the adoption of climate-smart technology.

Using the Federal Government, as we talked about, with this legislation, with other legislation, and incentives that have been discussing during the hearing, it is really the mix of different incentive tools that the Federal Government should look at, but ultimately, it is helping farmers to adopt the right mix of practices, because it is going to reduce their emissions but also offset the emissions of other sectors.

Mr. DUVALL. Senator, this is Zippy Duvall, American Farm Bureau.

I grew up, I have raised my family here on my family farm that was passed down from my grandfather, and the most important things as a farmer is, one, being able to conduct our businesses in a way that is healthy for our families and our neighbors, that is healthy for our soils and our waters, and then, of course, to do that, we have to be profitable.

What we depend on in small family farms across America is trust in research, research that is public and private going on, our land-

grant colleges. We all trust our land-grant colleges to do that research, to be able to deliver something that I can voluntarily get involved in, protect the soil and water of my family, my neighbors, my friends, pass my farm on in better conditions than I received it. It is something that is going to draw me to it quickly.

Just an example in my younger years when we started talking about nutrients being applied behind animal production, I raise about a million and a half broilers here a year. We use a comprehensive nutrient management plan. That comprehensive nutrient management plan was information that came to me from the extension service. My extension agent, I trusted. He helped me set it up, and we have abided by that plan for years and years and years.

The programs that we are talking about is the same thing. If we can do it, do it right, not make it too complicated, make it beneficial to our land, water, and our farms, healthy for our families and our neighbors, and help us to be profitable, more profitable, that we can afford to do it through buying the equipment and actually putting in these practices on the ground would be a draw to our farmers to come to.

Senator GILLIBRAND. Thank you.

Chairman ROBERTS. Thank you, Senator.

Senator Braun.

Senator BRAUN. Thank you, Chairman Roberts.

Chairman ROBERTS. Cosponsor of the bill.

Senator BRAUN. Thank you.

Brent, we had a chance to visit this morning earlier and share the common roots of being a Hoosier, and interestingly, you are a first-generation farmer. I am wondering how many have stuck their neck out to get into farming for the first time. You started in 1907, two years before the four best years we have had in the farm economy, and since 2013—and I talk about it often—all of a sudden, the arithmetic starts to get increasingly difficult for any farmer.

We were reminiscing about putting an acre of soybeans out for 70 bucks an acre; corn, $140; and prices along with the other mechanisms not too much different from what we have now.

Now costs have tripled. It seems to be very sticky, coming down, and we are in that groove of where there is probably very little margin of error.

I would like you to take the time in a pro forma way to talk about the costs of agriculture per acre and maybe take an acre of corn and put that in relation to—I think from Mr. Larew's data, we found that back in 2010, this might generate about 15 bucks an acre. Update us on what the carbon markets might give a farmer currently if you perform in a way that is friendly to the environment. Talk about the high altitude of farm P&L's and how narrow the margin of profit is currently, if you can carve one out, so we can all understand how difficult your business is.

Mr. BIBLE. Sure. It has changed drastically over the last 13, 14 years.

I do come to this as a first-generation farmer. Certainly, we all grew up—I think many of us grew up with a garden or a few cattle or a few pigs around and that type of thing. That was a rural life-

style in the 1970's and 1980's, especially, but my parents had all farm jobs. I chose to enter this a little bit later in life, and it has worked out wonderfully.

The timing was good, as you alluded to, when we entered into full-time farming. There was a profit margin there, and we did not rely on government support and subsidies like we have gotten to today in terms of trying to have some type of sustainability or profitability on the farm.

The cost of inputs have risen dramatically in the last 15 years, and that——

Senator BRAUN. Three times would be fair from what it was?

Mr. BIBLE. Two to three times, absolutely. A lot of that has been driven by technologies and seed and other inputs, but certainly, some of that has just been driven by the ability to make a profit or the need to make a profit form the input side of things. That was great through a few years where the farmer, the end producer was making a good profit as well. We have seen that certainly go backward the last five, six years.

I see no change in that on the horizon for that right now. Our demand structure certainly has been injured in the last couple of years through different things, policy and otherwise, but our supply is very good right now as well. We need to look for other markets, other opportunities to generate a profit, and outside——

Senator BRAUN. Yields have not compensated for the input cost going up. To be fair, yields have gone up, but your margin has shrunk to where there's a margin on a pro forma basis in farming currently, taking into full depreciation of equipment and all of that. How close is it?

Mr. BIBLE. It is zero—or it is probably—to be fair, it is less than zero if you do not include the USDA payments that have come the last couple of years.

A typical—I think I am a typical farmer. I see myself that way. We are not making money right now. We are treading water, so to speak, when you take away that USDA subsidy that has been there, whether that is the market facilitation program to the COVID.

Senator BRAUN. Have these carbon credits gotten any better since the 15 bucks per acre, roughly, back in 2010 in terms of the markets that are there? Can you comment on that quickly?

Mr. BIBLE. Just very quickly, I would say that that comes down to supply and demand, and the demand has increased for those voluntary markets to exist. I think that is the opportunity for us to be able to step up and supply that and generate revenue through that process.

Senator BRAUN. Make a big difference going from maybe zero in the present, actually having a positive bottom line based upon something you are doing, anyway, sustainably.

Mr. BIBLE. Absolutely. It gives us the opportunity to make a profit and do something environmentally healthy for our operations at the same time.

Senator BRAUN. Thank you so much. Keep up the good work.

Mr. BIBLE. Thank you, Senator. Thanks for having me.

Chairman ROBERTS. Senator Smith.

Senator SMITH. Thank you very much, Chair Roberts and Ranking Member Stabenow. It is wonderful to be with all of you virtually, and I very much appreciate your testimony.

Just quickly, I am really proud to be a cosponsor of the Growing Climate Solutions Act of 2020, and as I am listening to you all talk about this, you really are describing, in a way, sort of a noble circle that can exist in farming where you have good soil health, good water quality. You have sustainability. You have profitability, and all of that leads to a sustainable operation.

Could you just briefly talk about how if it is done correctly, this act could provide an additional source of revenue and a diversification of revenue that might be helpful to farmers in all parts of that noble circle? Just anybody who wants to comment on that, that would be great.

Mr. WELLER. I will jump in there, Senator Smith. Jason Weller from Land O'Lakes. Nice to see you, Senator.

As Mr. Bible was just discussing, but some of the other witnesses have also talked about, it is, first and foremost, farmers are great at producing food, fiber, and fuel, absolutely, but it is also here, we are on the cusp of and what your legislation helps anticipate is this new class of commodities for, in this case, greenhouse gas credits. Whether it is going to be $10 a ton or $15, $20 a ton, the voluntary markets are going through price discovery right now, and as we expect as increasing demands for credits come from the private sector for offsets further emission, we are hopeful that over time, you will see price accretion, and there will be more and more opportunities for farmers to generate revenue.

In the end, we see this as not necessarily becoming a replacement of crops, of course. This is going to be an additive, an add-to, and so in the end, this is an opportunity for farmers to have an additional source of revenue but also to diversify the revenue coming into the operation and at the same time can help offset the cost to adopt new technology, new equipment, new crops that ultimately can improve the profitability of the farm, but also adopt a climate-smart practice that will improve the resiliency of that operation.

Mr. BIBLE. I will just briefly add to that. What it does is it provides the opportunity to participate, and that is what Jason is really getting at.

We do not have to do this, but if there is an incentive there and if it is right for our operation, we will have that opportunity to participate and to succeed.

Senator SMITH. Right. Thank you.

Jason, if I could come back to you, it is wonderful to be here with a fellow Minnesotan. Minnesota is the very proud home of Land O'Lakes.

Throughout this conversation, there has been lots of conversation and lots of discussion about the importance of broadband, especially, as you talk about, the work you are doing around your big effort around sustainability.

I very much admire the work that your CEO, Beth Ford, has done around the American Connection Project. I know that Farmers Union is part of the American Connection Project, and I also know that Farmers Union—Farm Bureau is part of the American

Connection Project, and Farmers Union is a strong supporter of broadband also.

Beth talks about—and the group talks about the importance of greater funding for broadband, better mapping for broadband, and also the need for increased coordination at the Federal level. The suggestion is that a person within the White House that coordinates all of the various Federal efforts around broadband. We have certainly seen in the COVID emergency, but we knew it before, that broadband is not just something that is nice to have. It is absolutely necessary for health, for education, for jobs, for everything.

Jason, could you just talk a little bit more about the work at the American Connection Project and how you see that applying to what we are talking about today?

Mr. WELLER. Absolutely. In no small part, I am extremely proud to be part of Land O'Lakes, and because, first and foremost, when I wake up, I know who I work for, which are farm families and ag retail owners, but it is also the power of the cooperative to be a convener, in this case, through the American Connection Project. We are helping to convene a huge alliance of diverse partners, including the American Farm Bureau Federation. Microsoft is a technology partner. CoBank is a financial institution. The Mayo Clinic, also another Minnesota-based organization, of course, focused on health care, and it is a huge coalition.

What the COVID pandemic has really shined a light on is the disparity in access to the 21st century economy, and that is access to the internet. Without access to that internet, you cannot do or ultimately implement what we have been talking about during this hearing, which is creating new commodities, but you also cannot access telemedicine outcomes, education opportunities, commerce opportunities for small businesses and for farmers themselves to market their crops.

In the end, we have tried through the American Connection Project to provide for connection, but more fundamentally to advocate for significant investment, really what should be a public utility, and it is a right of access to the 21st century super highway, which is the internet.

Senator SMITH. Thank you very much.

Mr. Chair, I just want to add—I understand that Farmers Union as well as Farm Bureau have signed on to the American Connection Project, so that is great news.

Chairman ROBERTS. Thank you, Senator.

Senator Fischer.

Senator FISCHER. Thank you, Mr. Chairman.

I would like to address this first question to Mr. Duvall and Mr. Weller, please.

Ranchers, particularly those with small-or medium-sized family farms and ranches are operating on very thin margins, but we know that rangelands store vast amounts of carbon, and with small management tweaks, that they can store even more.

However, carbon market conversations seem to be narrowly focused on croplands. How would this legislation remove barriers and de-risk these management tweaks for ranchers, specifically wanting to access voluntary carbon markets?

Mr. WELLER. I will jump in there first, Senator. Thank you very much.

I think this legislation is really about tapping into the scientific and technical expertise of USDA to ultimately help identify, set up a system, to identify experts that, in this case, ranchers, livestock producers can turn to.

I agree with you, more often than not, that the whole focus around soil health and carbon sequestration is very much focused on real crop producers, but there is a huge opportunity for range operations, livestock producers, as well as those who have pastures, and ultimately, to help those soil systems capture and store carbon.

Through this legislation, it is identifying the professionals that can provide that range management, pasture management expertise to that livestock producer, livestock operator, to help those grassland-based systems pull down and store carbon as well as then allowing to have a transparent place where ranchers and livestock operators can turn to if they too also want to participate in a voluntary marketplace.

There are increasingly organizations—and I will mention it because we are a member of one. We are a very proud member of it. It is the Ecosystems Services Market Consortium. It is an important industry consortium of over 50 organizations, private sector, public sector, nonprofit organizations coming together to design the protocol to create a voluntary marketplace for ranchers, for livestock producers to bring their credits into the marketplace, so they too can participate in a greenhouse gas credit removal opportunity.

Mr. DUVALL. Yes, Senator. Jason is perfectly correct. I mean, I have a 400-cow-calf operation here on my family farm. I am a grass farmer. We call ourselves beef farmers, but we are really grass farmers. Anytime or any program that I can be involved in to help the soil health on my farm, it not only helps the soil, but it makes it more productive, and more productive soil gives momma cows more to eat, which makes the calves bigger and better.

I think it is all about having the data, of recognizing what we have already done to improve our soils before, recognizing our annual practices that we have put on the ground with interseeding hard-land drills and comprehensive nutrient management plans and all that we do, all incorporated in this will help us provide another avenue for us to improve our soil health, be more productive, and more profitable on the farm.

Senator FISCHER. Right. There are several NRSC programs that are aimed at conserving land like the CSP and CRP, and both of those are very popular in my home State.

In the 2018 Farm Bill, there was a provision in there on environmental services markets that prevents USDA from limiting participation in markets for all farm bill conservation programs.

Effectively, that is going to allow producers to couple and offset projects on top of an already funded conservation project. It seems to me that this would help producers increase their income by generating credits from land taken out of production through CRP, as an example. Do you see it that way?

Mr. WELLER. Through our approach, just real quick, through Truterra, we work with our agricultural retailers, and they are working with farmers in Nebraska. We have several retailers we

are very proud to be partnering with in Nebraska, including Frontier Co-op, Central Valley Ag, Westco Co-op, and they are working with farmers to identify on their fields where there are opportunities to utilize programs like CRP to protect the soils, to enhance the carbon capacity carrying the soils to reduce erosion, provide for wildlife habitat.

Yes, we see USDA programs like CRP very complementary to the exact topic of this hearing.

Senator FISCHER. Right. I would like to see us with this bill or other bills also to look at new feed additives, where you can reduce methane emissions from cow up to 30 percent. I think that has to be part of the conservations for all people who are involved with agriculture because we have millions of acres of rangeland in this country. We have tens of thousands of family ranchers out there as well who continue to improve those rangelands, continue to improve the soil, and can be of help here.

Mr. WELLER. Yes, Senator.

Senator FISCHER. If we can work together really to be able to address the need to allow for a quicker process to have some of these additives move through a regulation system at a quicker pace, that is going to help all of us.

Thank you very much. Looking forward to working with you on that.

Thank you, Mr. Chairman.

Chairman ROBERTS. We thank you, Senator.

This will conclude our hearing today. Thank you so much to each of our witnesses for taking time to share your perspectives on the Growing Climate Solutions Act for 2020.

