CLIMATE SMART FROM FARM TO FORK: BUILDING AN AFFORDABLE AND RESILIENT FOOD SUPPLY CHAIN

HEARING

BEFORE THE

SELECT COMMITTEE ON THE CLIMATE CRISIS HOUSE OF REPRESENTATIVES

ONE HUNDRED SEVENTEENTH CONGRESS

SECOND SESSION

HEARING HELD
JULY 15, 2022

Serial No. 117–21

www.govinfo.gov
Printed for the use of the Select Committee on the Climate Crisis

U.S. GOVERNMENT PUBLISHING OFFICE
48–854 WASHINGTON : 2022

SELECT COMMITTEE ON THE CLIMATE CRISIS

ONE HUNDRED SEVENTEENTH CONGRESS

KATHY CASTOR, Florida, *Chair*

SUZANNE BONAMICI, Oregon	GARRET GRAVES, Louisiana, *Ranking Member*
JULIA BROWNLEY, Calfornia	GARY PALMER, Alabama
JARED HUFFMAN, California	BUDDY CARTER, Georgia
A. DONALD MCEACHIN, Virginia	CAROL MILLER, West Virginia
MIKE LEVIN, California	KELLY ARMSTRONG, North Dakota
SEAN CASTEN, Illinois	DAN CRENSHAW, Texas
JOE NEGUSE, Colorado	ANTHONY GONZALEZ, Ohio
VERONICA ESCOBAR, Texas	

ANA UNRUH COHEN, *Majority Staff Director*
SARAH JORGENSON, *Minority Staff Director*
climatecrisis.house.gov

CONTENTS

STATEMENTS OF MEMBERS OF CONGRESS

WITNESSES

SUBMISSIONS FOR THE RECORD

APPENDIX

CLIMATE SMART FROM FARM TO FORK: BUILDING AN AFFORDABLE AND RESILIENT FOOD SUPPLY CHAIN

FRIDAY, JULY 15, 2022

HOUSE OF REPRESENTATIVES,
SELECT COMMITTEE ON THE CLIMATE CRISIS,
Washington, DC.

The committee met, pursuant to call, at 9:09 a.m., in Room 1334, Longworth House Office Building, the Hon. Kathy Castor [Chairwoman of the Committee] presiding.

Present: Representatives Castor, Bonamici, Brownley, Huffman, Levin, Casten, Escobar, Graves, Palmer, Carter, Miller, and Crenshaw.

Ms. CASTOR. The committee will come to order.

Without objection, the Chair is authorized to declare a recess at any time.

As a reminder, members participating in the hearing remotely should be visible on camera throughout the hearing. Members are responsible for controlling their own microphones. Members can be muted by staff only to avoid inadvertent background noise.

As a reminder, statements, documents, motions must be submitted to the electronic repository, to scccrepository@mail.house.gov.

Finally, members or witnesses experiencing technical problems should inform committee staff immediately.

Well, thank you all for being here and joining this hybrid hearing on "Climate Smart From Farm to Fork: Building an Affordable and Resilient Food Supply Chain."

Today, we will review pathways to create a sustainable, affordable food supply chain that is resilient in the face of climate change. We will examine opportunities for the food system to be a climate solution while also supporting human health and livelihood.

I will now recognize myself for 5 minutes for an opening statement.

Scorching temperatures and widespread disasters are putting lives at risk and harming communities across America. This week, families in southwest Virginia were the latest to face deadly floods like those that swept through Yellowstone National Park just a few weeks ago. At the same time, there is too little water across much of the West, leading to frequent wildfires and dangerously low river and lake levels.

In Texas, scorching hot temperatures almost stretched the grid to its limit, forcing families and industry alike to conserve electricity or risk a potential blackout. And Europe is facing what could be its worst heat wave in over 200 years.

So it was very disappointing to learn that Senator Manchin is joining Republicans in rejecting investments to address this crisis, investments that would reduce our dependence on expensive fossil fuels while helping to create jobs and cut dangerous heat-trapping pollution.

The American people have consistently supported cleaner, cheaper energy, like wind and solar. So while this is quite disappointing this morning, we must move forward and use all of the tools that we have to solve the climate crisis. The costs of inaction are too high, and climate injustice is too great, and our kids' futures are too precious.

The climate crisis is also challenging our ability to put food on supermarket shelves and dining room tables across America. According to the American Farm Bureau Federation, major disasters left $12.5 billion in damages to crops and rangelands just last year. In North Dakota, persistent drought damaged over $2.4 billion worth of wheat, soybeans, corn, and other crops. Texas lost $2 billion dollars in the aftermath of that weird winter storm, a hurricane, and other disasters. And extreme weather in California has led to the loss of about a half billion dollars' worth of fruit and nut crops. These impacts will worsen if we do not address them, and their costs are being passed on to consumers.

And that is why Congress must invest in a climate smart food system that lowers cost, increases food security, and incorporates solutions from farm to fork. Every person along the food chain, from producers to consumers to everyone in between, can make our food supply chain more sustainable. And each step in the supply chain presents an opportunity for innovation. That includes updating laws around food donation and labeling, strengthening sustainable school lunch programs, and increasing technical assistance for producers. It also includes supporting urban agriculture, improving food distribution at the local level, and working to reduce food waste and loss.

Many of these solutions have an immediate impact. We can cut methane pollution by reducing food waste. We can drive down methane emissions from livestock by expanding the use of innovative feed additives, like seaweed. And we can help farmers adopt proper regenerative grazing techniques that help the soil sequester more carbon.

Moving quickly on these solutions will be crucial as we clean up the food supply system, which makes up nearly 30 percent of global heat-trapping pollution. And it will help us make progress on reducing biodiversity loss, deforestation, degraded soils, desertification and water scarcity.

With the support of President Biden, we have taken steps in the right direction. The American Rescue Plan included $3.6 billion to enhance food distribution, expand local and regional food systems, and support historically disadvantaged farmers.

We also made progress through this year's government funding legislation, which invested in initiatives like the Urban Agriculture and Innovative Production program and Farm to School grants.

And finally, the Biden-Harris administration just announced a new framework to shore up the food supply chain, leveraging more than $2 billion in investments that will reduce pollution and make nutritious food more affordable for families.

So as we move closer to the net-zero economy, we have an opportunity to create a food system that works for Americans, ensuring access to safe, healthy food for generations to come. And we are going to get some good advice from our witnesses here today, and I look forward to that.

At this time, I will recognize Ranking Member Graves for his 5-minute opening statement. Welcome.

[The statement of Ms. Castor follows:]

Opening Statement of Chair Kathy Castor

Hearing on "Climate Smart from Farm to Fork: Building an Affordable and Resilient Food Supply Chain"

July 15, 2022

As prepared for delivery

Scorching temperatures and widespread disasters are putting lives at risk and harming communities across America. This week, families in Southwest Virginia were the latest to face deadly floods like those that swept through Yellowstone National Park a few weeks ago. At the same time, there is too little water across much of the West, leading to frequent wildfires and dangerously-low river and lake levels. In Texas, scorching hot temperatures almost stretched the grid to its limit, forcing families and industry alike to conserve electricity or risk a potential blackout. And Europe is facing what could be its worst heat wave in over 200 years. So it was disappointing to learn that Sen. Manchin is joining Republicans in rejecting investments to address this crisis: investments that would reduce our dependence on expensive fossil fuels while helping us create jobs and cut dangerous heat-trapping pollution. The American people have consistently supported cleaner, cheaper energy like wind and solar. So while this is a disappointing setback, we must move forward and use all the tools we have to solve the climate crisis. The costs of inaction are too high. Climate injustice is too great. And young peoples' futures are too precious.

The climate crisis is also challenging our ability to put food on supermarket shelves and dining room tables across America. According to the American Farm Bureau Federation, major disasters left $12.5 billion in damages to crops and rangelands just last year. In North Dakota, persistent drought damaged over 2.4 billion dollars' worth of wheat, soybeans, corn, and other crops. Texas lost about $2 billion in the aftermath of a winter storm, a hurricane, and other disasters. And extreme weather in California led to the loss of about half a billion dollars' worth of fruit and nut crops. These impacts will worsen if we don't address them—and their costs will be passed on to consumers.

That's why Congress must invest in a climate-smart food system that lowers costs, increases food security, and incorporates solutions from farm to fork. Every person along the food chain—from producers to consumers and everyone in between—can make our food supply chain more sustainable. And each step in the supply chain presents an opportunity for innovations. That includes updating laws around food donation and labelling; strengthening sustainable school lunch programs; and increasing technical assistance for producers. It also includes supporting urban agriculture; improving food distribution at the local level; and working to reduce food waste and loss.

Many of these solutions can have an immediate impact. We can cut methane pollution by reducing food waste. We can drive down methane emissions from livestock by expanding the use of innovative feed additives like seaweed. And we can help farmers adopt proper regenerative grazing techniques that help the soil sequester more carbon. Moving quickly on these solutions will be crucial as we clean up the food supply system, which makes up nearly 30% of global heat-trapping pollution. And it will help us make progress on reducing biodiversity loss, deforestation, degraded soils, desertification, and water scarcity.

With the support of President Biden, we've taken steps in the right direction. The American Rescue Plan law included $3.6 billion to enhance food distribution, expand local and regional food systems, and support historically disadvantaged farmers. We also made progress through this year's government funding legislation, which invested in initiatives like the Urban Agriculture and Innovative Production Program and Farm to School grants. Finally, the Biden-Harris Administration just announced a new framework to shore up the food supply chain, leveraging more than $2 billion in investments that will reduce pollution and make nutritious food more affordable for families.

As we move closer to a net-zero economy, we have an opportunity to create a food system that works for all Americans—ensuring access to safe, healthy food for generations to come. I look forward to today's discussion.

Mr. GRAVES. Thank you, Madam Chair.

The Chair and I both represent coastal communities on the Gulf of Mexico, and we absolutely share a strong desire to make sure that our communities are protected, that they are safe, they are sustainable. There is no division between us on that.

However, the opening statement that was made connecting flooding in Virginia recently to climate change is a tenuous connection. And I think that the only way we are going to solve this problem is if we are sticking to science. And so let's talk a little bit about science.

The United States could cut emissions today. We could cut every bit of emissions today, and it wouldn't have a single impact. It wouldn't have a single impact on any changes in weather patterns for 50 years. According to the United Nations Framework Convention on Climate Change, the IPCC models, maybe 75 years or maybe even 100 years.

In fact—well, actually, I take that back. If we cut them in the United States, it wouldn't have an impact globally for probably in excess of 100 years. If the entire world cuts emissions, we are looking at 50, 75, or 100 years away before you would actually see changes in weather patterns if the models, if the models are accurate.

And let me tell you something else that is really important for us to keep in mind that is also science-based. For every one ton of emissions that the United States has reduced over about the last 17 years, for every one ton we have reduced in the United States, China has increased by four. It is a global environment.

We are headed in the wrong direction, even under the Paris Climate Accords. China gets to increase their emissions another 50 percent between now and 2030, despite the fact that today they are releasing more than the United States, the European Union, Japan, South Korea.

But we can sit here and talk all day long about all—we can sit here and say all these things and make people feel good. The truth is is that the policies that are being pushed today by this administration are actually causing greater harm to the environment.

We just saw inflation numbers come out this week at 9.1 percent, the highest number in over 40 years. We have seen gas prices double. We have seen natural gas prices nearly triple. We are pushing people into energy poverty and, and we are having greater emissions as a result of this administration's strategy. You failed on affordability, you failed on emissions, and you failed on energy security.

The President of the United States is in Saudi Arabia today, today in Saudi Arabia asking that nation for more oil; choosing cartels, OPEC plus cartels over my home state Cajuns. I can keep having fun and say terrorist over Terrebonne, which is one of our parishes, but I will stop with the rhyming and come back to reality.

Look, we are talking about farms today. We are talking about farms to table. You know, fertilizer right now, we have seen a huge decrease in the availability of fertilizer. One of the largest inputs in fertilizer? Natural gas. You are driving up cost for farmers.

Since the 1950s, since the 1950s, you have seen an efficiency in the United States increase in terms of our farm production. Excuse me, since the 1940s. By over 300 percent, we have the most efficient farming operations in the world in terms of emissions per bushels or acres of crops produced.

We are looking right now at pushing 13.1 million people into a hunger crisis as a result of what is happening globally with Ukraine, with U.S. energy policies, but we are making it unaffordable to farm in the United States as a result of diesel prices going up and spiking as a result of gasoline prices, the unavailability or unaffordability of fertilizer.

This administration's energy policies are causing all of these problems. And the thing is, there is a solution. The solution is, as we have shown, as science proves, more domestic energy production actually results in lower global emissions, because we produce it safer with cleaner emissions than virtually anywhere else in the world.

Just this week, just this week, we had a bill in the Natural Resources Committee right down that hallway where we were banning, we are banning critical minerals production in the United States, critical minerals like lithium, graphite, cobalt, nickel, copper, things that are required for renewable energy. You have to have these critical minerals. It is projected we are going to have a 400 to 600 percent increase in demand for those minerals; for graphite and lithium, a 4,000 percent increase.

Look, we can't just wish this stuff to happen. We have got to have a cohesive strategy. This administration says no to oil and gas from the United States, yes to Saudi Arabia and Iran and Venezuela. They say no to critical minerals that are needed for renewable energy. That is a none-of-the-above energy strategy. It is failing the American people, it is failing the environment, and it is, unfortunately, failing our energy security and economic impacts as well.

I yield back.

Statement for the Record

Rep. Suzanne Bonamici

Hearing on "Climate Smart from Farm to Fork: Building an Affordable and Resilient Food Supply Chain"

Select Committee on the Climate Crisis

July 15, 2022

Thank you, Chair Castor, and thank you to our witnesses. Strengthening our food supply chain and addressing food waste is critical to combatting the climate crisis. The Environmental Protection Agency projected in a 2021 report that food loss and

waste in the United States contributes to an estimated 170 million metric tons of carbon emissions annually.[1] Helping schools address food waste and supporting nutrition standards will benefit our students and our planet.

As Chair of the Education and Labor Committee's Civil Rights and Human Services Subcommittee, I have been working for the past year to develop a comprehensive plan to update our federal child nutrition programs. The Child Nutrition Reauthorization is long overdue and strengthening these programs would help reduce food waste in our school systems.

In 2010, President Obama signed into law the Healthy, Hunger-Free Kids Act, directing the U.S. Department of Agriculture (USDA) to improve the nutrition standards in the Child Nutrition programs, including the National School Lunch Program and School Breakfast Program. Critics of the initiative allege that these improvements to school nutrition standards have increased food waste in our public schools.