To my fellow members, we ask that any additional questions you may have for the record be submitted to the Committee Clerk five business days from today or by 5 p.m. next Wednesday, July 1st.

The Committee stands adjourned.

[Whereupon, at 11:54 a.m., the Committee was adjourned.]

A P P E N D I X

JUNE 24, 2020

Testimony of Brent Bible
United States Senate Committee on Agriculture, Nutrition and Forestry
June 24, 2020

Thank you Chairman Roberts, Ranking Member Stabenow, Senator Braun and all the Members of this Committee for the invitation to testify before you today. I am honored to share with you my perspective on the Growing Climate Solutions Act and how this legislation can benefit both the economic health of my farm and the environmental health of the landscape around me.

As a first-generation farmer I see myself as a typical, but vital part of the food supply chain. My business partner and I operate Stillwater Farms, growing corn and soybeans for seed production, ethanol, and food products on over 5,000 acres across three counties in west central Indiana. I am also a member of the Indiana Corn Growers Association and the Indiana Farm Bureau; I appreciate their support for farmers and for the work we are trying to accomplish today.

I also see our farm as a significant piece of the climate puzzle for the wellbeing of my community, state and country.

Conservation practices have a central place on our farm. We value the environmental benefits these practices provide, as well as the economic benefits they deliver for our business.

We use precision center pivot irrigation on nearly one-fifth of our acres to reduce water consumption, and we use no-till or minimum till management practices and cover crops on one-fourth of our acres to enhance soil health and productivity. Our strategy is to make management decisions for each individual farm that maximizes the economic and environmental return on investment on a field by field basis.

Farming is my passion, but it's also my business. And that business has become increasingly challenging recently. As a graduate of Purdue University with a degree in Agriculture Economics, my decision making process is driven by data, and there are multiple data points that support the challenges production agriculture has faced the last 2 years.

Farmers in the U.S. have faced trade wars that have wiped out demand for our product, extreme weather events like the heavy precipitation we saw in 2019, and supply chain disruptions like the ethanol facility and meat plant closures we're seeing this year from COVID-19. We appreciate everything that this Committee has done to help us and value your work to bring us out of these tough times.

However, it's become clear to me and many of my peers that, as farmers, we need to create additional economic opportunities and improve the resiliency of our farms and of agriculture as a whole. To better weather these external shocks, farmers like me need support to expand adoption of resilient farming practices.

That's where greenhouse gas markets, like the ones that the *Growing Climate Solutions Act* enables, have real potential to boost both economic and environmental resilience.

Many farmers already use conservation practices that reduce greenhouse gas emissions and increase landscape resilience to climate impacts we can't avoid. But adoption of many of those practices still lags behind what it could be, and farms' financial challenges are one reason why.

With the *Growing Climate Solutions Act*, these same conservation practices would also generate a valued commodity that could be sold to companies that want to offset impacts from their operations. On the farm, steady and diversified revenue streams would help smooth the ups and downs of the commodity markets and keep us in business.

In the markets for agriculture carbon offsets created to date, the cost and complexity of certifying credits has often outweighed the benefits of the credits themselves, preventing many farmers from participating in carbon markets. A 2018 paper published by the Environmental Defense Fund recommended that policy makers should focus on streamlining transaction costs as a first step to overcoming barriers to agriculture carbon markets.[1] That streamlining could happen, thanks to this bill.

The *Growing Climate Solutions Act* would simplify and standardize the certification process for generating environmental credits and help farmers realize greater returns on their investments in credit-worthy practices.

Right now, farmers interested in participating in the private market for environmental credits lack credible information on trusted sources for verification and technical assistance, both of which are crucial to enable farmers' participation.

This bill would create a pool of USDA-certified third-party verifiers and technical assistance providers to assist farmers in accessing voluntary environmental markets. USDA would also establish and maintain a list of existing standards and protocols that

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[1] Proville, J., Parkhurst, R. T., Koller, S., Kroopf, S., Baker, J., & Salas, W. A. (2018, August 28). Agricultural Offset Potential in the United States: Economic and Geospatial Insights. https://doi.org/10.31235/osf.io/zea8g

farmers could choose from to get started. This important first step will provide legitimacy to the voluntary markets and offer comfort and transparency to participants.

Once standards and protocols are set, farmers can voluntarily contract with private sector certifiers, get their operations certified and then sell credits into existing markets.

Selling environmental benefits will create additional and diversified revenue streams for farmers like me. In addition, many of these same practices build the soil health of my farm, conferring resilience to my crop yields during poor weather years. These benefits are vitally important to me and my business, but conservation practices also positively impact my neighbors. The free-market, voluntary structure established by this Act will economically incentivize farmers rather than mandate action, and ultimately result in higher rates of adoption.

Agricultural landscapes are critical for helping entire communities address climate impacts. Conservation practices can slow, filter and strategically direct water runoff during heavy rains. This can reduce flood risk for downstream communities, protect water quality and recharge groundwater. Precision technology can facilitate less fertilizer and chemical use, and result in direct economic savings in addition to environmental benefits.

Maintaining or restoring wetlands and adding more perennial plants to my farmland will help store carbon and help prevent the worst effects of climate change. It can also enhance rural landscapes with other benefits for wildlife conservation, recreation and hunting.

Finally, it's important to note that access to broadband is essential to tackling climate change. Widespread use of precision technology and real-time data on crops and nutrients depends on universal broadband in rural and agricultural areas. Farmers want to engage and be part of the solution, but they need the tools and internet infrastructure to be successful. Our local Rural Electric Cooperative, for which I serve as on the Board of Directors, is currently investing over $100 million to provide this broadband service to our membership, but we need continued policy and financial support to make this type of service widely available.

Farmers are on the frontlines of climate impacts we're already seeing today. Climate impacts like heavier, more variable rainfall and shorter planting windows have a direct, adverse impact on farm operations. Farmers see these changes and want to make our farms as resilient as possible so they survive for generations to come.

Agriculture has a tremendous opportunity to lead by example with impactful, common sense climate solutions. Farmers are vital partners in stabilizing the climate and increasing resilience to climate impacts we can't avoid.

This bill makes it easier for farmers to benefit from being part of the climate solution by ensuring climate-smart agriculture practices are economically viable and opening the door for farmers to engage in voluntary greenhouse gas marketplaces.

I submit that we will soon realize that a positive return on investment and environmentally beneficial are not mutually exclusive outcomes, but rather are complementary results. In fact, the *Growing Climate Solutions Act* is strongly supported by both agriculture and environmental organizations because the bill allows farmers to help reduce their own impact on the climate while providing income during tough times like we face now.

I would like to see this Committee fully support the Growing Climate Solutions Act and pass this bill into law. It doesn't matter if you pass it by itself or part of a larger package of bills. But farmers need your help so they can do their part to mitigate climate change and make our world a better place.

Thank you

Statement of the American Farm Bureau Federation

TO THE SENATE COMMITTEE ON AGRICULTURE, NUTRITION and FORESTRY

Perspectives on S. 3894, the Growing Climate Solutions Act of 2020.
June 24, 2020

Presented By:
Zippy Duvall
President
American Farm Bureau Federation

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Mr. Chairman and members of the Committee, my name is Zippy Duvall. I am the president of the American Farm Bureau Federation, and I am pleased to offer this testimony, on behalf of the American Farm Bureau Federation.

American farmers and ranchers play a leading role in promoting soil health, conserving water, enhancing wildlife, efficiently using nutrients, and caring for their animals. For decades they have pushed past the boundaries of innovation by investing in agricultural research and adopting practices with the goals of improving productivity, enhancing sustainability, and providing clean and renewable energy. In fact, the use of ethanol and biodiesel in 2018 reduced greenhouse gas emissions by an amount equivalent to taking 17 million cars off the road.

Livestock and crop production are the heart of American agriculture, providing the food we enjoy every day. Ensuring this production continues sustainably is essential for people and the planet. Farmers have embraced technologies that reduced emissions and increased efficiency. Building upon the strong foundation of voluntary stewardship investments and practices, including those in the Farm Bill, we look forward to working with policymakers to further advance the successful sustainable practices used by U.S. agricultural producers. Throughout this process, lawmakers must ensure that any governmental analysis characterizing U.S. crop and livestock systems reflects U.S. agriculture's leadership globally in sustainable farming practices.

All told, agriculture accounts for less than 10% of total U.S. greenhouse gas (GHG) emissions, far less than transportation, electricity generation, and industry sectors. Farmers continue to produce more with greater efficiency. In fact, U.S. agriculture would have needed nearly 100 million more acres in 1990 to match 2018 production levels.

U.S. farmers and ranchers have long been at the forefront of climate-smart farming, utilizing scientific solutions, technology, and innovations to raise crops or care for livestock. These efforts are designed to protect soil and water, efficiently manage manure, produce clean and renewable energy, capture carbon, and improve sustainability. Over two generations, we've been able to increase productivity by 270 percent, while using the same resources. In essence, we're doing more with less.

Total carbon sink efforts from forestland management, land converted to forestry, grasslands, and wetland management more than offset agriculture's contribution to total emissions. However, many of agriculture's carbon sequestration efforts are not directly assigned to the agriculture sector. It is certain that if the carbon sequestration efforts of U.S. farmers and ranchers were assigned to agriculture, our contributions to GHG emissions would be significantly lower. It is worth noting that U.S. farmers have enrolled more than 140 million acres in federal conservation programs, equal to the total land area of California & New York combined. Millions more acres are dedicated to nonfederal conservation programs.

More productive livestock operations allow ranchers, pork producers, and dairy farmers to maintain their total contribution to GHG emissions at less than 3%, while also leading to lower per-unit GHG emissions. Similarly, productivity gains in crop production allow farmers to produce more food, fuel, and fiber while using at least 100 million fewer acres than three decades ago.

U.S. farmers and ranchers contribute significantly fewer GHG emissions than their counterparts around the world. EPA data shows agriculture's global contribution to GHG emissions was 24% in 2010, more than double U.S. farmers' and ranchers' contributions to total U.S. emissions in 2018. This significant difference is largely driven by farmers' enthusiastic adoption of technology. Farmers are the pioneers of sustainability and any policy debate should recognize their contributions, efficiency gains, and the considerable impact of their carbon sequestration efforts.

With trade challenges and the impacts of the COVID-19 pandemic, America's farmers and ranchers are facing difficult headwinds. As we continue to work with Congress, we must explore new markets and opportunities for our members. Our policy crafted by our grassroots members, hardworking farmers and ranchers, recognize the value of market-based incentives and compensation to farmers for planting crops or adopting farming practices that keep carbon in the soil. That is why we welcome opportunities for farmers and ranchers to hopefully participate in emerging carbon markets.

For producers and private forest owners, access to carbon markets is often difficult and too convoluted to achieve wide adoption. The Growing Climate Solutions Act would create a

certification program at USDA to help solve technical entry barriers to farmer and forest landowner participation in carbon credit markets. These issues – including access to reliable information about markets and access to qualified technical assistance providers and credit protocol verifiers- have limited both landowner participation and the adoption of practices to help reduce the costs of developing carbon credits.

It is our hope that USDA will be able to help landowners connect with private sector actors who can assist the landowners in implementing the protocols and monetizing the climate value of their sustainable practices. Third-party entities, certified under the program, will be able to claim the status of a "USDA Certified" technical assistance provider or verifier. The USDA certification lowers barriers to entry in the credit markets by reducing confusion and improving information for farmers looking to implement practices that capture carbon, reduce emissions, improve soil health, and make operations more sustainable.

Today, many third-party groups are developing protocols and testing methods to calculate emissions reduction and sequestration in agriculture and forestry. The landscape is evolving rapidly. In this context, the Growing Climate Solutions Act would provide the Secretary of Agriculture with an advisory council composed of agriculture experts, scientists, producers, and others. The advisory council will advise the Secretary about the certification program and whether it remains relevant, credible, and responsive to the needs of farmers, forest landowners, and carbon market participants alike.

Finally, the bill instructs USDA to produce a report to Congress to advise about the further development of this policy area including barriers to market entry, challenges raised by farmers and forest landowners, market performance, and suggestions on where USDA can make a positive contribution to the further adoption of voluntary carbon sequestration practices in agriculture and forestry.

The Growing Climate Solutions Act seeks to provide more clarity and guidance for those farmers and ranchers who want to provide the ecosystem services that many consumers and businesses are desiring. This builds upon American agriculture's strong foundation of environmental stewardship.

Farm Bureau will continue to work to ensure that farm families maintain their ability to respond and adapt to climatic events and that public policies do not threaten the long-term resiliency of our rural communities. Congress must protect American agriculture and production practices from undue burden, and respect farmers' and ranchers' ability to innovate and solve problems.

American farm families want to leave the land better than when it was first entrusted to our care. We want to protect the planet, feed and clothe people, and promote vibrant communities. Working with our partners, land-grant universities, policymakers, and the farmers and ranchers we represent Farm Bureau intends to continue finding solutions for the challenges of the future.

Mr. Chairman, I commend you for convening this hearing and for all your hard work on behalf of agriculture across the country. I will be pleased to respond to questions.

TESTIMONY OF ROB LAREW
PRESIDENT
NATIONAL FARMERS UNION

SUBMITTED TO THE COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY OF THE UNITED STATES SENATE

"Legislative Hearing to Review S. 3894, The Growing Climate Solutions Act of 2020"
July 24, 2020
G50 Dirksen Senate Office Building
Washington, D.C.

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

Thank you for the invitation to testify today on the Growing Climate Solutions Act and your long-standing leadership on climate issues. NFU appreciates the work you did to highlight the potential of agriculture as a climate solution in the hearing last summer and in prior congresses and looks forward to working with you on the legislation in front of you today. NFU supports this bill as a sound first step in developing strong bipartisan climate policy for America's family farmers and ranchers that will provide certainty as they look to engage in the market opportunities presented by the sequestration of carbon.

I am Rob Larew, president of the National Farmers Union, an organization that works to improve the wellbeing and economic opportunity for family farmers, ranchers, and rural communities through grassroots-driven advocacy. As a general farm organization, NFU represents about 200,000 members across the country who come from all segments of agriculture.

NFU climate policy overview

Climate change is the single greatest long-term challenge facing family farmers and ranchers, rural communities, and global food security. NFU members have long recognized that the climate is changing; that those changes are affecting all aspects of their operations; and that farmers and ranchers, if provided the right tools, can be a key part of a solution that looks to make America more resilient and reduces atmospheric carbon.

Ten years ago, as the debate over cap-and-trade raged in Congress, NFU warned this committee of the costs on inaction on climate change.[1] Over time, we have seen that changing growing seasons, precipitation patterns, and pest pressures, and increasingly frequent and severe weather events have made what is already a tough and risky business even more difficult. Congress failed to act then on cap-and-trade, and progress on an economy-wide effort to address climate change stalled. Since then, global temperatures have continued to rise—the 2010s were the hottest decade recorded in world history—a trend that scientists expect to continue.[2] Many of the risks to family farmers and ranchers that were raised then have come to pass.

But we still recognize that agriculture can also be part of the solution to climate change—that was why NFU supported cap and trade, and why we continue to push for strong climate policy. Farmers and ranchers can reduce greenhouse gas emissions on a meaningful scale through soil and biomass sequestration. Land management practices that sequester carbon also promote healthy soils that hold water in times of excessive moisture and make it available in times of drought, mitigating some of the effects of climate change and making the land and nearby communities more resilient to changing weather patterns and extreme storms. Farms and ranches are also well positioned to contribute to a clean energy future thorough the production of renewable energy and biofuels, which will be key in ensuring the United States' long-term energy security. Many farmers are already taking these actions

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[1] Testimony from NFU President Roger Johnson to the Senate Agriculture Committee, July 22, 2009: https://www.govinfo.gov/content/pkg/CHRG-111shrg56563/html/CHRG-111shrg56563.htm

[2] NOAA/NASA Annual Global Analysis for 2019: https://www.ncdc.noaa.gov/sotc/briefings/20200115.pdf

and developing new practices, revenue streams, and business models that will lead the United States to a more sustainable future.

Agriculture must be a component of an economy-wide solution to reduce total emissions and mitigate and adapt to the effect's climate change. NFU supports a comprehensive federal approach to climate change that supports the leadership of family farmers and ranchers as they make the best decisions for their land and operations and work to implement practices to improve soil health and adapt to changing weather and pest pressures, sequester carbon, and reduce emissions. Climate policy must build on the U.S. Department of Agriculture's (USDA) voluntary, incentive-based conservation programs that allow for farmer choice and flexibility; spur on-farm production of energy and expand the use and availability of biofuels; and encourage markets that appropriately compensate farmers for the goods and environmental services they provide. It is through a combination of these activities, and a commitment by the government to ensure that tools are available to farmers of all sizes, production types, socioeconomic groups, and backgrounds have access to tools and resources to make the right decisions for their land and operations.

The state of the farm economy

The need for strong climate action comes as U.S. family farmers and ranchers face an uncertain economic future. 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.[3]

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 what could have been a generations-long way of life but also puts strain on the food supply and rural communities.

We must accept that farmers and ranchers can no longer alone bear the cost of the environmental services and public good that they provide. Climate policy must be developed that ensures farmers and ranchers are compensated to appropriately address the externalities of food, fuel, and fiber production and encourage markets and other opportunities that pay farmers to sequester carbon and mitigate the effects of climate change. If done right, such policy can result in a strong agricultural economy and ensure the longevity of rural communities.

The potential for carbon markets

Improving the resiliency of America's private lands and realizing the broad potential for terrestrial sequestration of carbon in agricultural soils will require work and attention from both the public and

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[3] USDA Economic Research Service: https://www.ers.usda.gov/topics/farm-economy/farm-sector-incomefinances/assets-debt-and-wealth/

private sectors. USDA programs and government funding will be needed to assist some farmers and ranchers, but they cannot fix the climate crisis alone. There is already growing corporate and consumer interest in carbon emissions reductions and voluntary carbon markets are being built to meet these private sector demands. The government must encourage these activities while ensuring adequate protections for farmers.

Carbon markets with strong private sector participation can create a sustainable revenue stream for farmers as they work to sequester carbon—in many ways treating carbon sequestration as a commodity that can be traded and sold. Through these systems, companies can pay to offset some of their emissions through the purchase of sequestration credits from agricultural sources. Carbon markets put a value on the public good provided by agricultural carbon sequestration and take pressure off the government to fund climate-focused changes to agricultural land operation and management.

This idea is not new, and carbon markets do work. In 2006, North Dakota Farmers Union (NDFU) and NFU created the National Farmers Union Carbon Credit Program, which served as an aggregator of carbon credits that were traded on the Chicago Climate Exchange (CCX)—a voluntary carbon market. NDFU worked to protect the interest of farmers in the market and sold credits that were earned on a per-acre basis through the implementation of no-till and reduced-till cropping, long-term grass seeding, intensive rangeland management, and afforestation. Farmers engaged in the program for both environmental and economic reasons--certainly not all participants necessarily believed in climate change, but they did recognize the value of investing in the land and in having another revenue stream. By 2010, NDFU was the largest aggregator of agricultural soil credits in the United States and distributed more than $7.4 million to 3,900 farmers across five million acres. All told, these farms and ranches sequestered about 7.6 million tons of carbon over that timeframe. CCX folded in 2010 after the Waxman-Markey climate bill failed in the Senate, bringing an end to the NDFU-NFU program.

The push for voluntary carbon markets has seen a resurgence recently as companies, farmers and ranchers continue to recognize the potential to spur both environmental and economic sustainability. NFU is a member of the Ecosystems Services Market Consortium (ESMC), which works with farmers, food companies, and other actors in the supply chain to create a voluntary, market-based approach to incentivize farmers and ranchers to implement conservation practices that provide quantified ecosystem benefits.[4] Once the market is fully operational, ESMC will buy credits from farmers based on environmental improvements and carbon sequestration on their land and sell them to companies and others looking to reduce their environmental footprint. The group is testing its protocols in pilot projects and plans to launch the market in 2022. ESMC is not alone in trying to develop carbon markets for agriculture: Indigo Ag and Nori, both private companies, are also working toward this goal.

The Growing Climate Solutions Act

The Growing Climate Solutions Act lays a foundation that will allow the private sector and government to build market-based solutions to climate change that appropriately work with and compensate farmers and ranchers. The bill for the first time gives USDA a formal non-regulatory role in voluntary

[4] ESMC About Us: https://ecosystemservicesmarket.org/about-us-2/

carbon markets, sending a strong signal about the legitimacy of those markets and providing reassurance to family farmers and ranchers interested in participating.

The Greenhouse Gas Technical Assistance Provider and Third-Party Verifier Certification Program created by the bill would ensure appropriately trained third party service providers are available to assist farmers and ranchers as they work to sequester carbon and generate revenue from the sale of offsets on their land. The advisory council created in the bill will provide valuable insights to USDA on the operation of these private markets and the role and participation of farmers in them, while reporting requirements will help Congress to monitor the growth and activities of the markets and prepare for future needs of farmers and ranchers.

At NFU, we are also interested in how the Growing Climate Solutions Act can serve as a base for further efforts to ensure farmers are paid a fair price to sequester carbon and combat the climate crisis. Certainly, there are lots of ideas on the best way to do this. Some, including committee member Sen. Bennet, say that farmers and ranchers should have access to a carbon sequestration tax credit, which Congress has already enacted for other industries.[5] Meanwhile, others are proposing that USDA create a carbon bank within the Commodity Credit Corporation that would serve as another purchaser of carbon offsets from farmers and signal that carbon is like other agricultural commodities.[6]

Some combination of these ideas, along with protections for farmers and ranchers and much needed investment in public research on terrestrial carbon sequestration, will likely be needed to ensure a stable market for farmers and ranchers. The Growing Climate Solutions Act would provide a foundation for these and other related efforts.

To be sure, as this committee and Congress considers and refines this legislation, thought must be given to how farmers and ranchers of all size and production types fit in to a sustainable climate future. While the commoditization of carbon can have benefits to farmers and ranchers, efforts should be made to prevent consolidation, which as we've seen in other sectors of agriculture pushes out smaller operations that can't compete and lowers the prices paid to those that remain. Congress should also work to ensure USDA develop publicly funded science on how to best sequester and store carbon in the soil. The Farmer Driven Conservation Outcomes Act from Sen. Casey would help USDA to quantify the environmental benefits of conservation to ensure that practices are resulting in outcomes.[7] Congress should also consider protections for farmers from bad actors or faulty market efforts by strengthening the accreditation requirements in the Growing Climate Solutions Act and support early adopters of soil health practices who are often excluded from market efforts. Carbon markets are a tool, not a silver

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[5] Information on Sen. Bennet tax credit proposal is available here: https://www.bennet.senate.gov/public/index.cfm/2019/12/bennet-unveils-discussion-draft-to-create-new-tax-credit-for-farmers-and-ranchers-to-capture-carbon-in-the-land-sector

[6] More information on the potential for a USDA carbon bank can be found here: https://bipartisanpolicy.org/wp-content/uploads/2019/12/BPC-Farm-and-Forest-Natural-Carbon-Solutions-Initiative-Working-Papers.pdf

[7] Details of Sen. Casey's bill are available here:https://www.casey.senate.gov/newsroom/releases/casey-capito-introduce-bill-to-support-farmers-efforts-to-mitigate-climate-change-improve-water-quality-

bullet, and USDA will need to provide resources for those unable or uninterested in participating in these markets.

Conclusion

NFU commits to working with the committee to ensure the Growing Climate Solutions Act adequately reflects the needs of family farmers and ranchers as they look to carbon markets as a new revenue stream that will set the path toward an environmentally and economically sustainable future. I look forward to continuing this dialogue about the role of family farmers and ranchers in addressing the climate crisis. Our members thank the bill's cosponsors and this committee for helping to develop the policies and programs needed to ensure an environmentally and economically sustainable future for agriculture and rural communities.

Thank you for your invitation to testify on this important piece of legislation and your ongoing attention and leadership on this issue.

Testimony of Jason Weller
Vice President, Truterra LLC, Land O'Lakes, Inc.
Before the Senate Agriculture Committee
June 24, 2020

Chairman Roberts, Ranking Member Stabenow and Distinguished Members of the Committee, I am Jason Weller, Vice President of Truterra, LLC, the sustainability business at Land O'Lakes, Inc., one of the nation's largest farmer-owned cooperatives, and former Chief of the Natural Resources Conservation Service (NRCS) at USDA. With a cooperative footprint in over 10,000 rural communities, I appreciate the invitation to speak about the work farmers and ranchers are doing to address the climate crisis and what the public and private sectors can do to further empower farmer-led solutions to climate change. Land O'Lakes applauds the leadership of Senator Braun, Senator Stabenow and others in developing and introducing the bipartisan Growing Climate Solutions Act. Land O'Lakes is pleased to support the bill.

The Growing Climate Solutions Act is an important step towards developing viable greenhouse gas (GHG) and ecosystem markets. The legislation provides core building blocks of transparency and information to advance both the promise and potential of agriculture and forestry sectors to help reduce and sequester GHGs while also providing for new sources of revenue for farmers, ranchers, and landowners. Markets work best when there is transparency in rules and prices. They are most efficient when sellers know the most cost-effective path to bring a product to market and when buyers trust in the quality of their purchase. Farmers and ranchers similarly benefit when they know to whom they can turn for quality agronomic and technical assistance, as well as to which marketplace or buyer to sell their product for an optimum price.

At its core, the bill recognizes that working with the nation's farmers and ranchers is one of the quickest, most scalable and most economically feasible solutions to lowering GHGs, and seeks to address some of the inherent challenges in working across nearly 900 million acres of agricultural land and over two million individual farm businesses across the United States.[1]

[1] https://www.nass.usda.gov/Publications/Todays_Reports/reports/fnlo0419.pdf

This legislation clearly outlines an appropriate role for USDA, one that complements existing private market efforts to meet market-based demands, including efforts underway at Truterra. The integrity that USDA would bring to the marketplace by setting standards for providing farmers and ranchers technical assistance and for verifying GHG credits would offer confidence in the system for farmers who want to participate.

Furthermore, the legislation enhances both transparency and access to emerging environmental credit opportunities. Existing private sector markets are in their early stages, and the science supporting these markets is evolving. With this, it is complex and challenging for potential institutional buyers of environmental credits to access GHG offset opportunities, let alone confusing for individual farmers or ranchers to understand where to begin. Under this bill, USDA would provide a trusted source of information on the protocols and standards, as well as estimates of market size and activity, for both sellers and buyers of GHG credits. Creating a web-based resource for farmers and ranchers to identify service providers to help them create GHG credits, and ultimately find the best market opportunities for those new environmental commodities, would also be a valuable and mission-appropriate role for USDA. Without legislation of this kind, the United States and American farmers will fall behind our global competitors. This legislation demonstrates global leadership and is an important step towards establishing stewardship as a viable revenue stream for farmers.

Land O'Lakes and Truterra: A Farmer-Focused, Private Sector Approach

Land O'Lakes and Truterra are focused on helping farmers identify and adopt farm stewardship practices that improve their economic and environmental sustainability. Much of our work involves helping farmers identify climate friendly practices that both reduce GHG emissions and improve the health of soils by sequestering carbon. I want to briefly share examples of farm stewardship work already in motion at farmer cooperative networks and connect how it fits into the broader efforts underway across the food and agriculture supply chain to develop climate solutions and, ultimately, why we support this legislation.