This criticism is unfounded. A study by the National Institutes of Health found that updated nutrition standards did not lead to increased food waste and positively improved child nutrition.[2] Child nutrition programs are a key component of overall student health and an important way to provide students with nutrient-dense foods. Although nutrition standards have not resulted in more food waste, we can do more to help schools address the food waste issue. Food service in institutional settings, such as school systems, is responsible for approximately 8 percent of total food waste.[3] Providing school food authorities with best practices, enhancing school food service training, and investing in kitchen equipment upgrades are better ways to address food waste than undermining nutrition standards.

I am leading the Healthy Meals, Healthy Kids Act, a new Child Nutrition Reauthorization, with Chairman Bobby Scott. This bill would support new funding to help schools acquire equipment and training to expand scratch cooking capacity, which will both reduce food waste and enhance opportunities for students to eat fresh, nutritious foods. This bill would also provide $10,000,000 to schools to implement food waste auditing, prevention, and education. These much-needed provisions in the Healthy Meals, Healthy Kids Act are similar to the bipartisan School Food Recovery Act that I co-lead with Representatives Pingree and Newhouse.

Additionally, the timing of lunch in schools has an important effect on food waste. For example, schools that schedule recess before lunch are shown to have lower food waste.[4] The Healthy Meals, Healthy Kids Act directs USDA to commission a study on the time lunch is served and when recess is scheduled, then establish a taskforce to issue guidance and best practices using this information. This is similar to legislation, the Healthy Meal Time Act, that I lead with Congresswoman Schrier. Providing schools with the resources and information they need to best support students will empower them to lead on food waste prevention.

As members of Congress, we must focus on the health of our children, and that includes both ending food insecurity and protecting our planet. By committing to evidence-based policies, including strong nutrition standards and food waste reduction programs, we can further our goal of making sure every child has an opportunity to meet their potential and live healthy, productive lives.

Ms. CASTOR. Now I am going to welcome our witnesses. Thank you all for being here. We are very focused on how we improve the food supply chain to lower cost for consumers, so please keep that at the center of your testimony, along with the climate solutions, how we reduce the impacts of the climate crisis.

Ms. Dana Gunders is the Executive Director of ReFED. Ms. Gunders' leads ReFED's work to end food waste and loss across the

---

[1] Buzby, Jean, *Food Waste and its Links to Greenhouse Gases and Climate Change,* United States Department of Agriculture, January 24, 2022.
https://www.usda.gov/media/blog/2022/01/24/food-waste-and-its-links-greenhouse-gases-and-climate-change

[2] Cohen et al., *Impact of the New U.S. Department of Agriculture School Meal Standards on Food Selection, Consumption, and Waste,* National Institute of Health, April 2014, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3994463/.

[3] Gunders et al, *Wasted: How America is Losing up to 40 Percent of its Food from Farm to Fork to Landfill,* Natural Resources Defense Council,
https://www.nrdc.org/sites/default/files/wasted-2017-report.pdf.

[4] Ethan A. Bergman, PhD, RD, CD, FADA; Nancy S. Buergel, MS, RD, CD; Timothy F. Englund, PhD; and Annaka Femrite, MS, RD, *The Relationship of Meal and Recess Schedules to Plate Waste in Elementary Schools,* Journal of Child and Nutrition Management, School Nutrition Association, Fall 2004.
https://docs.schoolnutrition.org/newsroom/jcnm/04fall/bergman/bergman1.asp

U.S. food system. She authored a landmark 2012 report "Wasted: How America is Losing Up to 40 Percent of its Food from Farm to Fork to Landfill," and wrote the "Waste-Free Kitchen Handbook." Ms. Gunders has previously worked as a Senior Scientist with the National Resources Defense Council.

Mr. Kent Swisher is the President and CEO of the North American Renderers Association. Mr. Swisher leads NARA's work to represent the rendering industry, which repurposes meat products that would otherwise be considered inedible, such as fat and bone. He is a member of the USDA's Trade Advisory Committee on Animals and Animal Products, and previously worked at the Continental Grain Company, U.S. Grains Council, and the American Seed Trade Association.

Dr. Melinda Cep is the Vice President for Natural Solutions and Working Lands at National Audubon Society. Dr. Cep works to advance natural climate solutions and conservation on working lands, such as rice fields, ranchlands, and forests. A trained veterinarian, she previously served as a Senior Advisor and Deputy Chief of Staff at the United States Department of Agriculture.

Ms. Elly Brown is Co-Executive Director of the San Diego Food System Alliance. Ms. Brown co-leads the Alliance's work to build a healthy and sustainable food system in San Diego County. Prior to joining the Alliance, Ms. Brown worked in nonprofit consulting at Root Causes, and is an independent advisor to nonprofits, foundations, and social enterprises.

Without objection, the witnesses' written statements will be made part of the record.

With that, Ms. Gunders, you are now recognized to give a 5-minute presentation of your testimony. You are recognized.

STATEMENTS OF DANA GUNDERS, EXECUTIVE DIRECTOR, REFED; KENT SWISHER, PRESIDENT AND CEO, NORTH AMERICAN RENDERERS ASSOCIATION; DR. MELINDA CEP, VICE PRESIDENT, NATURAL SOLUTIONS AND WORKING LANDS, NATIONAL AUDUBON SOCIETY; AND ELLY BROWN, CO–EXECUTIVE DIRECTOR, SAN DIEGO FOOD SYSTEM ALLIANCE

STATEMENT OF DANA GUNDERS

Ms. GUNDERS. Good morning. Thank you for that introduction. In addition to that, I am also the mother of two children, who last summer had 5 weeks of canceled camp and postponed school due to wildfires and smoke. My 7-year-old sometimes has trouble sleeping because she is afraid a fire will come during the night.

Climate change is real and present in our lives, and I truly appreciate your action on the issue.

I was asked to present the climate impacts of the entire food system and food waste. That is like covering all of energy and energy efficiency in 5 short minutes. Yet, unlike energy, food is an often overlooked and massive factor in the climate crisis. It produces 23 to 42 percent of total greenhouse gas emissions globally. Just the footprint of uneaten food is more than that of the entire aviation industry. And without interventions, that footprint is projected to increase by one-third by 2050.

Beyond causing emissions, the food system is part of the solution. It also deeply is vulnerable to the impacts of climate change, with agricultural productivity already estimated to have declined 21 percent due to changes in climate.

Given this critical role, one hearing on food is simply not enough, and I encourage a much deeper dive, perhaps even adding a food section to your Congressional Action Plan.

One often overlooked component of climate solutions is timing. Because greenhouse gases are cumulative, saving one ton of greenhouse gases annually is 10 times more valuable if it can start next year than if it starts 10 years from now. As one key climate leader said, time is more important than tech. New is good, but now is better.

In contrast to other sectors, food solutions are available now. In addition, they are fundamental to addressing methane, whose short-term impacts make it critical to address sooner.

And beyond just climate, improving our food system offers opportunities to address food insecurity, biodiversity loss, water scarcity and even create jobs.

In my written testimony, I go into more detail on four solution areas to consider. The first is encouraging a shift in diet away from animal products, which are the largest source of U.S. methane. Beef in particular has by far the largest footprint. Just offering the Impossible Whopper, a meat alternative, allowed Burger King to save emissions equivalent to over 500 million passenger car miles in 1 year.

Next, a move towards climate-friendly ag practices is a huge opportunity to both reduce emissions and sequester carbon in the soil.

Third, protecting grasslands from being converted to cropland is critical, especially in this moment when rising food and fuel prices create additional incentives for farmers to expand into new land.

Lastly, and my focus area, reducing food waste is an immediate strategy that inherently addresses all of the above mentioned impacts. Imagine walking out of the grocery store with three bags, dropping one in the parking lot and not bothering to pick it up. It seems crazy, but that is essentially what is happening across the country today.

Thirty-five percent of food in the U.S. goes uneaten, over $400 billion worth. The average family of four spent almost $2,000 in 2019 on food they never ate. And just imagine how that dropped grocery bag must look to the 38 million food-insecure Americans who could be fed three times over with the amount of food that is wasted.

If all of our country's uneaten food was grown in one place, this megafarm would cover more land than Nebraska, Missouri, and Oklahoma combined, and use as much water as more than 50 million American homes. It would harvest enough food to fill a semitruck every 20 seconds all year. But instead of being eaten, that food would go straight to a landfill, where it would emit methane as it decomposed. In fact, food is the number one contributor to landfills today, and landfills are the third largest source of methane.

All told, the climate impact of uneaten food in the U.S. is equivalent to 58 million cars annually. Wasting less food increases sup-

ply, which makes food more affordable. Often people jump to solutions like composting, but preventing food waste is far more effective from a financial and a climate perspective.

The good news is, unlike many of the thorny issues I am sure you deal with, this one is solvable. We have seen momentum start to build, with over 200 global food companies making commitments; companies, including Kroger, General Mills, Compass Group, successfully reporting reductions of 19 to 33 percent; and huge growth in private investment, including $2 billion in 2021 alone, more than double the previous year.

Nevertheless, even with all this momentum, at best, we have reduced our food waste by only 2 percent per capita since 2016. The U.K. has achieved a 27 percent reduction in food waste.

Some key steps to consider include funding a national awareness campaign to target consumers and a national public-private partnership to engage businesses; incentivizing local action through funding for state and local governments; increasing donation through adjustments to tax incentives and liability protections; and what I think is the lowest hanging fruit, standardizing food date labels to prevent consumers from discarding food prematurely.

Wasting less food is something everyone can get behind, and in some cases, there is even money to be saved. The time to act is now.

Thank you.

[The statement of Ms. Gunders follows:]

TESTIMONY OF

DANA GUNDERS, EXECUTIVE DIRECTOR OF ReFED

HEARING ENTITLED "CLIMATE SMART FROM FIELD TO FORK: BUILDING AN AFFORDABLE AND RESILIENT FOOD SUPPLY CHAIN"

BEFORE THE HOUSE SELECT COMMITTEE ON THE CLIMATE CRISIS

MAY 24, 2022

Good afternoon, Chairwoman Castor, Ranking Member Graves, and Members of the Committee. Thank you for inviting me to testify today. My name is Dana Gunders, and I am the Executive Director of ReFED, a national nonprofit whose mission is to end U.S. food loss and waste by advancing data-driven solutions. I'm also the author of a widely-quoted report on food waste, *Wasted: How America is Losing Up to 40 Percent of Its Food from Farm to Fork to Landfill* and the *Waste-Free Kitchen Handbook,* a consumer guide to wasting less food. Pertinent to this conversation, my organization has researched the impact of U.S. food, and wasting it, on the U.S. greenhouse gas footprint.

I'm also the mother of two children who last summer, living in the Lake Tahoe area, had five weeks of canceled camp and the start of elementary school postponed, all due to wildfires and smoke. My seven-year-old daughter sometimes has trouble sleeping because she's afraid a fire will come during the night. Climate change is real and present in our lives, and thus I truly appreciate that you're taking intentional action on this issue.

I was asked to present a larger look at the climate impacts of the food system in addition to touching on food waste. That's a bit like asking someone to cover all of energy, and then cover energy efficiency as well, all in five minutes. So, if there's one thing I'd like you to take away from my testimony, it's that **food and agriculture is a massive, yet often overlooked, factor in the climate crisis**. Each of the aspects you'll learn about today merit their own hearing if you're to walk away with a true sense of the legislative possibilities. Please consider this very much an overview.

Food has a complex relationship to the climate crisis with four distinct aspects to consider:

- First, it is a driver by producing greenhouse gasses. The most recent report from the United Nations Intergovernmental Panel on Climate Change (IPCC) published this February estimated our food system is responsible for 23%-42% of total greenhouse gas emissions globally.[1] In the U.S, food system emissions are about 1.15–1.5 Gt/year, or about 22% of total emissions.[2] And that's without including the methane emissions from landfills, which are the third largest source of methane. Just the greenhouse gas footprint of *uneaten* food is more than that of the entire aviation industry (commercial, military, and private).
- Second, agriculture is a solution, as soils on farms offer more potential to absorb carbon than almost any other mitigation strategy.
- Third, it is a risk, as growing food demand is one of the main drivers of deforestation and other land conversion. If we do not deploy interventions to mitigate greenhouse gas emissions from agriculture and the food system, they are projected to increase 30–40% by 2050 in order to feed our growing population.[3]
- Lastly, it is extremely vulnerable to the effects of climate change. Agricultural productivity has been estimated to already have declined 21% due to changes in climate.[4] Crop failures, droughts, and other natural disasters are, at this point, inevitable. They will impact the livelihoods of farmers and food workers and lead to less available and more expensive food. Indigenous communities, communities of color, low-income communities, and the elderly will continue to be disproportionately affected by climate change. Today, more than 820 million people suffer from undernourishment worldwide—that number will only grow as global warming further raises temperatures.

The timing of solutions is critical. We often talk about emission goals for 2030 or 2050, but that discussion ignores the fact that **greenhouse gasses are cumulative**. A change that will save one ton of greenhouse gasses annually is ten times more valuable if it can start next year than if it starts ten years from now. **Food and agriculture solutions are available now.** In contrast to other sectors, many food and agriculture solutions do not need five years of research and development (R&D) followed by another five years of scaling and deployment, making them an extremely important lever for us to deploy now. In addition, they are **fundamental to addressing methane**, which is critical to address in the short term because of its higher intensity short term impacts.

Put more simply by Dr. Jonathan Foley, Executive Director of the well-known climate mitigation organization Project Drawdown, **"Time is more important than tech, new is good but now is better."**

And beyond just climate, improving our food system offers opportunities to address food insecurity, biodiversity loss, and water scarcity.

Considered together, this makes investing in comprehensive and aggressive mitigation and adaptation efforts for food and agriculture an enormous opportunity within the climate action puzzle. At the end of this document, I have included a key chart from the most recent IPCC report that illustrates the greenhouse gas mitigation opportunities associated with some of these solutions, as well as how they compare with mitigation strategies in other sectors. Within that, there are four solution areas to consider.