Land O'Lakes is a farmer and ag retailer-owned cooperative with deep roots across rural America. We see the opportunity: When we invest in rural America, every American benefits.

These rural communities are key to our food security – the communities where our members work and where they call home. Farmers are the backbone of rural communities and when they aren't profitable, the communities ultimately struggle to invest in other vital services such as education, health care or their local economy.

Truterra offers the only farmer-owned, farmer-driven food and agriculture sustainability program in the United States. Since it was launched in 2016 by Land O'Lakes, Inc., over 1,600 farmers have put their trust in the Truterra network to help them advance and accelerate stewardship on over 26,000 individual fields. The Land O'Lakes network of member-owner ag retailers and local co-ops, which serve as farmers' trusted agronomy advisors, are especially critical to our delivery of new stewardship solutions, technology and innovation to the farm gate.

The Truterra business is built on the idea that farmer return-on-investment can generate environmental return-on-investment. With access to conservation expertise and the latest tools and technology, farmers can make decisions about managing their land, acre-by-acre, such as adopting minimum- or no-till practices, optimizing fertilizer management, or planting cover crops, that can both maximize yields and expand stewardship. Truterra focuses on closing critical knowledge gaps and the de-risking of trying new tools and practices that can keep farm businesses resilient and profitable for the long term.

Truterra works with farmers and their trusted agronomy advisors—through the ag retailer—to establish an environmental sustainability baseline for each field, identify improvement opportunities, and model the impact of various conservation practices, products, and tools on field stewardship and profitability. Instead of focusing on one activity, we develop holistic insights for each agricultural field and support farmers' business decisions, putting them in the driver's seat of advancing stewardship economically and sustainably.

For example, our best-in-class technology—the Truterra™ Insights Engine—generates customized stewardship and profitability insights for every field. This includes establishing a stewardship baseline by generating a Truterra™ Insights Score, and helping farmers identify areas of improvement and analyze the impact of implementing specific practices, products or

tools on profitability. The platform provides farmers with deep understanding of the performance of their crop fields by giving them soil health indicators such as wind and water erosion rates, soil carbon and quality trends, and estimates of net GHG emissions. It is a live and interactive tool that allows the farmer and his or her advisor to "plug and play" different combinations of stewardship practices to identify the system that maximizes the ROI performance and protects the quality of their natural resources.

Our alliances with ag retailers and organizations such as the National Fish and Wildlife Foundation, the National Association of Conservation Districts, and Pheasants Forever, support an unmatched "boots on the ground" capacity to drive change on every acre with every farmer. We are also helping farmers test on-farm innovation to adopt climate friendly nutrient stewardship and soil health practices with groups such as the Soil and Water Conservation Society, leveraging the leadership and work of this Committee under the Agriculture Improvement Act of 2018 to include the On-Farm Conservation Innovation Trials.

An acre-by-acre, field-by-field farmer-centric, innovation- and tech-forward approach is critical to addressing the most pressing stewardship and profitability challenges. For instance, an analysis by NRCS of conservation adoption in the Western Lake Erie Basin estimated that a relatively small number of the acres in this large watershed have an outsized impact on water quality. In this case, just 25 percent of the cropland acres in this watershed are the source of 80 percent of sediment, 66 percent of the phosphorus, and 59 percent of the nitrogen losses, respectively. Of note, these losses are not occurring on 25 percent of the farms in the watershed or even 25 percent of the fields. These sediment and nutrient losses are occurring across the entire watershed on a micro scale, based on the diversity of soil types, topography, and management systems used by farmers. Thanks to precision conservation technology, farmers in the Western Lake Erie Basin and across the country now have a better look than ever at where opportunities exist in their fields to maximize production and minimize environmental losses.

Ultimately, sustainability can and should be a regular part of the calculation when ag retailers are working with farmers to make decisions about managing their land. At Truterra, we are partnering with our ag retailer members to create a network of partners to provide one-on-one

support for farmers. Most farmers' conservation journeys are built on relationships and collaboration, one that combines the knowledge of the NRCS programs and expertise, the on-the-ground knowledge of Soil and Water Conservation Districts, and the agronomic expertise of co-ops and ag retailers. The availability of robust data, analytics and insights, such as those offered by Truterra, allows farmers to work with agricultural retailers to employ practices in a far more targeted and impactful way than ever before.

Truterra's approach is greatly benefiting farmers, whose profitability is increasingly being impacted by climate change factors – whether through weather events that affect yields or the ability to take advantage of federal conservation program funding that could tip the scale towards adopting certain conservation practices. Again, we believe the Growing Climate Solutions Act is an important step towards farmers seeing stewardship as a viable revenue stream, which in turn bolsters private sector approaches like Truterra's that can drive the widespread adoption of precision conservation practices and, ultimately, solutions to climate change.

Voluntary Carbon Markets: The Opportunity

In addition to the inherent benefits of cutting sediment and nutrient losses from farms that ultimately impact their productivity and profitability, agricultural sustainability is also a growing market opportunity. For instance, voluntary GHG credit markets offer exciting potential for farmers, ranchers, and private forest owners to produce a new class of environmental commodities from working lands, if done correctly. Interest from companies and U.S. consumers is growing.

According to Nielsen[2], the majority (73 percent) of U.S. consumers say they would definitely or probably change their consumption habits to reduce their impact on the environment. And consumers are voting with their wallets: In 2018, consumers spent almost $129 billion on sustainable consumer goods, up 20 percent from only 2014[3]. An even more

[2] https://www.nielsen.com/us/en/insights/report/2018/unpacking-the-sustainability-landscape/
[3] https://www.nielsen.com/us/en/insights/article/2018/was-2018-the-year-of-the-influential-sustainable-consumer/

recent survey by global management and consulting firm Kearney found that nearly half of surveyed consumers say that the COVID-19 pandemic has made them more concerned about the environment, with 11 percent saying they have shifted their purchases based on environmental claims within the past year.[4]

As a result of this expanding consumer interest, the food system is gearing up to meet new marketplace demand. From global restaurant chains to grocery retailers, from consumer-packaged goods companies to food ingredient processors, both iconic brands and new startups are exploring ways to better connect with consumers on how their products support environmental quality. At Truterra, in addition to our farmer-focused offerings, we are also working to create the market conditions to drive demand for stewardship by connecting the dots between what is happening on the farm to consumers. We have partnered with world-class companies in the food value chain who are interested in supporting voluntary approaches to helping farmers advance their sustainability, including the Campbell Soup Company, Tate & Lyle, and Nestlé Purina. With the leadership and support of our ag retailer network, agronomists and precision ag advisors are using the Truterra™ Insights Engine to work with farmers to benchmark their current stewardship and identify additional practices that would benefit their farm. In turn, our food value chain company partners are able to track progress against science-based sustainability targets for their supply chains. This new marketplace also offers a channel to connect consumers and farmers through the food value chain, ultimately helping incentivize management and conservation practices that could address the climate crisis.

Rural Connectivity Gaps Undermine the Fight Against Climate Change

Critical to the expansion and success of improving on-farm sustainability is the accessibility and utilization of next-generation technology, supported by strong broadband connectivity. This connectivity is essential, and currently lagging far behind. According to Federal Communications Commission estimates, more than 18 million Americans lack internet connectivity. By some estimates, the number of Americans without access to high-speed internet

[4] https://www.kearney.com/consumer-retail/article/?/a/consumer-support-still-strong-as-earth-day-celebrates-its-50th-birthday

is even higher than FCC projections – experts believe the number could be twice as high.[5] The COVID-19 pandemic brought the digital divide to the forefront, as we now heavily rely on high-speed internet for critical facets of everyday life from healthcare to education, to working and to this very hearing.

To address the connectivity gap in the near-term, Land O'Lakes, our agriculture retail-owner network and other organizations, have come together to provide free Wi-Fi access points at over 150 locations in 19 states to help our neighbors connect to telehealth, remote learning and other critical services during this pandemic. However, this is a short-term solution for a long-term problem.

Through our American Connection Project, Land O'Lakes has advocated for full internet accessibility. The success of America's rural communities is inextricably linked to the security and prosperity of our country as a whole, and a robust federal investment is imperative to help close the divide. We know the need is in the neighborhood of $100 billion to connect everyone across the country. Congressional action on this issue is critical.

Land O'Lakes is building and executing a strategy based in precision agriculture and conservation. We know that the only way to protect water quality, sequester carbon, reduce GHG emissions and maximize farmer profitability, will be through precision conservation solutions, fueled by technology. None of these advancements are possible without broadband. Connectivity at the farm gate allows farmers to connect equipment to GPS and ensure machinery is using the most efficient routes. Connectivity enables usage of drones to reduce fuel costs, variable rate application to reduce input use, and more. A 2019 USDA report found that 40 percent less fuel is used due to variable rate technologies, 20 to 50 percent less water is used due to precision agriculture and an 80 percent reduction in chemical application.[6] When it comes to environmental improvements in agriculture and connectivity, they must go hand-in-hand.

Dairy's Role in Supporting Environmental Stewardship

[5] https://broadbandnow.com/research/fcc-underestimates-unserved-by-50-percent
[6] https://www.usda.gov/sites/default/files/documents/case-for-rural-broadband.pdf

While Truterra's focus is broad, as a dairy co-operative, I do want to take a moment to speak to efforts underway in the U.S. dairy community to address climate change. The Innovation Center for U.S. Dairy is working with farms, co-ops, processors and other stakeholders to establish a new set of voluntary environmental stewardship goals for the U.S. dairy community, which aim to achieve neutral or better carbon emissions, optimized water usage and improved water quality by 2050. Having USDA support in science and transparency for reporting, and verification of voluntary GHG credit markets, is imperative to the success of this initiative and the economic viability for farmers.

Conclusion

Chairman Roberts, Ranking Member Stabenow and Members of the Subcommittee, I commend you for your leadership in convening this hearing. I believe that this is an important moment for farmers, rural communities, and for the food and agriculture system as a whole. The conversation about the intersection between climate change, food and agriculture is not, by any means, new. But, as a professional who has spent decades working on these issues, I am invigorated by the new momentum this conversation has recently taken on as well as the growing enthusiasm for, and embrace of, the major role that farmers and ranchers can play in mitigating and offsetting the impacts of climate change.

Thank you for the opportunity to provide input in this process; we stand ready to help in any way requested.

DOCUMENTS SUBMITTED FOR THE RECORD

JUNE 24, 2020

June 22, 2020

Senator Debbie Stabenow
Ranking Member
Senate Committee on Agriculture, Nutrition and Forestry
328-A Russell Senate Office Building
Washington, DC 20510

Dear Ranking Member Stabenow:

Thank you for the opportunity to provide comments for the Senate Committee on Agriculture, Nutrition and Forestry's legislative hearing to review the Growing Climate Solutions Act (GCSA), S. 3894.

Agriculture is uniquely positioned to address climate mitigation and implement climate resilient strategies through on-farm conservation practices that have on-farm and societal benefits beyond climate mitigation. Climate smart agriculture can sequester soil carbon, thereby increasing the largest carbon sink – the terrestrial sink – while also improving water quality and water use efficiency. The Ecosystem Service Market Consortium (ESMC) and our members are working to scale climate smart agriculture across the US to increase agricultural resilience in a manner that is economically beneficial to farmers. Our market approach is not prescriptive; it allows individual farmers and ranchers to make the choices that fit best within their farming operation.

Ecosystem Service Market Consortium

ESMC's mission is to advance ecosystem service markets that incentivize farmers and ranchers to improve soil health systems that benefit society. ESMC is a member-based organization launching a national scale ecosystem services market for agriculture to recognize and financially reward farmers and ranchers for their environmental services to society. ESMC members represent the spectrum of the agricultural sector supply chain with whom we are scaling sustainable agricultural sector outcomes, including increased soil carbon, reduced net greenhouse gases (GHG), and improved water quality and water use conservation.

ESMC's program will enable farmers and ranchers to voluntarily adjust crop and livestock production systems in ways that increase soil carbon sequestration and retention, improve water quality, conserve water use, and provide many additional ecosystem service outcomes. ESMC's program allows producers to choose only those changes they desire to undertake, and as few or as many as they select, with the understanding that they will be paid based on outcomes, and the more impact change we can quantify each year, the greater their payments for credits generated.

The program is currently operating in full piloting and deployment stage prior to official market launch in 2022.

ESMCs innovative market quantifies ecosystem services impacts in a science-based, standards-based, verified and soon-to-be certified program and monetizes the impacts as ecosystem services credits or assets of value to demand side buyers. Our program meets multiple, heterogeneous market needs, rather than just one, and creates stacked benefits allowing multiple payments for multiple credits, including for soil carbon, net GHG, water quality and water quantity. Farmers and ranchers are paid for beneficial outcomes, and the attributes or credits are sold in a national ecosystem services market to entities seeking to reduce their indirect environmental impacts.

The ESMC program was designed and conceived exclusively for the agriculture sector, after careful analysis and consideration of challenges in current and past carbon and other ecosystem service markets that have not scaled opportunities for the sector. ESMC is making programmatic and technically advanced investments to scale measurable, verified ecosystem services and climate mitigation improvements based on economically viable farm practices. Practices adopted by farmers must make agronomic sense for farming operations, allow for continued crop and livestock production, and be economically feasible -- not costing farmers more than the potential benefits to them. For ecosystem services markets, understanding which practices reduce GHG or increase sequestration is important, but impacts of any given practice can be variable across different production systems and different geographies and climates in the U.S. In the agriculture sector major challenges have included finding systems-based approaches that can be tailored to the unique needs of farmers and ranchers in highly variable and diverse geographies and with diverse systems; and ensuring flexibility while encouraging innovation. Addressing the economics and the economic impacts to farmers and ranchers is also challenging given the dearth of data and the difficulty in tracking and analyzing it.