Dietary Shifts

Livestock-related emissions represent about 42% of U.S. agricultural emissions,[5] and that doesn't even include the emissions from feed, to which approximately half of U.S. cropland is devoted. Direct livestock emissions come from two main drivers, both of which mainly produce methane, and **when considered together, are the largest source of U.S. methane**.[6]

The first driver is enteric fermentation, a result of the way cattle digest food, and is due to beef and dairy production. The second driver is emissions from manure—while a much smaller component than enteric fermentation, it is interesting to note that methane from manure management has increased by 70% since 1990, primarily due to the increasing use of liquid systems in manure management.[7]

---

[1] IPCC Sixth Assessment Report, pdf page 152 https://www.ipcc.ch/report/ar6/wg3/

[2] Crippa et al, https://www.nature.com/articles/s43016-021-00225-9

[3] IPCC 2019 Special Report on Climate Change and Land, Chapter 5, https://www.ipcc.ch/srccl/chapter/chapter-5/#:~:text=emissions%20from%20crop%20and%20livestock%20are,

[4] Lobell, et al, https://www.nature.com/articles/s41558-021-01000-1

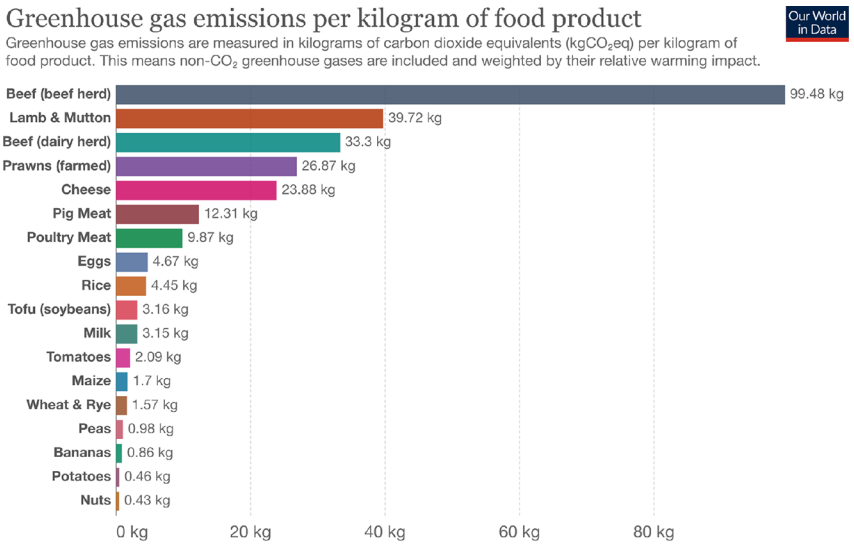
[5] EPA, Chapter 5, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2020

[6] EPA,· https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane

[7] EPA, Chapter 5, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2020

A comprehensive report by the EAT-Lancet Commission estimates that in North America, **we need to cut our beef consumption in the U.S. to one-sixth of what it is today in order to stay within the climate goals set forth in the Paris Agreement**.[8] While there is some work being done to impact cattle digestion with feed additives, the main solution to these livestock-related emissions is a transition to menus and diets with a larger percentage of grains, legumes, and vegetables, and a lower percentage of meat, especially beef. **This is a mitigation strategy that is available to us immediately and is projected to have a larger mitigation potential than shifts to electric vehicles, public transportation, and efficiency in aviation—*combined*.**

Ultimately, the climate footprint of beef is far larger than that of any other food, as illustrated by this chart:



Some key policy initiatives that have been suggested include:

- **Support for plant-based meat alternatives.** These alternatives are proving successful with consumers and food businesses alike, as evidenced by nearly every fast-food chain now offering a plant-based option. Policy support includes funding for alternative protein R&D and facilitating the entry of plant-based meat alternatives to the market via allowing for labeling that consumers recognize. In its Fiscal Year 2022 budget, Congress dedicated $4.5 million in appropriations to alternative protein research through U.S. Department of Agriculture's (USDA) Agricultural Research Service. This offers a program that could be built up further.
- **Support for regenerative grazing.** There is initial evidence that regenerative grazing operations create potential to sequester carbon in grasslands. Funding more extensive research on this may identify new potential to lower the beef footprint.
- **Research for feed additives**. Funding research can help identify feed additives that can lower emissions related to cattle's digestion. While this will not offset the need to lower overall meat consumption, it is nevertheless an important component for the meat production that will continue.

Climate-Friendly Agricultural Practices

Agricultural soil management represents 53% of U.S. agricultural emissions. The largest source is synthetic fertilizer application, but this category also includes application of crop residues, organic fertilizer such as compost, and land application of sludge. Nitrogen—one of the main nutrients in fertilizer—can interact

[8] EAT-Lancet Commission, https://eatforum.org/eat-lancet-commission/eat-lancet-commission-summary-report/

with the soil to produce nitrous oxide, a greenhouse gas more than 300 times more potent in its warming potential than CO_2.

Separately, **soil offers enormous potential as a carbon sequestration sink**. Finding ways to both reduce the emissions and promote sequestration in agriculture has great potential. However, changing agricultural practices and building soil carbon is not a fast process. **We must begin now if we are to truly see the benefits.**

With the Farm Bill around the corner, we have a key opportunity to integrate policies that enlist farmers as a key part of the climate solution. Some of the main aspects to consider include:

- **Amending conservation compliance requirements and expanding them to all recipients of Farm Bill commodity support programs.** With about 400 million acres enrolled in crop insurance programs, expanding conservation compliance requirements to go beyond Title I commodities and include Title XI crop insurance premium subsidies is a key opportunity with great potential for quick and widespread adoption of climate-focused practices on farms. Increasing both technical assistance and enforcement mechanisms would also be critical to success.
- **Promoting perennial crops.** Providing funding for breeding research and technical assistance to promote perennial crops in grain and oilseeds can help to transition to cropping systems that are more drought tolerant, use less fertilizer, and store more carbon.
- **Supporting a broad transition to proven agroforestry practices.** Experts estimate that a nationwide transition to proven practices such as silvopasture and alley cropping could offset 33% of domestic fuel emissions. These practices can be promoted by providing technical assistance, adding a specific funding pool to the Environmental Quality Incentives Program (EQIP), and creating tailored agroforestry crop insurance and microloan programs.

Prevent Grassland Conversion

Like forests, grasslands play a critical role in sequestering and storing carbon, and similar to global deforestation, destruction of grasslands can also have devastating climate impacts. During each year over the last decade, we've seen the grasslands of the Great Plains being replaced by croplands at comparable rates to the clearing of the Brazilian Amazon. **When grasslands are tilled, soil organic carbon stocks are reduced by 30% on average, releasing vast amounts of carbon into the atmosphere.** Restoring the full amount of carbon to croplands can take 350 years.[9] Thus, protecting these native ecosystems in the first place is the most effective climate strategy.

Across the U.S. and Canadian Great Plains, approximately 2.6 million acres of intact grassland—an area larger than Yellowstone National Park—were plowed up in 2019 to make room for row-crop production, primarily wheat, corn, and soy. Nearly 600,000 acres were lost to the plow in the Northern Great Plains region alone—one of the world's only remaining intact grassland habitats and home to important wildlife including the black footed ferret, plains bison, and several species of birds not found anywhere else.[10]

Preventing conversion to cropland is key at this moment, as rising food and fuel prices create additional incentives for farmers to expand into new land. Some key policy opportunities to preserve these critical native ecosystems include:

- **Support the proposed North American Grasslands Conservation Act**. Modeled after the North American Wetland Conservation Act, this legislation will help to kickstart the voluntary protection and restoration of our grasslands.
- **Expand Sodsaver nationwide**. Expansion of this program will greatly reduce the negative impacts of crop insurance.
- **Rethink renewable fuel standards and policies**. Discourage the conversion of grasslands to row crops for biofuel production and incentivize the planting of perennial grasslands on marginal cropland.

Food Loss and Waste

Reducing food loss and waste is an immediate mitigation strategy that inherently addresses all of the above-mentioned impacts by reducing overproduction, and all of the impacts that are associated with it. In addition, it reduces unnecessary methane in disposal. As this is my primary area of expertise, I will spend the remainder of my testimony focused on it.

---

[9] World Wildlife Fund, https://www.worldwildlife.org/projects/plowprint-report
[10] Ibid.

Imagine walking out of the grocery store with three bags, dropping one in the parking lot, and not bothering to pick it up. Seems crazy, but that is essentially what is happening across the country today—**35% of food in the United States today goes uneaten**.

We are leaving entire fields unharvested, eliminating produce solely for its cosmetics, throwing out food just because it's past or even close to its "sell-by" date even though it's perfectly safe to eat, inundating restaurant patrons with massive portions, and eating out instead of using what's in our fridge.

As a country, **our food waste amounts to over $400 billion, or nearly 2% of GDP,**[11] spent each year on wasted food. The average family of four spent over $1,900 in 2019 on food they never ate, a number that is sure to be higher with today's food prices.

Beyond money, we are missing an opportunity to provide sustenance and nutrition—**just one third of the country's wasted food could provide the caloric equivalent of the entire diet for the 38 million food insecure Americans,**[12] if only it could be distributed properly.

Furthermore, we are investing tremendous amounts of resources in this uneaten food. **If all of our country's wasted food was grown in one place, this mega-farm would cover more land than Nebraska, Missouri, and Oklahoma combined, use as much water as more than 50 million American homes, and enough fertilizer to grow all the plant-based foods in the country.** The farm would harvest enough food to fill a 40-ton tractor trailer every 20 seconds. Many of those trailers would travel thousands of miles, distributing food to be kept cold in refrigerators and grocery stores for weeks. But instead of being purchased, prepared, and eaten, this perfectly good food would be loaded onto another line of trucks and hauled to a landfill, where it would emit methane as it decomposed.

In fact, food is the number one contributor to landfills today, more than any other material. And landfills are the third largest source of methane in the U.S. Furthermore, food decomposing in those landfills is one of the biggest sources of that landfill methane.

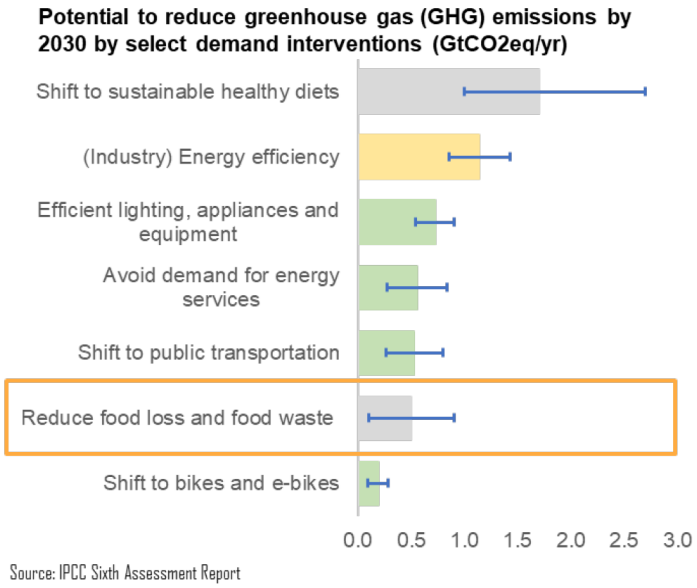
Globally, if food waste were a country, it would use more water than any other country on the planet and rank third in its greenhouse gas footprint after China and the U.S. In America alone, the greenhouse gas footprint of uneaten food is estimated to be equivalent to 58 million cars annually.[13] This is because we are both creating huge impacts through overproduction, but also through emissions once food decomposes in landfills. The IPCC shows that the mitigation potential of addressing it would be equivalent to that of a shift to public transportation.

---

[11] ReFED Insights Engine, https://insights-engine.refed.org/food-waste-monitor?break_by=destination&indicator=us-dollars-surplus&view=detail&year=2019

[12] USDA, https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/key-statistics-graphics/#:~:text=In%202020%3A,with%20adults%2C%20were%20food%20insecure.

[13] ReFED Insights Engine, https://insights-engine.refed.org/food-waste-monitor?break_by=sector&indicator=total-mtco2e-footprint&view=detail&year=2019



Source: IPCC Sixth Assessment Report

Much climate discussion has focused around energy, and there's a clear parallel between wasting less food and energy efficiency. Both food and energy are resource intensive industries that face increasing global demand as a result of population growth and increasing standards of living. At some point, we realized the easiest, cheapest way to meet growing demand for energy was to reduce it in the first place. We are only now starting to realize the same approach is merited for food. **Without taking waste reduction into account, the United Nations Food and Agriculture Organization projects that food production will grow 60 percent by 2050 in order to match projected demand.**[14] **It's estimated almost a quarter of that projected demand could be offset through halving the amount of food that goes to waste.**[15]

We have not always been so wasteful. In the U.S., we waste 50% more food per capita than we did in the 1970s.[16] This means that there was once a time when we wasted far less, and that therefore gives me hope we could waste less today.

To help evaluate solutions, the EPA has established a "food recovery hierarchy." It essentially echoes the traditional "reduce, reuse, recycle" ethic that says first and foremost we should prevent waste from happening in the first place. **In fact, preventing food waste is at least twice as effective than composting it from a climate mitigation perspective, and some estimates are far greater.**[17] When that's not possible, we should aim to use surplus to feed those in need. After that animal feed is preferred, and then uses such as composting and anaerobic digestion.

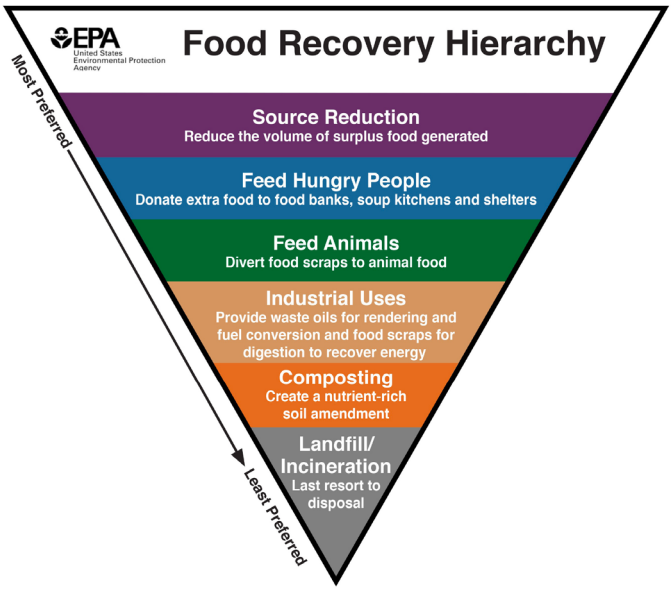
---

[14] United Nations Food and Agriculture Organization, "World Agriculture Towards 2030/2050, The 2012 Revision." 2012. http://www.fao.org/docrep/016/ap106e/ap106e.pdf

[15] Lipinski, B. et al. "Reducing Food Loss and Waste" World Resources Institute. 2013. www.wri.org/sites/default/files/reducing_food_loss_and_waste.pdf. Estimate is 22% of projected demand could be offset through halving the amount of food lost or wasted.