ESMC's full-scale pilot testing now underway will include feedback from farmers and ranchers to allow us to understand the economics of the farming operations as well as the market pricing for credit/certificate purchasers which all figure to allow for the future success of the program and ability to scale our reach, and impacts.

Farm Bill

This Committee's work on the Farm Bill established a base for many of the ongoing efforts to quantify the ecosystem benefits of voluntary conservation practices and can provide data and information to support successful ecosystem markets. USDA's voluntary incentive-based conservation programs provide conservation technical and financial assistance that can support individual farmer adoption of conservation practices. The Agricultural Conservation Easement Program, Conservation Stewardship Program, the Environmental Quality Incentives Program and the Regional Conservation Partnership Program each provide tools to farmers, including

financial cost sharing and technical assistance to expand adoption of conservation practices that sequester carbon, reduce greenhouse gases and improve water quality and water use efficiency. These programs require farmers to share in the cost of the practice with USDA financial assistance covering a portion of the practice cost.

The Farm Bill's establishment of the Foundation for Food and Agriculture Research (FFAR) and research funding is being matched dollar for dollar with private sector funding to advance innovative research and understanding of agricultural systems to enable viable ecosystem service markets built specifically to reward and recognize the impacts of sustainable farming and ranching. USDA grants, leveraging private matching funds, enable wide ranging research, development, demonstration and deployment of technologies and applications to scale U.S. based carbon sequestration efforts. FFAR-funded research will help develop, demonstrate and deploy technologies to better quantify, monitor and verify the environmental impacts of agricultural producers' conservation efforts to recognize and pay them through an ecosystem services marketplace.

Growing Climate Solutions Act

ESMC would like to thank Committee members Senators Braun and Stabenow and Senators Graham and Whitehouse for introducing the GCSA. As the Committee reviews GCSA and other proposals, an underlying principle of any policy action should be to not adversely impact private activities and private markets advancing agricultural sector participation in, and payment for, carbon sequestration and environmental services. Significant efforts are underway by ESMC and the private sector to further develop private markets focusing on providing soil carbon sequestration, reduced net GHG, and water quality and water quantity credit sales to recognize and reward farmers and ranchers for their services Private markets operating at scale can do so in a manner that produces the highest carbon sequestration in a cost effective, efficient manner. Any policy that Congress develops must allow for and recognize the existing private markets and not adversely interfere or duplicate private sector efforts. Private sector markets can operate at a lower cost than Federal Government programs.

The GCSA will result in a cadre of technical providers that growers can rely on to assist them with participation in voluntary ecosystem markets. Creating a recognized and certified group of technical service providers and verifiers ensures that growers have access to resources they need to facilitate entry into markets, and that theses service professionals have training and expertise in agriculture and forestry practices and markets. Building the capacity of service professionals that understand agriculture and forestry land management market opportunities, protocols and standards will support ecosystem markets operation at scale. Ecosystem service markets suffer from a lack of appropriately trained technical assistance and verification professionals with agricultural expertise. This bill would help to rectify that problem and ensure that certification of these professionals remains current.

As Congress continues to discuss agriculture's role in climate policy and the GCSA, legislative efforts should allow for the continued development and success of private sector markets and not place the federal government into a role that competes with the private markets. The government's role should be to provide science-based data and information to ensure private markets have access to the best scientific and agricultural sector data available.

ESMC suggests the Committee eliminate certain provisions of GCSA that even upon introduction have caused confusion due to duplicating private sector market activities and roles that do not require and will not benefit from redundant efforts. Specifically, the GCSA in *SECTION 1240N (d) Standards* directs the USDA to "publish a list and description of standards that are taken from widely used industry protocols for greenhouse gas credit markets (including calculations, sampling methodologies, accounting principles, systems for verification, monitoring, and reporting, and methods to account for additionality, permanence, and leakage, and avoidance of double counting; where appropriate) that covered entities registered under the Program shall maintain expertise in and adhere to, as appropriate." These standards are maintained by market registries with long-standing expertise and global recognition, and USDA need only indicate a need for certified technical assistance providers and certifiers to remain current with these standards. Standards for certified verifiers already exist in these markets; what is largely missing from them is adequate representation of certified verifiers with agricultural sector expertise, which the legislation can and should remedy, without engaging in any efforts to set or duplicate the standards of the markets.

ESMC suggests below several new and supporting provisions of the bill that can be added to tap USDA data and scientific expertise in support of improved quantification of ecosystem service impacts from agriculture. ESMC encourages Congress to ensure that USDA make available research data and data sets that can improve all quantification process models utilized in this space, rather than making data available to only select model developers or tool developers. Within USDA there are multiple GHG quantification and water quality models preferred for different uses and by different agencies; rather than making USDA data available for only certain tools or models, Congress should direct USDA to make data available for all quantification models, and should standardize the way the data is collected and publicly shared to ensure that publicly-funded actions benefit the broadest potential audience of users working to benefit the agricultural sector constituency.

ESMC supports the use of process based GHG and water quality quantification models as the basis and the key to advanced, cost-effective impact quantification at scale. The private sector can continue to provide leadership in developing and improving science-based quantification models; USDA should develop guidelines to guide publicly funded academic and industry research to ensure the resulting data is standardized, accessible, and usable to any modeler or researcher. Continued public investments in this important arena serve both public and private constituencies of USDA, many of whom are ESMC members, partners, collaborators and stakeholders. ESMC's success, like the success of any market-based and outcome-based

program, relies upon the soundness and transparency of science underlying its quantification protocols and methodologies. Sound quantification protocols and methodologies allow for reliable, credible, transparent ecosystem service credit generation, which in turn engenders trust in market-based programs seeking to improve the GHG and environmental performance and impacts of US agriculture.

USDA Resources and Expertise in Support of Ecosystem Services Quantification

There are additional roles that USDA can undertake to standardize criteria, technical guidance and data collection to support ecosystem markets. USDA leadership can harmonize and standardize criteria utilized by public and private modeling communities to improve rigor and outcomes for all GHG and water quality models. Process-based GHG quantification and water quality models should be used as the basis and the key to advanced, cost-effective quantification of impacts and outcomes at scale. These models can be improved if the modeling community unifies behind standardized criteria for data to calibrate and validate such models, including criteria for how data that is used to populate and run the models should be collected. USDA technical guidelines should encourage and perhaps support the development of an open-source, national research data set repository(ies) to enable calibration and validation of all processed-based GHG and water quality models. To this end, the technical guidelines should set transparent, standardized, and flexible criteria and protocols for data collection, formatting, storage, and access to ensure that modelers have access to consistent, harmonized, high-quality data to improve process-based models.

Additionally, criteria for soil sampling and data collection is not uniform or uniformly agreed to, even within USDA or among soil scientists. These criteria and protocols should include, among other things, criteria and guidelines for soil sampling frequency, depth increments, and analysis requirements; and for data collection, formatting, entry, and quality control, including automation wherever and whenever possible to remove human error. Also, even soil carbon sampling data that is publicly funded is not available to private sector modelers to calibrate and validate their tools, even when being utilized to benefit US farmers and ranchers.

Finally, and as important, ESMC recommends that USDA not select specific tools or models to utilize in estimating or measuring GHG emissions and emissions reductions and increased sequestration from agriculture, but instead provide leadership across all sectors in developing standardized criteria that are applicable to the accurate and appropriate use of models or tools for market-based purposes as well as other non-market purposes, such as USDA assessment of conservation program outcomes.

Public and private sector work to better quantify and track environmental impacts of agricultural practices is ongoing. There continues to be a need for more scientific data on GHG and economic impacts of various agricultural production systems in varied geographies to better advise farmers and ranchers how to achieve desired outcomes cost-effectively. USDA could

provide aggregated data on conservation practice adoption and management systems to better inform the markets and project developers to support dedicated efforts to better scale impact. Continued and improved tracking and reporting by USDA of practices and management systems utilized by farmers and ranchers in different geographies would benefit ESMC and all outcomes-based monitoring approaches by allowing the creating and tracking of baselines and changes in adoption and rates of adoption that can impact change at scale. As policies and programs are reviewed, ESMC encourages the Senate to consider enhanced funding and structure of programs to collect and report data in an aggregated manner that allows for continued improvement in understanding agricultural production systems, environmental outcomes and economics of incorporating practices and changes to management systems.

Thank you for holding a hearing on this bill and facilitating the discussion on agriculture's role in providing solutions on climate issues.

Sincerely,

Debbie Reed, Executive Director
Ecosystem Services Market Consortium LLC (ESMC)
Washington, DC
dreed@ecosystemservicesmarket.org
Tel. (202)701-4298

growth energy
America's Ethanol Supporters

701 8th Street, NW, Suite 450, Washington, D.C. 20001
PHONE 202.545.4000 FAX 202.545.4001 GrowthEnergy.org

June 24, 2020

U.S. Senator Pat Roberts
Chairman
U.S. Senate Committee on Agriculture
328A Russell Senate Office Building
Washington, DC 20510

U.S. Senator Debbie Stabenow
Ranking Members
U.S. Senate Committee on Agriculture
328A Russell Senate Office Building
Washington, DC 20510

Dear Chairman Roberts and Ranking Member Stabenow:

Thank you for holding today's important hearing to discuss key agriculture contributions to future discussions on climate policy. We appreciate this opportunity to submit comments.

Growth Energy is the leading biofuel trade association in the country and represents more than 100 ethanol producers and 96 associate members along the supply chain. Our ethanol producers work to bring consumers better choices at the fuel pump, grow America's economy, and improve the environment for future generations. Annually, our industry purchases more than 5 billion bushels of corn and sorghum to produce nearly 16 billion gallons of biofuel and more than 38 million tons of dried distiller grains. Accordingly, we have a strong interest in the future success of American agriculture.

Our producers and farmer suppliers provide significant benefits to our nation's environment. With many states and localities increasingly exploring public policy options to lower carbon emissions, the use of biofuels can immediately contribute to lowering greenhouse gas emissions, reduce harmful air toxics, and provide affordable solutions to consumers and lawmakers alike. These benefits are significantly attributed to innovations in agricultural practices like reduced tillage, use of cover crops, and continued ethanol plant innovation. There have also been multiple studies confirming these facts:

- The U.S. Department of Agriculture[1] found that ethanol reduces greenhouse gas emissions by 39% compared to traditional gasoline, and by 2022, the agency anticipates corn ethanol's relative carbon benefits could reach up to 70%.

[1] "The greenhouse gas benefits of corn ethanol—assessing recent evidence." *Biofuels*. Jan Lewandrowski, Jeffrey Rosenfeld, Diana Pape, Tommy Hendrickson, Kirsten Jaglo, Katrin Moffroid (2020). 11:3, 361-375, DOI: 10.1080/17597269.2018.1546488

- A University of California—Riverside study[2] found that ethanol blends reduce toxic emissions by up to 50%, including smog and ultra-fine particulates.
- A University of Illinois at Chicago study[3] found replacing traditional gasoline with E10 reduces toxic emissions by 15%, while E20 could reduce toxins by 31.7%.

Programs such as the Renewable Fuel Standard as well as the continued expansion of higher biofuel blends like E15 and E85 can advance environmental progress and provide meaningful markets for American agriculture well into the future. We hope as your committee continues to explore agriculture's role in climate policy you will continue to recognize and promote the role of biofuels for our nation's farmers and consumers now and into the future. Thank you and we look forward to working with you on these important initiatives.

Sincerely,

Emily Skor
CEO, Growth Energy

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[2]"Investigating the Effect of Varying Ethanol and Aromatic Fuel Blends on Secondary Organic Aerosol Forming Potential for a FFV-GDI Vehicle. *University of California—Riverside Chemical and Environmental Engineering*. Patrick Roth, Jiacheng Yang, Ayla Moretti, Tom Durbin, David Cocker, Georgios Karavalakis, Akua Asa-Awuku. https://fixourfuel.com/wp-content/uploads/2018/04/UC-Riverside-Study.pdf.

[3]"The Impact of Higher Ethanol Blend Levels on Vehicle Emissions in Five Global Cities." *U.S. Grains Council*. Dr. Steffen Mueller at University of Illinois at Chicago. Grains.org/wp-content/uploads/2018/11/Complete-Study-Summary.pdf.

United States Senate Committee on Agriculture, Nutrition and Forestry

Legislative Hearing to Review S. 3894, The Growing Climate Solutions Act of 2020

Testimony submitted by

Mr. Paul T. Dacier, Executive Vice President & General Counsel

Indigo Agriculture, Inc.

June 24th, 2020

Chairman Roberts, Ranking Member Stabenow, and Members of the Committee:

Thank you for the opportunity to submit written testimony during today's legislative hearing to review S. 3894, The Growing Climate Solutions Act (GCSA) of 2020. The Committee's leadership on this topic is important because of the transformative potential we see in the industry to benefit farmers, consumers, and the environment.

Indigo Agriculture, Inc. ("Indigo") was founded in 2014, and our global headquarters is in Boston, Massachusetts, with our headquarters for North American Commercial Operations in Memphis, Tennessee. We have international offices in South America, Europe, and India. Indigo helps farmers create new profitability opportunities, not only driven by microbial science and soil health, but through data sciences and artificial intelligence – leveraging agronomy, finance, and logistics. With a mission to harness nature to help farmers sustainably feed the planet, Indigo is taking a systems approach to reimagine agriculture for the benefit of both people and the planet. Alongside growers, buyers, and others across the value chain, we are building a system responsive to demands for high quality and sustainably produced food and fiber.