[16] K.D. Hall, J. Guo, M. Dore, C.C. Chow, National Institute of Diabetes and Digestive and Kidney Diseases, "The Progressive Increase of Food Waste in America and Its Environmental Impact," *PLoS ONE* 4(11):e7940, 2009.

[17] This varies by food type. On average, ReFED greenhouse has factors show source reduction to be more than 4 times as effective, but EPA's WARM tool shows a value for source reduction that is 30 times better than composting.



EPA's Food Recovery Hierarchy

Causes of Food Waste

Food waste is a complex problem with losses occurring throughout the supply chain from "farm to fork." There are far too many reasons to cover in a few short minutes. But I expect that over the course of the next week, as you go about your lives, you will notice a few yourselves. Nevertheless, I will try to give you a sense of a few:

- Crops are sometimes left unharvested because their appearance does not meet strict quality standards imposed by supermarkets, or because of damage caused by pests, disease, labor shortages, or weather. When market prices are too low, growers may leave some crops in the field if the price will not cover their costs to harvest, wash, sort, package, and transport the product.
- In catching seafood, there is enough bycatch discarded to provide total yearly protein for 1.6 to 2 million people.[18]
- Grocery stores are in the challenging position of having to carry a vast array of products at every hour of the day. This high level of inventory—the cost of consumer convenience—inevitably leads to waste.
- At restaurants, large portions, large menus, and poor training for food handlers contribute to food waste. All-you-can-eat settings have a particularly egregious amount of waste between consumers taking too much and the challenge of donating excess product that's been left out.
- Lastly, consumers represent the largest portion of food waste of any segment of the supply chain. Poor food management, lack of kitchen knowledge, and larger portions are key contributors there.

A detailed description of many drivers at each stage of the supply chain can be found in the report *Wasted.*[19]

---

[18] D.C. Love, et al. "Wasted Seafood in the United States: From Net to Plate". Global Environmental Change 35 (2015) 116–124

[19] NRDC, https://www.nrdc.org/resources/wasted-how-america-losing-40-percent-its-food-farm-fork-landfill

Promising Examples

The good news is, unlike many of the thorny issues I'm sure you deal with, this one is solvable. No one wants to waste food. And somehow, people strangely love diving into this topic. I've been amazed at how much energy and enthusiasm people have for telling me about the new way they found to use up wrinkled tomatoes, or the effort they made to wrap up the leftovers from their office lunch.

And because there are direct savings to be had, this enthusiasm has extended to the business and entrepreneurial communities as well. At ReFED, we have analyzed over 40 solutions to food waste, and most of them net positive in both the financial and climate lens. A list of the top twenty solutions from a climate perspective is at the end of this testimony, and a full list can be seen on our site.[20] Some key examples to cite include:

- More than 200 global food companies have committed to reducing food loss and waste via a handful of platforms that encourage these commitments.
- Companies including Kroger, Campbell's, General Mills, and Compass Group are successfully reducing their food waste, reporting reductions of 19–33% over just the past few years.
- Entrepreneurs abound with all sorts of solutions to food waste leading to successful businesses. At ReFED, we have more than 1,000 for-profit and non-profit organizations in our "solution provider" directory. And many of them are receiving significant investment from various types of funders. We have documented huge growth in private investment, including $2 billion in 2021 alone—more than double the previous year.[21]
- The United Kingdom **achieved a 27% reduction in food waste from 2007–2018** with a longstanding consumer campaign and a large public-private partnership as two strategies vital to this success.

Policy Solutions

In the U.S., there are a range of policy solutions that can help reduce food loss and waste. More than 50 signatories including Kroger, Unilever, Marriott, and Google, supported the U.S. Food Loss and Waste Policy Action Plan which includes a range of policy recommendations.[22] In addition, ReFED and other key nonprofits in the space recently published recommendations specific to the Farm Bill.[23]

It should also be noted that in 2015, the USDA, Environmental Protection Agency (EPA), and the Food and Drug Administration (FDA) signed on to a national goal of reducing food waste by 50% by 2030. While I appreciate the sentiment, none of the agencies have put a concerted effort or budget into addressing the issue in the seven years since those goals have been in effect. For instance, it took inclusion in the last Farm Bill to create just one position in all of USDA focused on the topic. Of the $4 billion in American Rescue Plan Act funding that went to USDA to improve food supply chains, none has been committed to this issue. In fact, our models show that the amount of uneaten food in the U.S. rose until 2016 and has stayed constant since. Even per capita, we have only declined by 2% since that 2016 peak. Thus, a much more concerted effort is needed if we are to come anywhere near the U.S. national goals.

Thus, it's clear that Congressional action is essential. The two documents I mentioned above are much more thorough, but some key opportunities to highlight include:

Fund State and Local Efforts

Because waste is legislated at the state and local level, federal funding can be directed to encourage and support their transition to lower waste economies. To accelerate the widespread adoption of prevention, measurement, rescue, and recycling strategies and build the nation's organic waste recycling infrastructure, the Administration and Congress should **provide annual funding for states and cities that adopt targets in line with the national target** to reduce food loss and waste by 50% by 2030 and outline strategies that include prevention and measurement along with infrastructure for rescue and composting. The **Zero Food Waste Act introduced in the 117th Congress and** sponsored by Representatives Brownley (D-California), Kuster (D-New Hampshire), and Pingree (D-Maine) as well as Senator Booker (D-New Jersey) would provide funding to states, tribes, and municipalities for food waste prevention, reduction, and measurement.

---

[20] ReFED Solutions Database, https://insights-engine.refed.org/solution-database
[21] ReFED Capital Tracker, https://insights-engine.refed.org/capital-tracker
[22] Food Waste Action Plan, https://foodwasteactionplan.org/
[23] Opportunities to Reduce Food Waste in the 2023 Farm Bill, https://chlpi.org/wp-content/uploads/2022/04/2023-Farm-Bill-Food-Waste.pdf

Addressing Consumer Waste

Engaging the public is critical because 1) much of the waste occurs in households and by consumers in restaurants, and addressing it will require a change in consumer behavior; 2) consumer expectations drive many of the business practices that lead to waste, so changing those expectations could allow social license for businesses to change those practices; and 3) engaging the public can also channel individuals to impact change through their work or other spheres of influence, be they restaurant workers or college educators. Efforts in the U.K. to address this have been quite successful, showing a 31% reduction in consumer food waste, and actions in Denmark have shown similar success. The most successful model seems to be national-scale campaigns that create a core library of assets that can then be customized and used by the food industry, local and national governments, and community organizations. **Funding should be provided for a national scale consumer education campaign.**

In addition, a range of opportunities exist to both educate and address waste in K–12 settings. The **bipartisan School Food Recovery Act**, introduced by Representatives Chellie Pingree (D-Maine) and Dan Newhouse (R-Washington) in the 117th Congress, would direct the USDA to provide funding for schools to engage in food loss and waste reduction efforts—enlisting teachers and students to turn cafeterias into classrooms by measuring and reducing their waste, publicly aggregating and reporting waste data, and driving greater awareness of food loss and waste solutions across our communities. This model has already been piloted, demonstrating possibilities in decreasing student plate waste, increasing students' fruit and vegetable consumption, and cutting down on cafeteria plastic and packaging waste.

Fund a National Public-Private Partnership

Public-private sector partnerships can accelerate food waste reduction, with an estimated 80:1 return. In the U.K., the Courtauld Commitment has engaged almost every major food company in the country in reducing food loss and waste. It is now in its fourth iteration due to continued success.

In the U.S., the Pacific Coast Food Waste Commitment has now engaged seven key retailers including Albertsons, Kroger, and Walmart in its efforts to show how cities, states, and businesses can work together pre-competitively to share best practices, discuss common-sense policymaking, and address shared sustainability challenges around food loss and waste. Expanding this program nationally offers the best way for the government to directly engage with the food industry to understand helpful policy drivers and encourage business action. The current United States Food Loss and Waste 2030 Champions program, co-hosted by the USDA and EPA, has tripled since it began in 2016 and has a strong group of companies.[24] However, it lacks the aspects that have made public-private partnership programs successful in other countries. **Congress could direct the agencies and provide funding to create a platinum tier of the U.S. Food Loss and Waste 2030 Champions program** in a way that requires companies to measure and report their waste levels, provides more assistance and dialogue around policy, and enables pre-competitive collaboration.

Standardizing Food Date Labels

Refining and standardizing the system of date labeling on food offers one of the most concrete steps to quickly reducing the amount of edible food being thrown out both in households and businesses. Date label confusion is a key cause of consumer food waste, estimated to drive nearly 85% of Americans to, at times, prematurely toss food that is still safe to eat.[25] Perhaps you may not even be aware that those dates you see on food are not federally regulated and typically do not indicate the safety of food, but rather when it's at its freshest. Food can often safely be consumed weeks or even months after those dates.

Instead of federal regulation, each state decides whether and how to regulate date labels, leading to a patchwork of inconsistent regulations and myriad date labeling terms such as "sell by," "best by," "expires on," and "use by." Manufacturers have broad discretion over what dates to affix to their food products, often using dates that typically reflect food quality and taste rather than food safety. Yet businesses, individuals, and even state regulators frequently misunderstand date labels and interpret them to be indicators of safety, leading to the unnecessary waste of whole-

[24] See either USDA site, https://www.usda.gov/foodlossandwaste/champions, or EPA site, https://www.epa.gov/sustainable-management-food/united-states-food-loss-and-waste-2030-champions

[25] Johns Hopkins University, https://publichealth.jhu.edu/2019/survey-misunderstanding-food-date-labels-linked-with-higher-food-discards

some food. Some states—currently about 20—even restrict or forbid the sale or donation of past-date foods that are still safe to donate and eat. These inconsistent and misguided state laws lead to wholesome foods unnecessarily being discarded rather than donated.

The **bipartisan Food Date Labeling Act**, introduced in the 117th Congress by Representatives Chellie Pingree (D-Maine) and Dan Newhouse (R-Washington) and Senator Richard Blumenthal (D-Connecticut), which establishes a nationwide standard for these two types of dates. The bill also critically requires FDA and USDA to educate consumers about the meaning of these date-label terms. Effective implementation of consumer education is essential for date label reform to result in meaningful change in consumer behavior.

Enable Surplus Food Donation

Nationally, less than 10% of food is donated rather than wasted. A handful of key legislations could help increase the amount of rescued food significantly.

Under current law, the federal enhanced tax deduction for food donations can only be claimed when food is donated to a non-profit that does not charge the end recipient for the food. **Expanding the federal tax deduction to include nonprofit sales** can incentivize donations to more recipients, including social supermarkets that sell donated food at an extremely discounted price or food rescue organizations that charge recipients a minimal fee to help offset the costs of home delivery. **Adding transport services for donated food as a separate cost eligible for an enhanced tax deduction** will also help overcome one of the most expensive barriers for businesses and food rescue organizations to get excess food to those in need. Furthermore, the existing federal enhanced tax deduction for food donations is not well-suited to farmers and is not often claimed by them, as many farmers operate at low profit margins and do not make enough income to claim a tax deduction. To incentivize farmers to donate surplus crops and offset some of the costs of donation (including labor), Congress could **provide an alternative tax credit that farmers could opt to claim instead of the existing enhanced deduction**.

The bipartisan **FIND Food Act,** introduced in the 117th Congress by Representatives Shontel Brown (D-Ohio), Chellie Pingree (D-Maine), Fred Keller (R-Pennsylvania), and Troy Balderson (R-Ohio), would broaden existing tax incentives for food donation in order to cover donated food sold at a low cost, to provide a deduction for transport of donated food, and to offer a tailored tax credit that farmers can claim as an alternative to the enhanced deduction.

Congress could also appropriate additional funds to support programs—such as the Farm to Food Bank Program created within The Emergency Food Assistance Program (TEFAP) in the 2018 Farm Bill—to **help cover the harvesting, processing, packaging, and transportation costs of donating agricultural products to local food banks**.

Lastly, Congress could strengthen liability protections for food donation in a number of ways, including: 1) broadening protections to include food items sold at a low cost and "direct donations," or food donations offered directly from certain food business donors to end recipients; 2) granting administrative authority of the federal Bill Emerson Good Samaritan Food Donation Act to USDA and directing USDA to write regulations that clarify the language of the Act; and, 3) requiring USDA to implement an education campaign on donation liability protection for potential food donors and food rescue organizations.

The bipartisan **Food Donation Improvement Act**, introduced in the 117th Congress by Senators Richard Blumenthal (D-Connecticut) and Patrick Toomey (R-Pennsylvania) and Representatives James McGovern (D-Massachusetts), Chellie Pingree (D-Maine), Dan Newhouse (R-Washington), and Jackie Walorski (R-Indiana), would expand liability protection along these lines, and would require USDA to issue regulations demystifying the liability protection.

Encourage Food Scrap Recycling, Especially to Feed

Bananas will always have peels. With even the most aggressive efforts to prevent and rescue food that's currently going to waste, there will always be food scraps. When those scraps are used for animal feed, they offset the need for dedicated feed crops. Sophisticated approaches are emerging such as start-up Do Good Foods, which pasteurizes and pelletizes food waste from grocery stores and converts it into poultry feed. Having recently received $169 million in funding, they are planning to replicate their model quickly.

State laws vary and some restrict waste to feed in some ways. To maximize the potential for food scraps diversion to animal feed, Congress should require the USDA to write guidance encouraging states to update their laws around food scrap feeding to animals, explaining why states should remove any unnecessary restric-

tions that do not exist within the federal-level animal feed laws. Congress should also create a tax incentive for private businesses to divert food waste to animal feed that is lesser than the enhanced tax deduction for businesses to donate surplus food to food insecure individuals in order to ensure food goes to its most beneficial use.

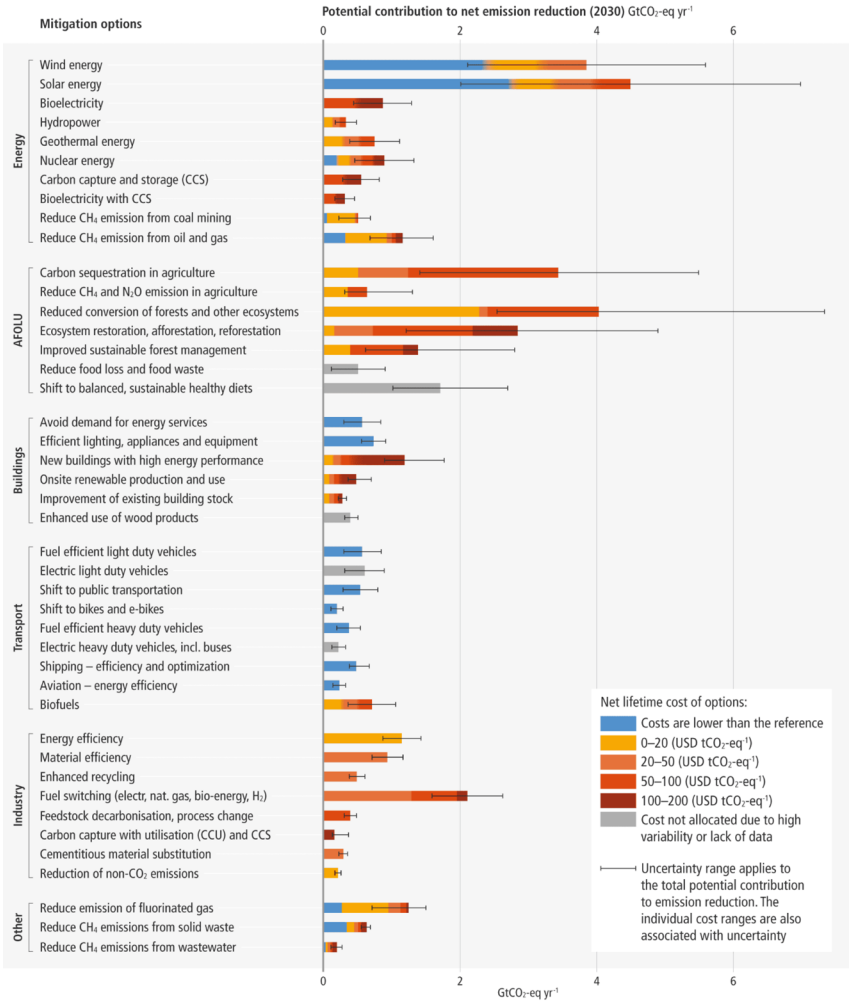
In Conclusion

Changes within food and agriculture offer an enormous opportunity to reduce our greenhouse gas emissions now, while time is of the essence, and policy has a huge role to play in doing so. I hope today will be just the beginning of your inquiries, and that you'll make space to investigate solutions to different aspects of the food system individually, as they merit.

In particular, reducing food waste entails a set of solutions that are available immediately, without any major technological advances required. It's also something everyone can get behind. No one wants to see good food going to waste and, in many cases, there is even money to be saved. Should you pursue solutions to this problem, you'll find there is a broad base of support behind you. Thank you for the opportunity to discuss these issues with you today.

Mitigation Potential of Various Options as Estimated by the IPCC

Many options available now in all sectors are estimated to offer substantial potential to reduce net emissions by 2030. Relative potentials and costs will vary across countries and in the longer term compared to 2030.



Source: IPCC Sixth Assessment, Summary for Policymakers, https://www.ipcc.ch/report/ar6/wg3/

Mitigation Potential of Food Waste Solutions as Estimated by ReFED

ACTION AREA	SOLUTION NAME	EMISSIONS REDUCTION ▼	ANNUAL INVESTMENT REQUIRED
	Portion Sizes	11.5M Metric Tons CO2e	$ 32.2M
	Meal Kits	7.53M Metric Tons CO2e	$ 727M
	Consumer Education Campaigns	7.41M Metric Tons CO2e	$ 103M
	Centralized Composting	4.94M Metric Tons CO2e	$ 1.34B
	Manufacturing Byproduct Utilization (Upcycling)	4.85M Metric Tons CO2e	$ 1.9B
	Waste Tracking (Foodservice)	4.78M Metric Tons CO2e	$ 1.09B
	Package Design	3.57M Metric Tons CO2e	$ 492M
	Markdown Alert Applications	2.85M Metric Tons CO2e	$ 1.18B
	Enhanced Demand Planning	2.78M Metric Tons CO2e	$ 275M
	Standardized Date Labels	2.73M Metric Tons CO2e	$ 8.09M
	Manufacturing Line Optimization	2.51M Metric Tons CO2e	$ 273M
	Active & Intelligent Packaging	2.43M Metric Tons CO2e	$ 257M
	Intelligent Routing	2.28M Metric Tons CO2e	$ 806M
	Decreased Transit Time	2.24M Metric Tons CO2e	$ 593M
	Assisted Distressed Sales	1.54M Metric Tons CO2e	$ 5.75M
	First Expired First Out	1.32M Metric Tons CO2e	$ 557M
	Temperature Monitoring (Pallet Transport)	1.17M Metric Tons CO2e	$ 222M
	Dynamic Pricing	1.05M Metric Tons CO2e	$ 1.04B
	Donation Transportation	1.01M Metric Tons CO2e	$ 442M
	Centralized Anaerobic Digestion	912k Metric Tons CO2e	$ 611M

Source: ReFED Insights Engine, https://insights-engine.refed.org/solution-database

Ms. CASTOR. All right. Thank you. Thank you for your testimony.

Next, Mr. Swisher, you are now recognized for 5 minutes to give a summary of your testimony.

STATEMENT OF KENT SWISHER

Mr. SWISHER. Good morning, Chairwoman Castor, Ranking Member Graves, and members of the Select Committee. I am Kent Swisher, President of the North American Renderers Association. Thank you for the opportunity to appear before you today.

NARA is the trade association representing the interests of the rendering industry in the United States and Canada. NARA's 32 member companies operate 178 rendering plants and represent over 95 percent of the North American production. The industry includes independent renderers, many of which are multigeneration family-owned companies, as well as integrated packer-renderers that process only their own animal byproducts.

The rendering industry accounts for over $10 billion in U.S. economic activity and employs tens of thousands of people across the country in full-time jobs with benefits. Renderers have operations in both rural and urban communities.

Rendering is the cooking and drying of meat and other animal byproducts not used for human consumption. Renderers are often referred to as the original recyclers and are a major force in ensuring a clean and healthy environment, upcycling the animal products that we do not want to or cannot eat into valuable proteins and fats for livestock feed, pet food, and industrial uses.

The U.S. rendering industry is essential to the reduction of carbon emissions into the atmosphere. Americans consider only about 50 to 60 percent of an animal edible, which means the other 40 to 50 percent is deemed inedible. Instead of wasting about half the meat we produce, rendering upscales these leftovers into essential ingredients for countless new products.

I would like to make three key points in my testimony today. First, the rendering industry is an essential pathway in creating a sustainable food system. Each year, renderers recycle a huge volume, more than 56 billion pounds of meat and bone leftovers. Rendering saves cropland. More than 13.6 million additional acres would have to be planted to make up for the protein and energy deficit that would result without rendered ingredients used in pet food, biofuels, and livestock feed.

Rendering prevents alternative disposal methods which lead to unnecessary GHG emissions. In fact, an average rendering plant sequesters five times more greenhouse gas emissions from the environment than it emits. If not for rendering, the nationwide capacity of available landfill space would be full in only 4 years. And if the byproducts were disposed of in landfills, during decomposition, they would emit large volumes of greenhouse gases detrimental to air quality, and runoff could threaten surface water quality.

Rendering is important and a critical part of the solution to reducing food waste. It is a solution that directly addresses food waste by finding practical uses for a wide range of leftovers that consumers consider inedible. Rendering makes the food production footprint smaller.

Second, renderers recycle billions of pounds of used cooking oil from food items like french fries into biodiesel and renewable diesel. Biodiesel and renewable diesel are important to reduce carbon emissions in the transportation sectors. In 2010, the EPA concluded that biomass-based diesel produced from used cooking oil and other recycled waste greases reduced lifecycle greenhouse gas emission by 86 percent compared to 2005 petroleum emissions.

Finally, renderers have been collecting and repurposing animal byproducts for decades, transforming them into valuable new products. These products are used extensively as ingredients in livestock and aquaculture feeds and pet food. Rendered proteins and fats provide essential nutrients and energy to keep animal agriculture and pets healthy and growing. In addition, rendered protein meals are a source of calcium and phosphorus, which can be used in animal feeds and organic fertilizer, helping reduce the reliance on imported fertilizer.

Renderers are early adopters of a resilient bio-based solution to reclaim and upcycle food waste. We are an essential element to the Select Committee's goal of achieving substantial and permanent reductions in pollution and other activities that contribute to climate crisis.

NARA supports a level playing field among recyclers to prevent unfair market advantage and unequal competition for animal byproducts. Renderers understand the need to fairly compete for raw material and goods, but not against companies receiving government financial incentives, providing them with added advantage. Federal support should not divert leftover meat and bones and other animal byproducts from traditional renderers to other recyclers.

In closing, NARA looks forward to being a part of the discussion as your committee considers future legislative initiatives. We would appreciate your recognition of the important role of rendering in sustainability and reducing carbon emissions. The rendering industry respectfully recommends that any legislative effort adequately recognize the early leaders in GHG reduction in order to avoid unintended consequences in the future.

Thank you.

[The statement of Mr. Swisher follows:]

TESTIMONY OF KENT SWISHER

PRESIDENT & CEO

NORTH AMERICAN RENDERERS ASSOCIATION

July 15, 2022

"Select Committee on the Climate Crisis hearing entitled "Climate Smart from Farm to Fork: Building an Affordable and Resilient Food Supply Chain"

Good morning Chairwoman Castor, Ranking Member Graves and members of the Select Committee. I am Kent Swisher, President & CEO of the North American Renderers Association (NARA). Thank you for the opportunity to appear before you to discuss pathways to create a sustainable food system that is resilient in the face of climate change.

NARA is the trade association representing the interests of the rendering industry in the United States and Canada. NARA's 32 member companies operate 178 rendering plants and represent over 95 percent of North American production. The industry includes independent renderers, many of which are multi-generation family-

owned companies, as well as integrated packer-renderers that process only their own animal by-products.

The rendering industry accounts for $10 billion in U.S. economic activity and employs tens of thousands of people across the country in full-time jobs with benefits. Rendering is unique among agricultural industries with operations in rural and urban communities. Rendering is the cooking and drying of meat and/or other animal by-products not used for human consumption.

Renderers are often referred to as the original recyclers. For centuries, the U.S. rendering industry has enabled society to follow this wise advice: "Nothing should go to waste." Renderers are a major force in ensuring a clean and healthy environment, upcycling the things we do not want to or cannot eat—animal bones, fat, or hides—into sustainable, usable, and higher-value new products for farmers, consumers, and industrial uses.

The U.S. rendering industry is essential to the reduction of carbon emissions into the atmosphere. Americans consider only about 50–60 percent of an animal edible, which means the other 40–50 percent is deemed inedible. Instead of wasting about half of the meat we farm and buy, rendering reclaims these unwanted "leftovers" in huge volumes and upcycles them into ingredients for countless new products—recycling 99 percent of this unwanted meat.

I would like to make three key points in my testimony today.

First, the rendering industry is an essential pathway in creating a sustainable food system. Each year, renderers recycle a huge volume—more than 56 billion pounds—of meat and bone leftovers from livestock and poultry farming, meat processing, supermarkets, meat lockers, and restaurants. Rendering also saves cropland. More than 13.6 million additional acres would have to be planted to make up for the protein and energy (fats/oils) deficit that would result without rendered ingredients used in pet food, biofuels, and livestock feed.

Rendering prevents alternative disposal methods which lead to unnecessary greenhouse gas (GHG) emissions. In fact, an average rendering plant sequesters 5 times more greenhouse gas emissions from the environment than it emits. If not for rendering, the nationwide capacity of available landfill space would be full in *only* four years. And if by-products were disposed of in landfills, during decomposition they would emit large volumes of greenhouse gases detrimental to air quality and runoff could threaten surface water quality.

Rendering is an important and critical part of the solution to reducing food waste—and one that many do not know of or talk about when having the sustainability conversation. It's a solution that directly addresses food waste worldwide by finding practical uses for a wide range of meat products, used oil, and other food materials consumers consider inedible. Rendering recycles and reuses this material to create nutritious pet food, animal and aquaculture feed, biodiesel, and countless other useful products—making rendering one of the most sustainable ways to reduce food waste. By reclaiming and upcycling otherwise discarded meat leftovers, renderers make our food production footprint smaller.

Second, renderers recycle billions of pounds of used cooking oil from food items like french fries into biodiesel, renewable diesel, and other essential ingredients. The rendering industry contributes to reduction of carbon emissions by providing a large volume of its recycled ingredients as feedstock to produce biodiesel and renewable diesel. Used cooking oil reclaimed by renderers provides 18 percent of biodiesel feedstock and rendered animal fats, 13 percent. Biodiesel and renewable diesel are important to reduce carbon emissions in the transportation sector. Biodiesel's feedstocks supplied by rendering have very low lifecycle carbon emissions. In 2010, EPA concluded that biomass-based diesel produced from used cooking oil and other recycled waste greases reduced lifecycle GHG emission by 86 percent compared to average 2005 petroleum emissions.

Finally, renderers have been collecting and repurposing these animal by-products for decades. Using technology-intensive controls running high temperature cookers, centrifuges, and presses, renderers transform this leftover material into valuable new products, i.e., high quality animal proteins and fats. These products are used extensively as ingredients in food for livestock, poultry, aquaculture, and family pets. Rendered proteins and fats provide essential nutrients and energy to keep animal agriculture and pets healthy and growing. In addition, rendered protein meals are a source of calcium and phosphorous, which can be used in animal feeds and organic fertilizer, helping reduce the reliance on imported fertilizer. Consumers need and use other products made from rendered proteins and fats, such as soaps, paints, varnishes, cosmetics, pharmaceuticals, crayons, textiles, lubricants, rubber products, plastics, agricultural fertilizers, and even explosives and fireworks. Renderers are early adopters of a resilient, bio-based solution to reclaim and upcycle food waste. We are an essential element to the Select Committee's goal of achieving substantial

and permanent reductions in pollution and other activities that contribute to the climate crisis.

NARA supports a level playing field among recyclers to prevent unfair market advantage and unequal competition for animal by-products. Renderers understand the need to fairly compete for raw material inputs but not against companies receiving government financial incentives providing them with added advantage. Federal support should not divert leftover meat, bones, other animal by-products from traditional renderers to other recyclers.

Moreover, the livestock, poultry and pet food industries need the essential protein and nutrients provided by rendered animal proteins. Renderers want to be able continue supplying these important customers with an ample and competitively-priced supply of animal feed and pet food.

In closing, NARA looks forward to being a part of the discussion as your committee considers future legislative initiatives. We would appreciate your recognition of the important role of rendering in sustainability and reducing carbon emissions. The rendering industry respectfully recommends that any legislative effort adequately recognize the early leaders in GHG reduction in order to avoid unintended consequences in the future.

Thank you for this opportunity to appear before the Committee today and discuss the role of rendering in ensuring the U.S. has a sustainable, climate-smart food supply chain, and I look forward to your questions.