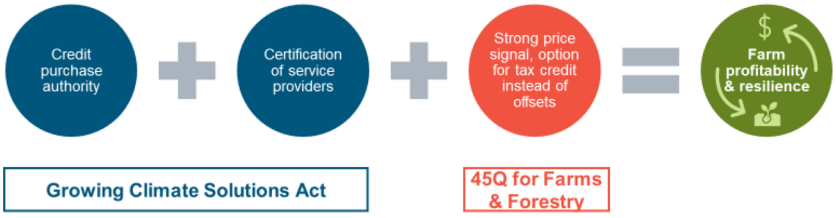
Indigo applauds the introduction of the GCSA, the first bipartisan climate bill from the Agriculture Committee. We thank Senators Braun (R-IN) and Stabenow (D-MI) for their bipartisan leadership and commitment to supporting farmers in adopting practices that are more beneficial for people and the planet. By authorizing the Secretary of Agriculture to develop a certification program for standards and third-party verification for agricultural carbon markets, we can accelerate the role of agriculture as a climate solution while bringing greater economic and environmental resiliency to rural communities. Agriculture offers one of the most immediate, affordable, and scalable opportunities to remove carbon dioxide from the atmosphere, and the release of this bill is a critical step in harnessing that potential.

The next logical step in realizing the potential created by the GCSA is to provide financial incentives to farmers, ranchers and foresters for greenhouse gas emissions reductions and drawdown. The GCSA provides a much-needed path where measurement and verification can be central to rewarding carbon abatement and sequestration outcomes. To build on this opportunity,

Congress can support a new transferable tax credit for agriculture and forestry that creates a set dollars per ton of carbon dioxide equivalent (CO2e) sequestered (2021 and onward: $34.81-$50) modeled on Section 45Q, which could be attached to the GCSA.

A tax incentive modeled on the pricing already set by the government in Section 45Q puts forward a transformative price, set with bipartisan support for the energy industry. If this exists for corporate industrial and energy producers, why not farmers and foresters? Dr. Rattan Lal, this year's World Food Prize laureate, has spoken about the bottom line for farmers as recently as this week on NPR. Dr. Lal's "solution is for governments to fund farmers who provide 'ecosystem services.' At approximately $16 per acre per year, according to Lal's calculations, that would amount to about $64 billion globally. Although the price tag seems high, several countries have experimented with implementing it on a small scale. 'If we expect farmers to do good things for the planet, we should pay them for it,' Lal explains."[1]

GCSA leverages the existing registry infrastructure, and by adding a transferrable tax incentive using the price signal from Section 45Q, farmers would have flexibility to get paid for the best outcomes for each farm. Participation is voluntary on the part of the farmers if they are to find a higher price through a private or compliance market, and by implementing an outcomes-focused incentive, locally led conservation efforts can be augmented. We believe a tax incentive can stimulate the farm economy, accelerating the role of agriculture as a climate solution. With additional benefits to soil health and clean water, it is a winning policy for taxpayers that benefits from the structure and scalable impact of the GCSA.



To add this financial incentive to the GCSA, there is a federal carbon policy tool with a roadmap available now. Section 45Q, as originally enacted in the Energy Improvement and Extension Act of 2008 and substantially modified by the Bipartisan Budget Act of 2018, provides a tax credit

[1] Soil Prof Hits Pay Dirt: $250K Prize for Helping Farmers, Fighting Climate Change. 22 June 2020. *NPR.* https://www.npr.org/sections/goatsandsoda/2020/06/22/880932230/soil-prof-hits-pay-dirt-250k-prize-for-helping-farmers-fighting-climate-change?utm_source=dlvr.it&utm_medium=twitter.

that raises linearly from $22.66 (the inflation-adjusted amount) to $50 per ton over the period from 2017 until calendar year 2026 for CO2 captured and permanently stored, and from $12.83 to $35 per ton over the same period for CO2 captured and used as a tertiary injectant. Starting with calendar year 2027, the tax credit is indexed to inflation. Importantly, either the taxpayer that owns the carbon capture equipment or the taxpayer that uses or disposes of the captured carbon dioxide can take the credit. In the run-up to 45Q's eventual expansion in 2018, stand-alone bills expanding the provision had 50 cosponsors in the House and 24 cosponsors in the Senate.

Year	If Captured and Stored
2021	$34.81
2022	$37.85
2023	$40.89
2024	$43.92
2025	$46.96
2026	$50.00

We highlight this Section of the Tax Code to demonstrate how a federal price signal for another industry can be considered in our industry, as Congress deliberates new possibilities created by the GCSA and how to ensure the right incentives are in place for farmers to capture carbon. Indigo applauds today's focus on climate solutions through agriculture and looks forward to the development of 21st century policy tools that improve farm profitably and resiliency. We believe that with the right federal incentives structure, Congress has an opportunity to create a more beneficial agriculture system for both people and the planet. Thank you for your consideration of these remarks.

National Milk Producers Federation
2107 Wilson Blvd., Suite 600, Arlington, VA 22201 | (703) 243-6111 | www.nmpf.org

June 19, 2020

The Honorable Pat Roberts
Chairman
Senate Committee on Agriculture, Nutrition, and Forestry
328A Russell Senate Office Building
Washington, DC 20510

The Honorable Debbie Stabenow
Ranking Member
Senate Committee on Agriculture, Nutrition, and Forestry
328A Russell Senate Office Building
Washington, DC 20510

Dear Chairman Roberts and Ranking Member Stabenow:

The National Milk Producers Federation appreciates the opportunity to submit testimony for your upcoming legislative hearing to review the Growing Climate Solutions Act (S. 3894), which will be held on Wednesday, June 24, 2020 at 10:00 AM.

As you know, the National Milk Producers Federation 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 the majority of the U.S. milk supply, making NMPF the voice of more than 32,000 dairy producers on Capitol Hill and with government agencies.

NMPF closely collaborates with the U.S. Dairy Export Council, the Innovation Center for U.S. Dairy, and Newtrient LLC, a company established by a dozen NMPF member cooperatives. We are very pleased that you invited former Secretary Vilsack, now the President and CEO of the U.S. Dairy Export Council, to testify before you at a hearing last May regarding climate policy.

As you know, U.S. dairy farmers have been environmental stewards for decades, tending with great care to their land and water, and they value a proactive approach to sustainability. As agricultural practices and technologies have evolved and improved over time, so too have dairy producers adapted. We believe, however, that more can always be done and therefore are supportive of efforts to facilitate continuous improvement in this area.

As you and your committee members well know, sustained low milk prices have made it increasingly difficult for dairy farmers to succeed and we are grateful for the significant improvements included in your 2018 Farm Bill enacted into law. In

light of the COVID-19 pandemic which has only served to exacerbate these challenges, it is these improvements and more which are needed to make both milk production and advanced environmental protection a source of economic strength for all dairy farms.

To this point, we are excited to support the bipartisan Growing Climate Solutions Act (S. 3894) as introduced by Senator Mike Braun (R-IN), a member of this Committee, and Ranking Member Debbie Stabenow (D-MI), as well as Senators Lindsey Graham (R-SC) and Sheldon Whitehouse (D-RI). The measure encourages sustainable farming practices by making it easier for farmers to participate in carbon markets. Specifically, the Growing Climate Solutions Act creates a certification program at USDA to help solve technical entry barriers that make it difficult for dairy farmers and other producers to participate in carbon credit markets.

To continue and enhance our efforts to combat climate change, the dairy industry is launching the Net Zero Initiative to reduce the industry's climate impact to 'net zero' by as early as 2050 and minimize the water quality impacts of dairy farming. As part of the groundwork needed to launch this initiative, the dairy industry has worked to develop scientific and economic models to quantify the economic and environmental benefits associated with certain dairy farm technologies and practices, and various technologies have been catalogued and evaluated based on their effectiveness, resilience, and business prospects.

Within the initiative, the industry hopes to deploy several demonstration farms around the country to explore the impact of multiple technologies and management practices that have an ability to aid in reducing dairy's carbon footprint and water quality impact. This effort should help to identify which technologies and practices work well for different types of operations, which will help inform policy discussions regarding the best ways to expand their adoption in pursuit of reducing dairy's environmental impact. Carbon markets will play an important role in helping us to achieve our goal, making the Growing Climate Solutions Act a valuable addition to the legislative landscape in this regard.

In closing, we have appreciated the opportunity to work closely with you to develop a better safety net and array of risk management tools to help dairy producers better weather economic storms like the current one, and we are eager to work with you to advance this landmark legislation. Thank you again for the opportunity to comment.

Sincerely,

Jim Mulhern
President & CEO
NMPF

Mike McCloskey
Chairman
NMPF Environmental Issues Committee

PRESS RELEASE

NPPC Supports Bill Helping Farmers Participate in Carbon Markets

WASHINGTON, D.C., June. 24, 2020 – The National Pork Producers Council (NPPC) strongly supports legislation being discussed during a Senate Agriculture Committee hearing today that creates important elements needed to support a private carbon credit offset market. The bill would reward the valuable current and future contributions by pork producers and other sectors of agriculture to reduce greenhouse gas emissions.

The Growing Climate Solutions Act, introduced by Sens. Mike Braun (R-Ind.), Debbie Stabenow (D-Mich.), Lindsey Graham (R-S.C.) and Sheldon Whitehouse (D-R.I.), would direct the U.S. Department of Agriculture to create a program to provide transparency, legitimacy and informal endorsement of third-party verifiers and technical service providers that help private landowners generate carbon credits through a variety of agriculture and forestry related practices.

"U.S. pork producers, who have been at the forefront of environmental sustainability, are committed to the long-term protection of our country's natural resources," said NPPC President Howard "AV" Roth, a hog farmer from Wauzeka, Wisconsin. "Thanks to continuous on-farm improvements in nutrition, genetics and overall pig care, U.S. pork producers are doing more with less. This bipartisan effort will help give the private sector the standards and certifications needed to recognize and reward the important work being done by U.S. hog farmers to reduce our carbon footprint. We thank the senators for their leadership and look forward to passage of this important legislation."

According to recent Environmental Protection Agency findings, the production of U.S. pork is responsible for only 0.3% of all agriculture greenhouse gas emissions in the country. Likewise, according to a 2019 study by the National Pork Board, U.S. pork producers have used 75.9% less land, 25.1% less water and 7% less energy since 1960. This also has resulted in a 7.7% smaller carbon footprint. To learn more about pork's environmental efforts, click here.

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NPPC is the global voice for the U.S. pork industry, protecting the livelihoods of America's 60,000 pork producers, who abide by ethical principles in caring for their animals, in protecting the environment and public health and in providing safe, wholesome, nutritious pork products to consumers worldwide. For more information, visit www.nppc.org.

Senator Sheldon Whitehouse
Statement for the Record – The Growing Climate Solutions Act of 2020
June 24, 2020

Chairman Roberts, Ranking Member Stabenow, and members of the Senate Agriculture Committee, thank you for holding this hearing on the Growing Climate Solutions Act.

I am excited to join Senator Braun, the Ranking Member, and Senator Graham in this effort. I am also excited to see the support of the Farm Bureau and Environmental Defense Fund; it is a powerful pairing and a testament to the wide appeal of this idea. Make no mistake, this is a breakthrough that signals a major shift coming on climate in this country.

The economics is clear: harnessing the power of markets is the most effective way to cut carbon emissions quickly enough to avoid the worst of climate change. Economists and experts from across the political spectrum – Nobel Prize winners in economics, former Federal Reserve chairs, chairs of White House Council of Economic Advisors, Treasury Secretaries, and countless other veterans of government and academia – have endorsed pricing carbon as central to any realistic solution to the climate crisis. They recognize that we must make the price of fossil energy reflect the costs of carbon pollution if we are to reduce emissions as much and as swiftly as we need to.

The warnings are clear, too. "Systemic risk" to the world's economic system; a crash in coastal property values; trillions of dollars in projected losses; Earth's natural systems gone haywire, upending agriculture and fisheries — it's deadly serious.

The science is also clear: we must achieve net-zero emissions at the latest by 2050 to avoid the worst of climate change, and actively removing carbon from our atmosphere must scale up dramatically if we have any hope of hitting that net-zero mark by mid-century.

Put the economics and the science together and this is clear: agriculture is an enormous opportunity. And while the Growing Climate Solution's Act is not a full solution, as it relies wholly on voluntary actions of both farmers and credit purchasers, the conservation practices it will help stimulate are a step in the right direction.

Farmers and foresters are already experiencing drought-stricken farms and raging wildfires and will be key in our efforts to reduce our emissions. Farmers are able to help by sequestering carbon dioxide on their land. One of the best ways of removing carbon from our atmosphere is through natural carbon sequestration. Some agriculture and land use practices sequester a metric ton of carbon for as little as 10 dollars. That is remarkably cost-effective.

Our bill helps farmers and foresters gain access to the growing voluntary and compliance markets for carbon credits. The legislation creates a Greenhouse Gas Technical Assistance Provider and Third-Party Verifier Certification Program at the Department of Agriculture, charged with helping farmers and forest landowners navigate this emerging market – helping farmers profit from sequestering carbon in their land.

That's a clear win for farmers, but it's also a strong message to global markets. By helping farmers and foresters participate in carbon credit markets, this bill sends a signal that sequestering carbon pollution is worth the investment.

Many major companies have rallied around this effort, which is good. But we must see more from them. I'm hopeful that as corporate America continues to recognize the need for action on climate change, Congress will follow suit. America can and should lead the world to safety, for all our citizens, for our atmosphere and oceans, and for generations to come.

Let me close by recognizing the help we received from USDA. Secretary Perdue gets it. As he said recently, "If [climate change] is a social goal and social priority there, then let's put a price over carbon emissions. And I think you can really see farmers show out in their carbon sequestration efforts." Indeed, let's.

Thank you again, Chairman and Ranking Member, for considering this important legislation today. This is a big step in the right direction. I look forward to getting this bill across the finish line.