Ms. CASTOR. Thank you, Mr. Swisher.

Dr. Cep, you are now recognized for 5 minutes to provide a summary of your testimony. Welcome.

STATEMENT OF DR. MELINDA CEP

Dr. CEP. Thank you. I am honored to testify this morning on behalf of the National Audubon Society, representing more than 1.8 million members together with 45 million Americans who enjoy birdwatching. I appreciate the opportunity to discuss how we can mitigate climate change and support biodiversity on working lands while building a resilient supply chain.

I would like to start by telling you about a visit to the Dakotas. I was meeting with ranchers, and one of them told me he knew the conservation plan that had been developed through our Conservation Ranching Initiative was working. He knew because his 90-year-old father, who still lived on the ranch, told him that the front pasture sounded like it had when he was a kid, because long-absent birds had returned. And he knew that a healthy grassland landscape, once again teeming with birds, was a sign of its improved productivity for grazing.

I could explain our bird survey results or share a lot of statistics with you this morning, but I think that stories like that demonstrate the impact of Audubon's partnership with farming, ranching, forestry, and fishing families across America. They know intuitively that birds are indicators of the health of the places that they love. So just the way they track the amount of grass during a drought or the water level during a rainy season, they talk about bird songs as the sound of success. They know from experience what scientists have proven: that their livelihoods are intertwined with biodiversity and climate change.

Global experts have concluded that one of the most important available actions we can take is implementation of sustainable agriculture and forestry practices. Doing so would increase carbon stores, reduce greenhouse gas emissions, support wildlife habitat, and improve our capacity to adapt to climate change. People who farm, ranch, fish, and produce timber feel the effects of climate change firsthand.

From 1980 through 2016, weather and climate disasters with losses of $1 billion or more averaged 6.3 events per year. But for the last 5 years, that has nearly tripled, to 17.8. We think of the wildfires in California, Oregon, Washington, and Colorado, the hail storms in Texas, the flooding in Louisiana, the hurricanes, tropical storms, and tornadoes in Florida and all around the Southeast, the derechos in the Midwest, and the droughts and heat waves in the West. That list is not the last 5 years. Those were all last year.

That escalation happened alongside the accelerating loss of biodiversity. North America today has only two-thirds of the wildlife it had in the 1970s, two-thirds. Wild bird populations have likewise plummeted by 30 percent, but the good news is that not every bird has suffered that fate. Species that communities and governments have committed to protecting through financial investments and legislative safeguards have rebounded.

I believe that the success stories shared in my written testimony demonstrate how climate smart agriculture and forestry can support biodiversity, resilient supply chains, and other important outcomes like water quality and quantity.

Those stories—the sharp-tailed grouse, which thrives in grasslands that are sustainably grazed and also store carbon and water; the swamp candle, which nests in bottomland hardwood forests that soak up floodwater and improve water quality; and the tricolored blackbird, adapting to habitat loss by nesting in forage fields at dairy farms—lift up the many benefits of optimizing working lands to support carbon storage, wildlife habitat, food production, water and more.

Audubon believes that such conservation must be and can be beneficial for all, including private landowners across the country and consumers. We recognize that different solutions are needed in different places, and we work to support durable conservation across communities and landscapes.

The conservation forestry research and extension policies and programs authorized in the Farm Bill are important to delivering those promises, but there is significant more interest in these programs than there is capacity. For example, 46 percent of valid applications for a single Federal conservation program went unfunded, meaning producers submitted and were interested in implementing $1.1 billion worth of voluntary conservation proposals above and beyond what the program could deliver in just 1 year.

We can and should expand these programs while also promoting the marketplace, private sector investments, and innovative partnerships like the ones in my written testimony. Such work is only part of what is needed to stem the tide of climate change and biodiversity loss. If we can scale up these programs to meet their demand, we can work together to improve climate, biodiversity, and water outcomes while simultaneously supporting a resilient supply chain and thriving communities. We do not face a zero-sum scenario. These goals are not in conflict with one another.

Thank you for the opportunity today, and I would be happy to answer any questions.

[The statement of Dr. Cep follows:]

"Climate Smart From Farm to Fork: Building an Affordable and Resilient Food Supply Chain"

House Select Committee on the Climate Crisis

May 24, 2022

Written Testimony of Melinda Cep

Vice President, Natural Solutions & Working Lands, National Audubon Society

Good afternoon. Thank you, Chairwoman Castor, Ranking Member Graves, and Members of the Committee for convening this hearing.

I am honored to testify on behalf of the National Audubon Society, representing more than 1.8 million members together with the 45 million Americans who enjoy birdwatching.[1] We have over 460 affiliated chapters, 23 state and regional programs, and 41 sanctuaries and nature centers across the country. I appreciate the opportunity to discuss how we can mitigate climate change and support biodiversity on working lands while building a resilient supply chain.

I would like to start by telling you about a visit I made last year to one of our ranching partners in the Dakotas. Audubon was meeting with ranchers for our Conservation Ranching initiative, and one of them, the third generation to raise cattle on that land, told me he knew our conservation plan was working. He knew because his ninety-year-old father had told him that for the first time in forever, the front pasture sounded like it did when he was a boy because long-absent birds had returned.

I could explain our Bird Friendliness Index or bird survey results, but stories like that one from South Dakota demonstrate the impact of Audubon's partnerships with farming, ranching, logging, and fishing families across America. These men and women know intuitively that birds are indicators of the health of the places they love, so just the way they track the amount of grass during a drought or the water level of their streams during the rainy season, they talk about bird songs as the sound of success. They know from experience what scientists have proven by experiment: that their livelihoods are inextricably intertwined with biodiversity and climate change.

Two years ago, when global experts on biodiversity and climate change came together for a first-of-its-kind workshop, they concluded that one of the "most important available actions" to simultaneously protect biodiversity and mitigate the effects of a changing climate is implementing sustainable agricultural and forestry practices at scale.[2] With these practices, we can increase carbon storage in farmland, grasslands, and forests; reduce greenhouse gas emissions; support wildlife habitat; and improve our capacity to adapt to climate change.[3]

Through partnerships like the one I just told you about, Audubon connects landowners and managers with the technical and financial resources they need to implement conservation practices that promote biodiversity and fight climate change.

The people who farm, ranch, log, and fish in this country feel the effects of climate change every day. We hear from ranchers who are considering hay to supplement grazing; farmers who have seen a spring so wet they wonder when they can plant and a fall so wet they worry when they will have a harvest; fishermen who say that salinity changes are devastating their catches while rising sea levels threaten their family homesteads; and foresters who have watched storms like Hurricane Michael devastate timber stands.

Since fiscal year 2018, Congress has provided the US Department of Agriculture (USDA) $15 billion for ad hoc disaster assistance to agricultural producers, on top of the federal crop insurance program and another $2.6 billion through farm bill disaster programs.[4] From 1980 to 2016, weather and climate disasters that entailed losses of over $1 billion averaged 6.3 per year; but for the last five years, that average has nearly tripled, with an average of 17.8 weather or climate disasters topping

---

[1] U.S. Census Bureau. (2018, October). National Survey of Fishing, Hunting, & Wildlife-Associated Recreation, https://www.census.gov/library/publications/2018/demo/fhw-16-nat.html

[2] IPBES. (2021, June 10). Tackling Biodiversity & Climate Crises Together and Their Combined Social Impacts [press release].
https://ipbes.net/sites/default/files/2021–06/
20210606%20Media%20Release%20EMBARGO%203pm%20CEST%2010%20June.pdf

[3] Portner, H., Scholes, R., Agard, J. 2021. IPBES–IPCC co-sponsored workshop report on biodiversity and climate change. DOI: 10.5281/zenodo.4782538

[4] Congressional Research Service. (2022, May 9). *Farm Bill Primer: Disaster Assistance.* https://crsreports.congress.gov/product/pdf/IF/IF12101

$1 billion every single year.[5] Think of the wildfires in California, Oregon, Washington, and Colorado; the hailstorms in Texas; the flooding in Louisiana; the hurricanes, tropical storms, and tornadoes in Florida, Alabama, and all around the Southeast; the derecho in the midwest; and, the droughts and heatwaves in the West. That's not the last five years, those were all last year, in 2021.

The escalation in weather and climate disasters has happened alongside the accelerating loss of biodiversity. North America today has only two-thirds of the wildlife it had in the 1970s, which is to say that in only a half century, we have lost one-third of all the wildlife that called this continent home. Wild bird populations in the United States and Canada have likewise plummeted by thirty percent in that same period.[6] But the good news is that not every bird has suffered this fate: those species that communities and governments have committed to protecting through financial investments and legislative safeguards have rebounded, including waterfowl, game birds, and some raptors.

We at Audubon are honored to be part of saving these species, including through our innovative partnerships with landowners and managers to conserve and restore bird habitats. We recognize that different types of solutions and interventions are needed in different places, and we work to support durable conservation across communities and landscapes. I would like to tell you more about some of our success stories, which I believe demonstrate how compatible climate-smart agriculture is with biodiversity.

Take the sharp-tailed grouse, a charismatic bird with brown, gold, white, and black plumage. Its habitat is threatened by the disappearance of America's grasslands. When those lands are converted from long-rooted, native grasses to anything else, we lose more than one-third of the carbon stored in the soil as well as habitat for grassland wildlife. To date, we have lost more than sixty percent of this unique landscape and more than half of its bird population.[7] [8] But in places like California, Colorado, North Dakota, Oregon, and Texas, Audubon supports keeping ranchers on the ranch through our conservation ranching initiative. Through this program, Audubon works with ranchers to develop conservation plans, certify the ranch as bird friendly, and support those value added products in the marketplace through an Audubon certification seal. Why would a wildlife organization develop and operate a program that puts a bird friendly land seal on packages of beef and bison products? Because this pioneering, market-based program supports the voluntary conservation and restoration of grasslands—which in turn supports grassland birds, climate mitigation, water quantity, and water quality. It is because of this program that a ninety-year-old rancher heard the sounds of his childhood again when the sharp-tailed grouse, upland sandpipers, and other birds returned to his ranch. We have seen an increase in both bird abundance and functional diversity of birds on certified ranches.[9]

In a different landscape, eastern forests, Audubon works with certified foresters and landowners to voluntarily integrate bird-friendly management. Our work shows that landowners can earn an income from private timberland, maintain the landscape, and support wildlife—including birds like the prothonotary warbler, nicknamed the "swamp candle" because of its brilliant colors, which breeds nearly exclusively in wet bottomland hardwood forests. Active forest management that preserves the swamp candle's habitat also helps create a more resilient landscape, as these forests soak up flood water, improve water quality, sequester carbon, and contribute to the surrounding rural economies. Audubon is protecting other warblers through similar forest management partnerships and programs, so if you are looking for maple syrup to pour on your pancakes this weekend, look for our "produced in bird friendly habitats" seal, another one of our important market-based programs, connecting maple producers with consumers.

Similarly, out in California, we work with dairy farmers and the Natural Resources Conservation Service to support the imperiled tricolored blackbird. This fascinating species is the last remaining large-scale, land-based colonial nesting bird. They nest in large colonies, sometimes as many as one hundred thousand nests be-

---

[5] National Oceanic and Atmospheric Administration. Billion-Dollar Weather and Climate Disasters. Retrieved May 12, 2022, from https://www.ncei.noaa.gov/access/billions/

[6] Rosenberg, K., Dokter, A., Blancher, P. (2019). Decline of the North American Avifauna. *Science,* 366 (6461), 120–124. DOI: 10.1126/science.aaw1313

[7] National Audubon Society. (2019). North American Grasslands and Birds Report. https://nas-national-prod.s3.amazonaws.com/audubon_north_american_grasslands_birds_report-final.pdf

[8] Rosenberg, K., Dokter, A., Blancher, P. (2019). Decline of the North American Avifauna. *Science,* 366 (6461), 120–124. DOI: 10.1126/science.aaw1313

[9] National Audubon Society. (2021, March 16). *Bird Friendliness Index Shows Audubon Conservation Ranching is Bringing Grassland Birds Back.* https://www.audubon.org/news/bird-friendliness-index-shows-audubon-conservation-ranching-bringing-grassland

fore their numbers plummeted. Adapting to the disappearance of their natural habitat, the tricolored blackbird now nests in forage fields at dairy farms in California's Central Valley. Audubon works with dairy farmers to provide technical and financial assistance for their operations, so they can continue to deliver safe, affordable dairy products to the American people.

The tricolored blackbird, the swamp candle, the sprague's pipit: these are just a few of the incredible species we are working to save while promoting climate mitigation and sustainable agriculture and forestry. Audubon believes that durable conservation must be, and can be, beneficial for all, including the dairy farmer, the rancher, and the private landowners across the country. We see the conservation, forestry, research, and extension policies and programs authorized in the farm bill as an important part of supporting such durable conservation. We rely on a mix of federal funds—including USDA programs like Regional Conservation Partnership Program (RCPP), Environmental Quality Incentives Program (EQIP), Conservation Stewardship Program (CSP), and Conservation Reserve Program (CRP); and the Fish and Wildlife Service—state funds, the National Fish & Wildlife Foundation, and private funding.

But there is significantly more producer and owner interest in these programs than they have the capacity to deliver. For example, the most recent data from USDA shows that 46 percent of valid applications for EQIP went unfunded, which means producers submitted $1.1 billion of voluntary conservation proposals above and beyond what the program could deliver in a single year.[10] In testimony before the House Committee on Agriculture earlier this year, Dr. Joe Outlaw of the Agricultural and Food Policy Center at Texas A&M University noted that "USDA conservation programs (CRP, CSP, and EQIP) that have incentivized a broad array of conservation practices have worked well in the past. They have just been underfunded."[11] Based on what we hear from our partners, Audubon believes that we can and should expand these federal programs while also promoting the carbon and ecosystem marketplace, private sector investments, and innovative nonprofit partnerships like the ones I have described today.

Such work is only part of what is needed to stem the tide of climate change and biodiversity loss. We must also achieve net-zero emissions and invest in natural infrastructure.

For example, in Louisiana, the state has partnered with federal agencies to protect the Mississippi River, which much of America relies on as a superhighway for food and commercial goods and which countless other species rely on, too. Diversion projects, like the Mid-Barataria Sediment Diversion and the River Reintroduction into Maurepas Swamp Project, make the wetlands more resilient, serve as storm surge protection for communities along the Mississippi, and provide crucial habitat for species like the bald eagle. And, in Florida the state has invested in climate resilience efforts, including restoration of the Everglades.

Audubon's work across the country points to the same conclusion: we do not face a zero sum scenario. Protecting the bald eagle or the swamp candle or the actual swamp does not threaten our supply chain, but can strengthen it. And far from resisting our conservation programs, our partners on ranches, rivers, farms, and forests across the country have an even greater appetite for these programs than we can presently meet. If we can scale up these programs to meet their demand we can work together to improve climate, biodiversity, and water outcomes while simultaneously creating a resilient food supply chain and helping our rural and coastal communities thrive. Thank you.

Ms. CASTOR. Thank you, Dr. Cep.

Next, Ms. Brown, you are recognized for 5 minutes to provide a summary of your testimony.

STATEMENT OF ELLY BROWN

Ms. BROWN. Thank you.

Chair Castor, Ranking Member Graves, and members of the Select Committee, thank you so much for the invitation today. I am

---

[10] U.S. Department of Agriculture. *2023 USDA Explanatory Notes—Natural Resources Conservation Service.* https://www.usda.gov/sites/default/files/documents/29-2023-NRCS.pdf

[11] Outlaw, J. (2022, March 16). *Testimony Before the U.S. House of Representatives Committee on Agriculture.* https://docs.house.gov/meetings/AG/AG00/20220316/114494/HHRG-117-AG00-Wstate-OutlawJ-20220316.pdf

Elly Brown, Co-Executive Director of San Diego Food System Alliance.

We are a diverse and inclusive network in the San Diego region committed to cultivating an equitable and sustainable food system. Most recently, we launched a 10-year plan and movement, San Diego Food Vision 2030, with the understanding that the time to reimagine and reconfigure our food system is now, and change must take root at the community level.

Food Vision 2030 was created through a 2-year participatory process, including over 250 organizations and 3,000 individuals, primarily individuals that are most marginalized by our dominant system: low-income residents, Tribal communities, farmers, fisherman, food and farmworkers, immigrant-owned food businesses.

And Food Vision 2030 outlines a set of objectives to achieve three goals: cultivate justice, fight climate change, build resilience.

For cultivating justice, access to resources connected to our food system are divided along racial lines, whether it is access to healthy food, access to capital, land, housing, business ownership, due to history and continued inequities.

Second, fighting climate change. As Dana pointed out, the truth is our industrialized dominant food system is the biggest culprit to the climate crisis. And at the same time, a localized food system that regenerates and recirculates resources is the most natural way to go, and truly is an impactful solution.

Third, building resilience. The pandemic has truly disrupted the food system, increase in food insecurity, business impacts. We have small-scale food producers in our region, small farmers and fishermen, small local food businesses that really struggle to survive every single day.

We need to do a better job of creating better safety nets for communities and more nimble systems that can really tap into these local assets that we have and not reliant on the larger industrialized system that is just not nimble enough.

As we look beyond the impacts of the pandemic, there is a significant opportunity to invest in a more localized food system to increase the amount of local food that is retained in our region, creating a multiplier effect.

According to a 2019 analysis by the San Diego Regional EDC, food system activities in our region generate over $35 billion in economic output and account for 15 percent of jobs in the region, representing a major contribution to the regional economy.

So my requests for the Federal Government, two really big ideas but very necessary: one, shifting power of the food system to community governance, to bioregional community governance. The current racial and climate inequities of the food system can directly be attributed to where power resides. We must shift power away from top-down control to local community governance and bioregions, a region that is defined by the characteristics of the natural environment rather than man-made. We need to center equity and values in our governance and allow for there to be adaptability for each foodshed. "Foodshed" is a term that is defined by the food resources in a particular bioregion.

Second, simultaneously the second ask is to resource, fund nimbly, and humanize the processes. Resources from the U.S. Govern-

ment rarely move nimbly to support community food projects led by communities. We need to remove burdensome barriers around permitting, applications, monitoring, compliance, and reporting if we are to truly create a supportive environment and resource impactful projects on the ground. Climate dollars, even if accessible, come with too many strings attached around monitoring and reporting. We need to build resource funding mechanisms which include both trust and accountability. Currently, the system feels off-balance, placing way too much emphasis on accountability mechanisms that is excessive and unrealistic.

We need to humanize, simplify, and streamline if we are truly to meet the climate and equity goals.

I wanted to end with an emphasis that, really, our goal should not be to fix our supply chain or fix our broken food system. It should be to transform it completely by confronting the injustices that underpin it and redistributing power across communities. And yes, it is a multigenerational effort.

Our Federal Government is one of the most important stakeholders in this transformation, and I encourage all of us to approach this issue with open minds and creativity.

Thank you very much.

[The statement of Ms. Brown follows:]

Testimony of Elly Brown

Co-Executive Director

San Diego Food System Alliance

U.S. House of Representatives Select Committee on the Climate Crisis

Community-Driven Regional Food System: Healing from the Climate Crisis

May 24, 2022

Chair Castor, Ranking Member Graves, and members of the Select Committee, thank you for the invitation today and recognizing the important role that the food system plays in the climate crisis. I am Elly Brown, Co-Executive Director of San Diego Food System Alliance (Alliance).

The Alliance is a diverse and inclusive network that works across sectors to promote collaboration, influence policy, and catalyze transformation in the food system. Our work is grounded in our shared platform, *San Diego County Food Vision 2030*,[1] and is informed by the experience and expertise of our network and the broader community. Together, we are working to cultivate justice, fight climate change, and build resilience in our food system.

Food System and the Climate

The food system is interconnected to the climate crisis. The industrialized global food system is one of the biggest drivers for global greenhouse gases (GHGs), while simultaneously being extremely vulnerable to the changing climate. On the other hand, a regionalized and community-driven food system is one of the most promising solutions to the climate crisis. Building soil health and closely connecting to our food sources, while confronting the injustices and redistributing power, allows us to ensure sustainability into our future.

We have really lost our way as a society. The industrialization of the global food system has directly contributed to the climate crisis. Land use changes like cutting down forests to make fields, practices that lead to soil erosion, fossil fuel use for equipment, transportation, refrigeration, and processing, and methane emissions

[1] San Diego County Food Vision 2030, https://sdfoodvision2030.org/

from livestock and food rotting in landfills make up 21–37% of global greenhouse gas emissions [2].

Increased greenhouse gas emissions in turn trigger climate changes—droughts, fires, and other extreme weather events—that threaten our food supply, the viability of farms and fisheries, producer and worker livelihoods, ecosystem resilience, and human health. Low-income, Black, Indigenous, and People of Color (BIPOC) communities, and other socially disadvantaged communities are disproportionately impacted by the consequences of climate change.

These negative impacts, both for nature and society, can be directly attributed to the consolidated power within the dominant economic system. Market concentration has created a culture of cheap and fast food for short-term gains. Rather than nourishing communities, the industrialized food system, heavily influenced by the decisions of this country, often plays a destructive role. Instead of keeping us healthy, it fuels chronic disease. Instead of supporting resilient communities, it exploits workers, worsens racial and income inequality, and drains money from local economies. Instead of working with nature in a regenerative, sustainable way, today's industrial farming methods devastate ecosystems, pollute air and water, and accelerate climate change. There is a significant cost to these social and environmental externalities, making us vulnerable and limiting our ability to build resilience in our food system and our society as a whole.

A way forward is to *recognize interdependence as a core value,* as indigenous communities have been for millennia. Interdependence is the recognition that one's well-being is tied to another's, as well as nature's. The earth is needing us now to heal and restore balance by shifting power to communities and respecting nature in the highest regard.

San Diego County Food Vision 2030

Rooted in a participatory process, the Alliance launched *San Diego County Food Vision 2030* [3] with the understanding that the time to reimagine and reconfigure our food system is now. The development process of Food Vision 2030 involved in-depth research and broad engagement, including over 250 cross-sector organizations and nearly 3,000 individuals, primarily low-income residents, tribal communities, food producers, businesses, and workers. Food Vision 2030, visualized through a report and an interactive website and indicator dashboard, outlines 10 objectives positioned to transform our regional food system to accomplish 3 goals: 1) cultivate justice, 2) fight climate change, and 3) build resilience. The 10 objectives are to:

1. Preserve agricultural land and soils, and invest in long-term food production
2. Increase the viability of local farms, fisheries, food businesses, and workers
3. Scale up local, sustainable, and equitable food value chains
4. Expand integrated nutrition and food security
5. Improve community food environments
6. Scale up food waste prevention, recovery, and recycling initiatives
7. Elevate wages and working conditions, and improve career opportunities
8. Build a movement that uplifts a local, sustainable, and equitable food system
9. Increase leadership by BIPOC communities across the food system
10. Plan for a resilient food system

There is no question that the current path of our food system is unsustainable and transformations must take root at the community level. Decisions made about food have a powerful ripple effect in all aspects of society. Changing the way we grow food, move food, share food, and think about food ultimately changes the way we treat the planet and each other. The food system is a powerful lever for transforming our communities, and provides significant opportunities to elevate social, environmental, and economic equity for all.

As we look beyond the impacts of the pandemic, there is a significant opportunity to invest in a more localized food system and increase the amount of local food that is retained in the regional food economy, creating a multiplier effect. According to a 2019 food system economic impact baseline analysis the Alliance commissioned with the San Diego Regional Economic Development Corp, food system activities in San Diego County generate over $35 billion in economic output and account for 15% of all jobs in the region, representing a major contribution to the regional economy.

---

[2] IPCC, 2019, Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems, [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.-O. Pörtner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)], https://www.ipcc.ch/srccl.

[3] San Diego County Food Vision 2030, https://sdfoodvision2030.org/

The role of the Alliance to steward Food Vision 2030 forward is through our four Operating Strategy tactics: 1) Build Networks, 2) Influence Policy, 3) Shift Culture, and 4) Increase Capacity. Our work is guided by a 21-member diverse Food Vision 2030 Stewardship Committee, a governing body for the broad network around this movement. Food Vision 2030 Stewardship Committee is a multi-sector committee representing the diverse set of strategies addressed in Food Vision 2030. The majority of the Food Vision 2030 Stewardship Committee members are organizers from communities most marginalized by the industrialized food system including food insecure neighborhoods, tribal communities, food and farm workers, immigrant owned businesses, and small farmers and fishermen. Our community organizing partner committee members are compensated for their involvement with the committee as well as support with community accountability and inclusion.

Some of the initial policy priority areas to move Food Vision 2030 forward include public land access and ownership for urban agriculture, wages and conditions for worker justice, supportive environments for community-wealth building models, and food recovery infrastructure. The Alliance has taken on an intentional community-led approach to policy development and prioritization, leveraging the wisdom of the Food Vision 2030 Stewardship Committee members and the communities they are engaging with.

The Alliance has also recently completed a co-design process with beneficiaries to launch the Local Food Economy Lab, a key program of the "Increase Capacity" pillar. The Lab centers equity and community ownership and works to support the viability of small farmers, fishermen, food business owners, and the communities they serve in San Diego County. We have recently received a 3-year U.S. Department of Agriculture Regional Food System Partnership implementation grant for the incubation of the Lab. Through the Lab, we plan to continue our partnership with the Federal government to achieve the mission of building a local food economy that works for everyone.

Requests for our Federal Government

To combat the climate crisis, we request the Federal government to engage in a comprehensive effort to reform the food system through two strategic initiatives:

1. **Community Governance:** Shift power of the food system to community control

   The current racial and climate inequities of the food system can directly be attributed to where power resides. We must shift power away from industry and top-down government control to local community governance. We must elevate the leadership of BIPOC communities who not only bear the brunt of climate change impacts but also actively practice the traditional wisdom and worldviews, living in harmony with nature.

   While the Federal government has proactively made investments to community food projects, it has also facilitated the industry-control of the food system through subsidization and broadly speaking, an economic system tainted by institutionalized inequities. In order to truly address the climate crisis for the food system, we must reimagine what democratic governance of our food system looks like and how to scale this out through in a decentralized manner. A truly community-governed and accountable food system is the only pathway to ultimately resolving the climate crisis.

2. **Resource Nimbly & Enable:** Eliminate barriers and move resources to community-driven food system work nimbly and without strings attached

   Resources from the U.S. government rarely move nimbly to support community food projects led by communities marginalized by the industrial food system (BIPOC grassroots groups, small farmers, small fishermen, small food entrepreneurs, etc.). We need to remove burdensome barriers around permitting, applications, monitoring, compliance, and reporting if we are to create a supportive environment and resource impactful projects on the ground. Climate dollars, even if accessible, come with too many strings attached around monitoring and reporting. We need to build resource distribution systems which include both trust and accountability. Currently, the system is off-balance, placing too much emphasis around excessive and unrealistic accountability mechanisms.

   For example, our network partner Foodshed Distro, a small farm aggregation hub, has recently taken on the leadership challenge of applying for a $5 million Federal grant to launch a "Carbon Sink Incentive Fund Pilot". While it's great these types of funds are available for small farmers, the match requirement and other strings make these types of applications incredibly difficult (and nearly impossible for most).

If we are serious about achieving climate and Justice40 goals, we need to place our energy on process, governance, and cultural innovations. We need to figure out how we can humanize and make these processes much more accessible. A local community-governed mechanism is a way in which decisions can be distributed about how these resources move to communities more directly. Meanwhile, our U.S. government should invest in deep capacity building and humanize processes to eliminate administrative barriers and move resources nimbly and quickly to community-driven food projects without excessive and unrealistic accountability requirements.

The common narrative told is that our food system is broken. However, further examination of the power dynamics illustrates that the system is actually working in the way it was designed. It concentrates wealth and power in the hands of a few, while externalizing social and environmental costs.

We produce more than enough food to feed our population. Scarcity is not the problem. As Frances Moore Lappé has highlighted, people do not go hungry from a lack of food but rather, from a lack of power—power to access food and power to acquire land to grow food.

Our goal should not be to "fix" our broken food system. It should be to transform it completely by confronting the injustices that underpin it and redistributing power across communities. Our Federal government is one of the most important stakeholders in this transformation and we encourage all of us to approach this issue with open-minds and creativity.

Thank you for your commitment to cultivating a just, sustainable, and healthy food system and addressing the climate crisis.

Ms. CASTOR. Well, thank you, Ms. Brown.

And thanks to all of our witnesses for your insightful and informative testimony.

Now we will move to member questions. And I am going to recognize Mr. Casten of Illinois first for 5 minutes.

Mr. CASTEN. Thank you, Madam Chair. And thanks to all our witnesses.

You know, this committee has been around for about 4 years, and it makes me sad that, after 4 years, many of our same membership, we continue to tell stories that are about trying to score political points and calling it science.

You know, our Ranking Member led off by criticizing the President for going to Saudi Arabia. But a while ago you criticized the President for tapping into the Strategic Petroleum Reserve. Both of those are to increase supply, to cut the cost of energy, to cut the cost of energy for our farmers, to cut the cost of natural gas so that our fertilizer cost will go down.