Sustainable Food Policy ALLIANCE

June 24, 2020

The Honorable Pat Roberts
Chairman, Senate Agriculture, Nutrition, and Forestry Committee
328A Russell Senate Office Building
Washington, DC, 20510

The Honorable Debbie Stabenow
Ranking Member, Senate Agriculture, Nutrition, and Forestry Committee
328A Russell Senate Office Building
Washington, DC, 20510

Dear Chairman Roberts and Ranking Member Stabenow,

Thank you for holding a legislative hearing to review S. 3894, The Growing Climate Solutions Act of 2020.

The Sustainable Food Policy Alliance (SFPA) seeks to accelerate the pace of change in the food industry through individual company leadership and collective support for public policies that raise the bar and inspire further action in this critical journey. As some of the world's best-known food companies, founding members Danone North America, Mars, Incorporated, Nestlé USA, and Unilever United States recognize our responsibility to drive positive change for the people who use our products, the people who supply them, and the planet on which we all rely.

In our work on the environment, SFPA advocates for innovative, science-based solutions to take action against the costly impacts of climate change, build more resilient communities, promote renewable energy, and further develop sustainable agriculture systems.

SFPA commends Senators Stabenow and Braun for their leadership and vision with the Growing Climate Solutions Act, which will create value for farmers, ranchers, and others who are implementing leading edge practices to cut greenhouse gas emissions. This bill uses incentives, common metrics, and quantification tools to help operators embrace a range of climate mitigation practices in agriculture. We know that it will take a full toolbox to reduce emissions and transition to low-carbon alternatives, and this legislation contributes key tools for that effort.

The Growing Climate Solutions Act is very much aligned with SFPA's climate policy principles, which we released in 2019 and have attached below. We look forward to working with the Senate Agriculture Committee and others who are advocating for programs that work with the agricultural supply chain to continue to reduce greenhouse gas emissions and tackle the development of innovative solutions to address the climate crisis.

Sincerely,

Sustainable Food Policy Alliance

Sustainable Food Policy Alliance: Climate Policy Principles

The Sustainable Food Policy Alliance (SFPA) believes that food has the potential to be a driving force for social and environmental progress. Food companies like ours, the farmers who grow our ingredients, and consumers who buy our products sit at the cross section of communities most impacted by climate change, which poses an existential threat to all living things. The food and agriculture value chain also holds potential solutions to our share of the global climate challenge.

As leading food companies, SFPA members Danone North America, Mars, Incorporated, Nestlé USA, and Unilever United States are already aggressively implementing solutions to reduce our overall environmental footprints and address the supply chain volatility created by climate change and other natural resource challenges. We recognize the urgency of taking climate action, as made clear in the recent 1.5°C Special Report published by the Intergovernmental Panel on Climate Change, which called for global greenhouse gas (GHG) emissions to reach netzero by 2050 to avoid the worst effects of climate change. Propelled by this urgency, we are increasing the energy efficiency of our operations, investing in clean energy and transportation, and partnering with farms to reduce emissions and promote regenerative soil health management.

Our business leaders understand that climate solutions that reduce our GHG footprints are good for creating efficiencies, supporting innovation, and, therefore, improving our underlying businesses. Scalable global solutions will also require action by the biggest single entity of our society: the U.S. federal government.

SFPA strongly encourages the federal government to adopt policies that will significantly reduce GHG emissions across the economy in a manner that places the United States on a path with other nations to adequately address climate change. We support local and state actions taken across the United States and stand ready to partner with the federal government to reduce GHG emissions to a level in line with science-based global goals.

With this in mind, SFPA offers the following climate policy principles:

- **Carbon Pricing System**: Establish an ambitious carbon pricing system that sends a clear signal to the marketplace to reduce economy-wide GHG emissions aligned with the Paris Agreement goal to keep global temperature increase well below 2°C. An appropriate carbon pricing structure should be transparent in how prices are set, equitable in how revenue is appropriated to mitigate costs on the most vulnerable communities, and built to ensure our global competitiveness.

- **Clean Energy Deployment**: Accelerate new and existing policies to reduce carbon pollution and promote innovation at the federal and state levels to develop more sustainable energy sources.

- **Agriculture & Forestry:** Include the land sector, via agriculture and forestry, as part of an incentives-based strategy to reduce emissions and sequester GHGs from the atmosphere to meet global and national targets. Additional strategies should consider how to leverage

resources and technical assistance for the myriad of landowners who are already contributing vital solutions.

- **Infrastructure**: Invest in the broad spectrum of infrastructure solutions needed to be more resilient against the impacts of climate change, reduce emissions, and sequester more GHGs from the atmosphere.

- **Promote Equity**: Invest in American workers and in disadvantaged communities that have fewer resources to manage the costs of climate change, including rising energy costs as a result of policy changes.

- **Predictable & Consistent Regulation**: Ensure an economy-wide federal regulatory approach with a suite of complementary policies that work together to reduce domestic emissions.

Climate change is not a partisan challenge, and addressing it will require all people and all sectors of society to engage on solutions that match its magnitude. SFPA stands ready to work with Congress, the Administration, and all stakeholders to find solutions to this shared threat.

QUESTIONS AND ANSWERS

JUNE 24, 2020

Senate Committee on Agriculture, Nutrition & Forestry
Legislative Hearing to Review S. 3894, the Growing Climate Solutions Act of 2020
June 24, 2020
Questions for the Record
Mr. Brent Bible

Chairman Pat Roberts

1) Agriculture productivity has grown by leaps and bounds in the past several decades. As we look to the future, what technologies or research opportunities exist to further increase U.S. farmers' productivity and to continue to meet global food needs?

Productivity has shown nearly exponential growth, and will continue to do so because of the innovative and entrepreneurial spirit that is prevalent in the industry. Many of the technologies broadly used in society today are either invented, vetted, or first adapted for agricultural processes; GPS and aerial drone technology are two recent examples.

Tractors and ancillary equipment continue to be manufactured with technology allowing them to be more efficient in fuel use. The tractor and fertilizer applicator we use today has allowed us to cut our fuel usage per acre for side dress fertilizer application in corn by half. Our planter, while still performing the same function it always has, now has hydraulic and electric advancements that allow us to plant twice as fast as we did just 5 years ago, increasing the ability to cover more acres in more ideal conditions-this has been the most important technological advancement we have personally experienced recently.

Advancements in seed technology have tremendous potential to increase productivity. Traits that promote more efficient water and fertilizer use, and allow for reduced herbicide and pesticide applications have and will continue to help our farm be more productive, efficient, and profitable. Our direct experience as a production farm for Beck's Hybrids has allowed us to see firsthand the private sector investment in researching and advancing these technologies. And as a Purdue University alum, I have had the opportunity to experience the College of Agriculture's controlled environment phenotyping center; when tapping the full potential of genetic capabilities in seed, this type of research will unlock possibilities that we can't even imagine today-and will have essential applications in other STEM disciplines as well.

Senator Debbie Stabenow

1) Your testimony highlights the significant barriers to entry for many producers who are interested in greenhouse gas markets, but do not know where to get started. Can you please give us some specifics on the obstacles a typical farmer faces in getting started in this arena today, and how having a trusted voice like USDA more involved can help remove those obstacles?

Two significant barriers exist for me, and I believe this is true for the typical producer that may have an interest in these markets: Knowledge and Trust. I don't know how to enter into an agreement that would allow me to participate, or what specific practices it would take to produce a payment (knowledge). And while I have some familiarity with one or two private companies that have advertised involvement in greenhouse gas (GHG) markets, I don't know anyone who has participated, and don't know whether these companies are providing a fair market opportunity (trust). When dealing with a new commodity that doesn't have the physical properties of more traditional products, both of these factors become very important.

I participate in several USDA conservation programs under the CRP and EQUIP umbrellas, and am interested in seeing how I may be able to combine those projects with carbon credits. Because of these preexisting programs, and the experience at the USDA, the agency is uniquely qualified to be a repository for this program. While a GHG market won't be facilitated by USDA per se under this Act, it does establish USDA as the certifier for third party verifiers, requires the Department to establish an advisory council, and collect information on the efficacy of GHG markets. The ability to get information about the available markets, technical assistance providers, and third party protocol verifiers from USDA addresses both the Knowledge and Trust barriers.

A third barrier is access to capital for making practice changes. It's my expectation that participating in these new markets will generate an income that provides the capitol to invest in changes. But there still may be a barrier to finding the capitol to even begin for some producers. After the first round of investments that produce income from these markets, it should create a cycle similar to investing and growing any business venture.

2) In USDA's 2018 *Life-Cycle Analysis of the Greenhouse Gas Emissions from Corn-Based Ethanol* report, it was highlighted that the greenhouse gas emissions footprint of biofuels may drop significantly with more widespread adoption of conservation practices on agricultural lands. How would the *Growing Climate Solutions Act* help speed the adoption of these types of conservation practices like no or reduced tillage, nutrient management, planting cover crops, and others?

The Act helps create a voluntary, market-based solution to reducing greenhouse gas emissions. As the market finds a true value for the adoption of practices that producers value, it sends the market signal that incentivizes those conservation practices. This will lead to further adoption by others who see the economic benefit enjoyed by their peers. This type of voluntary compliance will increase exponentially as the positive economic signals for changing practices become more broadly known and understood. This will further aid the reduction of the biofuels carbon footprint, which through the use of modern technology and better agriculture practices, continues to improve over more carbon intensive fossil fuels.

Senator Amy Klobuchar

1) Recent reports indicate that the Environmental Protection Agency is now considering granting 52 retroactive petitions for Small Refinery Exemptions. By allowing refineries with exemptions that have lapsed to establish a continuous chain of exemptions, this action would circumvent a January 2020 decision by the Tenth Circuit Court of Appeals.

    a. As someone who grows corn and soybeans for renewable fuel production, can you describe the challenges renewable fuel producers are currently facing?

    I cannot overstate the demand destruction this action has caused in the last three years, and is second only to trade disruptions in economic impact to my operation. The agricultural industry has spent the last 20 years holistically developing a biofuels market that positively impacts crop and livestock producers. This market opportunity was enacted by Congress in 2005. Myself and countless other producers have made significant investment in infrastructure and equipment with the confidence that this market opportunity would exist. Not only has the policy increased carryover supplies of products, this has resulted in lower prices due to lower demand. For EPA to ignore the law, grant waivers in favor of oil refineries over a lower carbon footprint biofuel product, and destroy an established demand market for agriculture producers, defies logic.

    b. How would retroactive approval of small refinery exemptions contribute to or worsen the economic challenges facing farmers and the biofuel industry?

For all the challenges and reasons I described above, the retroactive waiver of these additional 52 petitions would be devastating to corn and soybean producers because it would erase demand for our products. If granted, this would be a blatant circumvention of the 10th Circuit Court ruling regarding SREs, and in contradiction of Congressional intent-and the law. My latest understanding is that EPA has indicated that a ruling will not be made on these requests in the near future. However, I urge Congress to press for a lawful decision from EPA and a rejection of these waiver requests. The demand destruction farmers and ranchers have experienced recently, through a combination of trade disruptions, EPA policy, and now COVID-19, are quickly culminating into an oversupply scenario that will take years to correct, at the expense of producers' profitability. Adding additional demand reduction based on unfounded exemptions would make it less likely producers can find a path to profitability.

Senate Committee on Agriculture, Nutrition & Forestry
Legislative Hearing to Review S. 3894, the Growing Climate Solutions Act of 2020
June 24, 2020
Questions for the Record
Mr. Zippy Duvall

Chairman Pat Roberts

1) Agriculture productivity has grown by leaps and bounds in the past several decades. As we look to the future, what technologies or research opportunities exist to further increase U.S. farmers' productivity and to continue to meet global food needs?

   As I alluded to in my testimony, farmers and ranchers continue to produce more food, fiber and energy with more efficiency than our parents and grandparents did. Over two generations, we've increased productivity 270 percent, without using more resources. In fact, we would have needed nearly 100 million more acres in 1990 to match 2018 production levels.

   I would argue the major contributor to this impressive improvement in output is agricultural innovation fueled by a strong foundation of agricultural research. It is agricultural research, education and Extension that have brought the productivity gains that have made U.S. agriculture such a powerhouse. But we cannot rest on our laurels as it will require additional investment to meet the challenges of the future. It is our moral imperative to help feed the expected 9.5 billion people who will inhabit the Earth in the next 30 years, and we must do that in the most sustainable way possible. It will require both public and private research investments, as well as the adoption of new practices and technologies. New technologies and innovations must be delivered to the farm through broadband deployment and the next generation of Extension specialists.

Senator Charles Grassley

1) How would smaller family operations compete with the largest farms if this program is implemented?

   If implemented properly, it is our belief that this program has the potential to benefit farms of all sizes. Access to information and vetted technical service providers should benefit farmers who might have smaller operations and lack the resources to fully investigate potential market opportunities. In addition, smaller farms will most likely need to aggregate credits together to have an opportunity to participate in potential markets. Providing access to more information and those providing those services should be of particular interest to smaller producers.

2) What kind of adjusted gross income restriction would you recommend to make sure that family farms can stay competitive in such a program?

   Farm Bureau opposes AGI limits. In this scenario, private markets would compensate participating landowners, so there should be no such limitation in place.

3) What kind of payment limitations would you recommend to make sure that family farms can stay competitive in such a program?

   Farm Bureau opposes payment limits. In this scenario private markets would be compensating participating landowners so there should be no such limitation in place.

Senate Committee on Agriculture, Nutrition & Forestry
Legislative Hearing to Review S. 3894, The Growing Climate Solutions Act of 2020
June 24, 2020
Questions for the Record
Mr. Rob Larew

Chairman Pat Roberts

1) *Agriculture productivity has grown by leaps and bounds in the past several decades. As we look to the future, what technologies or research opportunities exist to further increase U.S. farmers' productivity and to continue to meet global food needs?*

Advances in agricultural technology and land management practices will be key in ensuring productive and resilient farms and ranches in the future. While farmers and ranchers will need a range of tools to address the particular challenges they face on their land and with the crops and livestock they choose to produce, those tools must be cost effective and science based. The United States should make a significant public investment in agricultural research to ensure that the tools made available to farmers and ranchers are built on sound, publicly available science. Such research should focus on practices for land management, conservation, data collection and testing, precision agriculture tools, biofuels feedstocks, renewable energy production, grazing practices, and livestock feed efficiency. USDA should lead this work to ensure the science is unbiased and the resulting tools are affordable for farmers and ranchers. Given the challenges in responding to climate change and reflecting the recent trend of low commodity prices and farm income, these tools must be accessible for farmers and ranchers.

Senator Debbie Stabenow

1) *The National Farmers Union has worked on agriculture offsets for a long time. Knowing your organization's longstanding experience in this arena, can you talk about why the opportunity to develop these markets on behalf of farmers and ranchers seems so much more lucrative and tangible now, compared to 10 years ago?*

The National Farmers Union Carbon Credit Program provided payments to participating farmers to implement certain soil and land management practices—acting as both an incentive and a revenue stream. Between 2006 and 2010, the program, which was run by North Dakota Farmers Union, distributed more than $7.4 million to 3,900 farmers across five million acres. It was one of several aggregators of agricultural carbon credits at the time. While the payments were relatively low—often less than $10 per ton of carbon sequestered—farmers and ranchers across the country recognized the opportunity. However, the thriving market for carbon credits folded due in part to government inaction on spurring carbon sequestration.

There are several factors that are contributing to the current interest in carbon markets and the development of carbon credits from agricultural sources.

U.S. family farmers and ranchers currently face an uncertain economic future. 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. Farmers and ranchers are searching for new, stable sources of income, which carbon markets could provide.

Another decade of higher than normal temperatures, extreme weather events, and changing weather patterns are showing what life will be like with unchecked climate change. 2019 was Earth's second

hottest year on record, just behind 2016, according to NOAA. Certainly, the world's five hottest years have occurred since 2015, and 2010 to 2019 was the hottest decade on record. [1]

Companies are increasingly recognizing the risks that extreme weather and other factors caused by climate change will have on the water, land, and natural resources needed to make their products. Consumer pressure is mounting for these companies to reduce their carbon footprint. These sustainability and emissions reductions goals are forcing them to find ways to encourage carbon sequestration and ensure their products reflect climate goals.

Meanwhile, over the past ten years, research has continued into soil carbon and other testing methodologies and metrics and data collection from conservation practices. Simply put, we know more about how to sequester carbon through agricultural practices and test for the outcomes than we did 10 years ago. As a result of these factors, companies and private market developers see a renewed opportunity in carbon markets to provide a revenue stream for farmers that pays for these vital public environmental benefits.

Senator Charles Grassley

1) *How would smaller family operations compete with the largest farms if this program is implemented?*

National Farmers Union supports a range of climate policy solutions that will help farms and ranches of all sizes. Carbon markets are one tool that should be available for farmers, and key to the sale of agricultural carbon credits will be the ability to combine credits from a number of operations, as companies seek to buy these credits in bulk. The National Farmers Union Carbon Credit Program aggregated credits from farmers and ranchers to sell on the Chicago Climate Exchange from 2006 to 2010. Credits produced on smaller farms were bundled with credits from larger farms to reach minimum volumes required by the exchange, providing opportunities to farms of all sizes. This model is likely to continue in the carbon markets of the near future.

Of course, carbon markets may not be the right fit for some smaller farms. Credits are generated on a per acre basis, thus some farms may not have enough land to get an appropriate return on investment. NFU supports a comprehensive federal approach to climate change that encourages the leadership of family farmers and ranchers as they make the best decisions for their farms and work to implement practices to improve soil health. They also will adapt to changing weather and pest pressures, sequester carbon, and reduce emissions. Congress and USDA should work to ensure that other tools, including voluntary incentive-based conservation programs, are available to encourage carbon sequestration and climate resiliency on those farms that choose not to participate in carbon markets. Other climate friendly activities by farmers, including the on-farm production of energy and expanded use and availability of biofuels should be encouraged in order to appropriately compensate farmers for the goods and environmental services they provide.

2) *What kind of adjusted gross income restriction would you recommend to make sure that family farms can stay competitive in such a program? What kind of payment limitations would you recommend to make sure that family farms can stay competitive in such a program?*

Given the voluntary nature of carbon markets, eligibility thresholds based on AGI may not be appropriate, depending on what the market requires to function well. Carbon markets should be one of

[1] https://www.noaa.gov/news/2019-was-2nd-hottest-year-on-record-for-earth-say-noaa-nasa#:~:text=NASA%20also%20found%20that%202010,second%20warmest%20for%20the%20globe.

many tools for farmers looking to address climate resiliency and green house gas emissions reductions, thus Congress and USDA should work to ensure benefits of other programs relevant to this issue are directed to family farming operations. In doing so, family farms and ranches would have access to the tools and resources necessary to implement any changes to their land should carbon markets not be appropriate for their specific operation.

Senator Robert P. Casey, Jr

1) *As you mentioned in your written testimony, NFU also endorsed the legislation I introduced with Senator Capito, the Farmer-Driven Conservation Outcomes Act. This bill would establish a process through which USDA could measure, evaluate and report on conservation programs outcomes in order to support farmers' efforts to achieve critical environmental goals, including climate mitigation and water quality improvement.*
    a. *What role does NFU envision for our farm bill conservation programs as part of the climate solution, and what does the intersection between carbon markets and conservation programs and payments look like to you?*

The work by this committee in the 2014 and 2018 farm bills has been instrumental in positioning USDA NRCS programs to help farmers improve their soil health, mitigate the effects of climate change, and increase the resiliency of their land in the face of extreme weather. However, NRCS programs are popular with farmers but are oversubscribed, the most beneficial practices are often the most difficult to implement, and climate change is not a specific resource concern.

Given the scope of the climate crisis, NRCS programs alone will not be enough to bring about changes to land management practices. As a result, carbon markets and NRCS programs should be part of a range of tools available to farmers and ranchers to facilitate their leadership on this issue. Carbon markets are not going to work for every farm and ranch. NRCS programs should be available for those situations where farmers want to reduce their climate footprint and increase the resiliency of their land outside of the carbon market system.

To be sure, they are separate options: It is very unlikely that farmers will be able to get credit in a carbon market for practices they have implemented as part of an NRCS program.

    b. *How can conservation programs and carbon markets work together, and what considerations should we keep in mind?*

Regardless of whether farmers choose to engage climate friendly practices through NRCS programs, carbon markets, or other avenues, the methods and actions they take on their land will be similar. As private and public sector efforts incentivize this suite of practices, there are opportunities for information sharing, data collection, and other activities to determine best practices to ensure the desired outcome. NRCS and private sector efforts should work together in an open and transparent way to ensure farmers are not receiving mixed messages about the best course of action for their land. The Greenhouse Gas Technical Assistance Provider and Third-Party Verifier Certification Program created by the Growing Climate Solutions Act could be used to ensure that NRCS and private market programs are sharing best practices and that farmers and ranchers do not receive conflicting advice.

    c. *From NFU's perspective, how will the measurement, evaluation and reporting of conservation program outcomes enable us to improve program and practice effectiveness to help farmers mitigate climate change?*

NFU supports the movement of NRCS programs toward outcome-based payments to ensure that real changes and environmental benefits are being tracked and rewarded. Certainly, we need to make sure

that incentivized activities are effective. Climate change is the single greatest challenge facing farmers and ranchers, and action must be swift to combat the growing effects of changing weather, growing seasons, and pest pressures, as well as the increase in extreme weather. Measurement, evaluation, and reporting of the outcomes of conservation initiatives will be key to ensuring the effectiveness of efforts to combat climate change on agricultural lands.

Senate Committee on Agriculture, Nutrition & Forestry
Legislative Hearing to Review S. 3894, the Growing Climate Solutions Act of 2020
June 24, 2020
Questions for the Record
Mr. Jason Weller

Chairman Pat Roberts

1) Agriculture productivity has grown by leaps and bounds in the past several decades. As we look to the future, what technologies or research opportunities exist to further increase U.S. farmers' productivity and to continue to meet global food needs?

Innovation and technology have been at the core of agriculture for as long as we have been husbanding animals and selecting seeds. But what's exciting is the pace and degree of innovation that is now occurring in agriculture, that will now help us advance not just production, but also the stewardship of our natural resources. The future of agricultural conservation is precision. The Truterra business is built on the idea that farmer return-on-investment can generate environmental return-on-investment. With access to the latest tools and technology, farmers can make decisions about managing their land that can both maximize yields and expand stewardship. Truterra focuses on closing critical knowledge gaps and the de-risking of trying new tools and practices that can keep farm businesses resilient and profitable for the long term.

Truterra works with farmers and their trusted agronomy advisors—through the ag retailer—to establish an environmental sustainability baseline for each field, identify improvement opportunities, and model the impact of various conservation practices, products, and tools on field stewardship and profitability. Instead of focusing on one activity, we develop holistic insights for each agricultural field and support farmers' business decisions, putting them in the driver's seat of advancing stewardship economically and sustainably. An acre-by-acre, field-by-field farmer-centric, innovation- and tech-forward approach is critical to addressing the most pressing stewardship and productivity challenges.

Senator Charles Grassley

1) How would smaller family operations compete with the largest farms if this program is implemented?

2) What kind of adjusted gross income restriction would you recommend to make sure that family farms can stay competitive in such a program?

3) What kind of payment limitations would you recommend to make sure that family farms can stay competitive in such a program?

I think it is important to emphasize The Growing Climate Solutions Act does not authorize a USDA carbon market and is not a program in the traditional sense with federal funding dedicated to it. Instead the bill authorizes a certification process along with an advisory board to help address a barrier which is the lack of trusted providers of technical assistance for voluntary private carbon markets. Since these are private markets with no direct intervention of USDA, it would not be appropriate to set these types of limits. As these markets develop it will be important to ensure that farmers of all sizes are benefiting from the programs but setting payment limits or AGI would not be appropriate since these would be individual private markets.

Senator Robert P. Casey, Jr

1) In Pennsylvania, dairy is a critical piece of our agricultural economy, and these continue to be extremely challenging economic times for our dairy producers. We know that our dairy farmers need to be, and want to be, part of the solution – when it comes to addressing climate change as well as another major environmental issue we face –improving water quality and the health of the Chesapeake Bay. Practices like conservation crop rotations, streamside buffers and rotational grazing can not only help sequester carbon and reduce greenhouse gas emissions, but they also provide water quality co-benefits and play a critical role in our efforts to improve the health of the Chesapeake Bay Watershed.

    a. Could you speak to, from your experience at NRCS and now Land O' Lakes, the water quality co-benefits of many of the climate-smart practices discussed at the hearing?

One of the great things about climate smart practices is that there are many co-benefits besides just sequestering carbon. Soil health practices like cover crops, no-till, or conservation tillage not only help sequester carbon but also help with erosion and runoff to our important watersheds like the Chesapeake Bay. These practices increase the resilience of the agricultural system. No-till for example helps anchor the soil in place and reduces erosion. It also aids water infiltration, helping to avoid increased runoff and reducing flooding downstream. When there is too little water, soil health practices help retain water better and prevent what water is present from running off the farm into waterways. Better nutrient management systems ensure that we don't waste our inputs. Not only is that an environmental concern but is also an economic concern for farmers.

    b. What opportunities do you see for Congress to incentive practices to support our dairy farmers who are simultaneously looking to reduce emissions while also improving water quality for our communities and watersheds?

Dairy farmers can benefit tremendously from new technology and Congress should look at providing additional incentives for those types of practices. For example, anaerobic digesters are

a promising option to manage manure capturing methane and either combusting it for energy generation or processing it as a replacement for natural gas. In some cases, digesters are also opening new revenue streams for farmers, and even helping them to establish regulatory certainty.

Land O'Lakes is leaning in on driving innovative stewardship solutions for our dairy members. In June 2018, Land O'Lakes and California Bioenergy LLC (CalBio) launched a first-of-its-kind collaboration to support the financing, installation and management of on-farm methane digesters to generate renewable compressed natural gas ("R-CNG") fuel in California – creating an innovative farmer-led model for "barn to biogas" that can shape nationwide solutions to agricultural methane emissions reduction and unlock new revenue streams for dairy farmers.

As one of the nation's largest agricultural cooperatives, Land O'Lakes is uniquely positioned to tap into the potential power of dairy farmers to generate renewable energy from farm waste. CalBio provides the expertise needed to develop, execute and manage on-farm methane digesters, as well as market R-CNG credits in California, in a manner that is cost effective for farmers. This effort with CalBio will also help Land O'Lakes dairy member-owners in California to meet new state standards that call for a 40 percent reduction in dairy and livestock manure-related methane emissions from 2013 levels by 2030.

c. What role can carbon markets and technical assistance play in the effort to address these dual goals for dairy producers?

As we all know, the current pandemic is an extremely difficult time for dairy farmers from an economic perspective. Any additional revenue stream that these carbon market could provide the dairy industry must embrace. As mentioned above, these extra incentives whether it goes to digesters or manure management plans are additive. The Innovation Center for U.S. Dairy is working with farms, co-ops, processors and other stakeholders to establish a new set of voluntary environmental stewardship goals for the U.S. dairy community, which aim to achieve neutral or better carbon emissions, optimized water usage and improved water quality by 2050. Having USDA support in science and transparency for reporting, and verification of voluntary GHG credit markets, is imperative to the success of this initiative and the economic viability for farmers.

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