And I don't recall any noise when Donald Trump went to the Saudis and said, I am going to remove the military from your country unless you cut down on oil production so that we can increase the cost of oil so that we can save our oil industry. Price of oil went up double digits the next day. Crickets.

You do an admirable job of representing your district, Mr. Graves. You do an admirable job of repeating the talking points of your party. Your district depends on exporting fossil fuel.

Our fossil fuel industry is trying to sell and produce as much fuel as they can because they want access to European markets. That doesn't make them bad people; it makes them profit-seeking businesses. We just saw an example of that when that LNG terminal in Maine caught fire and the domestic price of gas fell.

So what are we going to do for the people who matter? How are we going to actually lower cost? We are going to do it by decoupling from fossil fuel, by not being beholden to Vladimir Putin. We are not going to do it by scoring cheap talking points.

So let's talk about the actual science here. If we are going to give a stable planet to our kids, to not have your kids staying home from school as the result of a wildfire, we have to not only stop emitting fossil fuels, we have to go backwards. We have to get back to 300 and 350 parts per million in the atmosphere.

In order to do that, the only ways that I have seen that actually profitably take CO_2 out of the atmosphere in the agricultural sector, we can put, you know, direct air capture in, but we are going to have to pay a lot of money for those.

And so, Dr. Cep, I would like to start with you. As you think about what tools we have—we hear a lot about approaches from biochart to short-rotation grazing to cover crops—what are the ways that we can actually increase the wealth for our farmers that would reduce as much CO_2 from the atmosphere as possible? Because we are out of time for politicking and we have got to start doing these things today.

So if you were queen, what are the areas you would like to see in the agriculture sector that we really focus on pulling CO_2 out of the atmosphere as quickly as possible that make sense for our farmers?

Dr. CEP. Great question. Thank you, Congressman. I would like to, if I can, kind of talk a little bit about the structure that is needed to implement the practices in addition to the practices themselves.

And I just want to underscore, so much of the type of conservation work and the type of sustainable practices that need to be implemented in the field at scale, not just kind of isolated, require substantial technical assistance as you are learning to implement them. And, frankly, right, like every field is different, every forest tract is different.

So part of that really relies on having a strong technical delivery service and system. So whether that is the Natural Resources Conservation Service, the technical assistance funding and the staffing capacity that they have, state agencies, partners, including Audubon staff. You know, we have rangeland ecologists out in the field helping develop management plans and conservation plans. We have certified foresters on staff.

So it is both about supporting the practice implementation, but also supporting the technical assistance, so that local solutions and what works best for specific soil types and specific microclimates that folks are producing in is really able to be delivered.

Mr. CASTEN. I know I am tight on time. We have got a program in Illinois where we have been paying farmers, allow them to reduce their crop insurance payments for every acre they put into cover crops. We have got a program to try to do that nationally.

Do you have any thoughts and comments on that and how broadly applicable that might be for the country?

Dr. CEP. Sure. So I am happy to follow up with you and your staff on that specific bill. I will admit just, you know, another anecdote. I am from the Eastern Shore of Maryland. Maryland has a really great state cover crop program that, again, was intended to—you know, that one was developed with an eye to the Chesapeake Bay health, and really resulted in a substantial adoption of

cover crops across—at a voluntary level across private working lands across the state.

And there are certainly different models and different ways to work to scale that, so I am happy to work with your office on that specific bill. But I think that creative solutions to make it financially feasible for producers to implement those practices across landscapes, not just in individual fields, is what is needed.

Mr. CASTEN. Okay. I am out of time. Thank you very much.

If anybody does have further comments with our office, I would also be interested in thoughts on short-rotation grazing and what that might do to improve soil health, but that is a longer conversation.

I yield back, Madam Chair.

Ms. CASTOR. Representative Miller, you are recognized for 5 minutes.

Mrs. MILLER. Thank you, Chair Castor, thank you Ranking Member Graves, for having this today.

I don't think anyone on this committee denies climate change. Our world has been changing ever since it was created, and we now have the science in order to deal with it, and we are learning every day what we can do to change it.

And, Chair Castor, I appreciate your concern over the flooding in southern West Virginia and Virginia, and recognizing the unique phenomenon that we have that often when it rains too much, because of our mountainous terrain, it has to go somewhere, and when there is too much rain it goes down. My community in Huntington had a flash flood because there were 4 inches of rain that hit somewhere else, and, boom, there it was. And, you know, my friends had 9 feet of water in their basements.

So I think what we need to do is work together on proactive solutions that fit our individual communities instead of trying one-size-fits-all mandates.

I am a bison farmer, and I have owned Swan Ridge Bison Farm near Milton, West Virginia, for the past 28 years. I am also a member of the Farm Bureau. I understand things like epizootic hemorrhagic disease, which occurs during droughts. I understand that sometimes the government does make suggestions or policies that end up not working, like multiflora rose as a living fence, which then became a nightmare later for farmers because they were fighting those multiflora roses all through their cropland. And I understand the lack of meat processing plants.

I am acutely aware of the struggles that our farmers and our ranchers face bringing their goods to the market. They often operate on such thin margins just trying to make a living, but they work hard. And I have seen bad years, where they face—when the harvest isn't particularly good, and I have seen it when herds succumb to disease.

As a farmer and a rancher, these things happen, and they are often out of our control. But there are some crises that we can play a role in fixing. Unfortunately, those bad policy decisions that have pushed inflation and gas prices and diesel prices to record high. Just this week, we learned that inflation last month was at 9.1 percent, the highest in 40 years.

For our food supply chains to thrive, it must first have the resources to do so. That means ensuring that we are making it easier to hire drivers to fix the worsening trucker shortage, lowering fuel costs for both transportation and farm work, and producing more fertilizer here in the United States.

It also means not allowing the liberal activists to dictate our energy and agriculture policies but, instead, why don't we listen and take some commonsense approach that balances the needs of our people with conserving our country for future generations.

Unfortunately, many of the people that live on both coasts where there is just so much population, they don't understand that it really is flyover country that not only feeds you but it heats you.

Mr. Swisher, as a bison farmer myself, I am aware of how important it is to make full use of the herd that we raise on our lands. Those who lived on the lands before us knew that they had to use every part of the animals they hunted in order to survive. And that is why I have such respect for your industry.

In your testimony, you mentioned the high-tech process that some rendering techniques use. Can you explain the supply chain crisis that we are facing today and how it has impacted your industry and whether that—through deliveries or equipment shortages?

Mr. SWISHER. Thank you, Congresswoman. Yes, the supply chain crisis has affected us in multiple ways. In one way, on our shipping of our products, so exporting our proteins. And we are highly dependent on the export markets.

We fill containers and ship product on containers. And, of course, you all know that there was a major issue getting containers to our plants, and containers were going back to Asia empty when we have product to put in those containers.

On the other side, we move a lot of raw material into our plants. We have a huge trucking fleet. We have pickups. Every grocery store you see, we probably have a truck going there picking up expired meat.

Every restaurant, even up here on Capitol Hill, will have a vat behind the restaurant that used cooking oil goes, and our trucks pick up used cooking oil.

But the cost of fuel, any disruptions in the supply chain affects our business on both ends.

Mrs. MILLER. Can you explain a little bit how the rendering industry actually uses all the food that isn't consumed and what they do, and what are some of the top products that you create?

Ms. CASTOR. And I think we will have to take that question for the record.

Mrs. MILLER. Thank you. I yield back the balance of my time.

Ms. CASTOR. Thank you very much.

Ms. Bonamici, you are recognized for 5 minutes.

Ms. BONAMICI. Thank you, Chair Castor and Ranking Member Graves. And thank you to our witnesses.

The food supply chain is both contributing to and being harmed by rising emissions and climate change. In the 2021 report, the U.N.'s Food and Agriculture Organization found that the food supply chain accounts for as much as 30 percent of human-caused greenhouse gas emissions.

Last year, the northwest cherry growers, including my home state of Oregon—they represent Oregon, Washington, Idaho, Montana and Utah—they estimated that the heat dome event of last June and July resulted in the loss of about 20 percent of the state's cherry crop. That is equivalent to 4 million pound boxes that never went to market.

I also want to recognize the passing of Sebastian Francisco Perez, a 38-year-old farmworker who died last year during the 115-degree heat wave in Oregon.

We must make our food supply chains more climate change resistant and resilient, but also mitigate the role that they play in fueling emissions, creating unnecessary waste and straining our natural resources.

So in Portland, Neutral Foods is a small business producing carbon neutral milk. They purchase verified carbon offsets and work with dairy farmers to reduce their overall carbon footprint through changes to grazing, manure, nutrient management. They recently applied for a USDA Climate-Smart Commodities grant to expand their important work to tackle emissions from beef production.

So I want to ask Ms. Brown, how can the Federal Government help small businesses and nonprofits that are seeking to address emissions in the agricultural sector to more effectively be able to access Federal grants, and which Federal programs have been most helpful in allowing you to meet your organization's goals?

Ms. BROWN. Thank you for the question. My second ask was really to conduct a comprehensive effort to examine how government can streamline and humanize these processes so they are a lot more accessible.

Currently, it is just not accessible, unless you have trusted technical assistance facilitators in the region to support with accessing these resources for farmers, low-income communities, grassroots groups.

For us, USDA Regional Food System Partnership was an interesting example which allowed us to create a new program that will help support us being the facilitator of further resources and support our communities.

And another example that I wanted to highlight is, recently, our partner, Foodshed, which is a small farm aggregation hub in San Diego County, has taken on a leadership challenge to apply for a $5 million Federal grant for a Carbon Sink Incentive Fund pilot. And they have really smart people in that team that has experience in grant writing, and they have been complaining of how cumbersome that process is. Finding matching funds is pretty much nearly impossible, and most farming groups do not have professional grant writers on the team.

Ms. BONAMICI. Thank you. That is really helpful. In fact, I just met with a vineyard owner in Oregon recently. They used some Federal assistance to transform their energy and now have almost all their energy coming from solar panels, and it is going to pay for itself in just a few years.

I have a question for Ms. Gunders. In your testimony, you outlined a number of bills that have been introduced and, if enacted, would address food waste challenges. What food waste related issues have not received sufficient attention from Congress?

Ms. GUNDERS. Well, I think the ones that are starting to receive more attention are the extension of liability protections for food donation. There has been quite a lot of attention toward food donation lately.

What is not receiving attention is how to prevent the food from going to waste in the first place. You know, whenever food is wasted, there is money wasted with it. So things like how much food is being wasted in food that is purchased by the Federal Government, you know, any sort of measurement techniques to understand how much does the Department of Defense, a huge purchaser of food, actually wind up throwing out and all of the cost of that with it.

So that has been something that has not received very much attention lately at all, or ever.

Ms. BONAMICI. I appreciate that. And, you know, I think it is important to note that in many places in this country we have significant amounts of food insecurity, and we can do a much better job of aligning the food waste issues and addressing the serious problem of hunger in our communities.

And I am going to yield back the few seconds I have remaining. Thank you, Madam Chair.

Ms. CASTOR. Thank you.

Next, we will go to Mr. Levin. You are recognized for 5 minutes. Oh, excuse me. Excuse me. My fault.

Mr. Palmer, good morning, you are recognized for 5 minutes.

Mr. PALMER. Thank you, Madam Chairman.

On the food waste, I would just like to point out that a lot of food waste in our country is in our public schools and the direct result of government food programs that began with the Obama administration. After Michelle Obama's nutrition program went into effect, there were over a million, almost 1.1 million school kids just quit eating school lunches altogether. And it is now estimated that roughly somewhere between 30 and 50 percent of all food in the public school systems is thrown away. So I think that needs to be part of the discussion.

I am also—it is interesting to me how—and both sides are guilty of this, of politicizing this. But the facts are the facts. And if it weren't for fossil fuel, we would have hundreds of millions of people malnourished and possibly starving to death.

But the fact of the matter is, since we have introduced modern farming techniques that are fueled with fossil fuels, machinery like tractors, harvesters, planters, transportation vehicles, processing equipment, refrigeration—I mean, these are all things that are byproducts of the fossil fuel industry—even though the world population has doubled, you can't see this, but the number of people who are dying from starvation has gone down, I mean, like a sinking ship. That is a good thing.

And what we found is that when you introduce these policies that are being advocated for how we produce food and how we provide energy, it can have catastrophic results.

Just look at Sri Lanka. You have got people marching on the government capitol, because in Sri Lanka and the Netherlands, we have just seen this, of the dire crisis that government mandates create. Poor attempts at environmental policy through government

mandated chemical fertilizer bans in Sri Lanka created a food price spike and economic peril that the people are suffering through right now. The country is on the verge of collapse.

I mean, you have got to think about the unintended consequences. My colleague mentioned someone who died from heat exposure. And I keep pointing this out and they don't like me to point it out, but Lancet, other medical journals in the world, have made it clear that there are 17 times or more people die from cold-related issues than heat.

I grew up dirt poor. We grew most of our own food. I am thankful that my grandpa had a tractor. I am thankful that we had a freezer and a refrigerator. I am thankful that there were places that we could go that utilized modern techniques to process some of the food that we produced.

I just don't understand why we want to go so headlong into adopting policies that are clearly going to have a very negative impact on people's lives. That is astounding to me. It is almost like we have people who think that we need to enforce some form of population control and that that might include starvation. I am not accusing anybody of that. I am just saying that what is happening in Sri Lanka is, I think, evidence of going too far too fast.

Mr. Swisher, I appreciate the work that you are doing. I just wonder if in your efforts in food rendering and the work that you are doing, if you have contacted the public school systems to get access to the food that is going out in the trash cans every day.

Mr. SWISHER. Thank you. We have, as I said earlier, networks of trucks that go to restaurants, and that would include schools, but we pick up meat scraps. So the meat scraps from any, you know, commercial establishment or restaurant would be a place that we would visit and recycle that material.

Mr. PALMER. I don't think they are throwing out the meat. I think it is the other stuff.

With that, I yield back.

Ms. CASTOR. Next, Mr. Levin, you are recognized for 5 minutes.

Mr. LEVIN. Thank you, Chair Castor.

You know, today is a tough day for those of us that want to see climate action commensurate with what science demands. But make no mistake, to those who demand action, particularly the next generation, we see you, we hear you, and we will not stop until the actions that we need are taken.

Now, on to the topic of today's hearing. I am particularly glad that the Select Committee gets the opportunity to hear from Elly Brown, Co-Executive Director of the San Diego Food System Alliance.

San Diego Food System Alliance is a visionary organization in our region, fostering collaboration across all aspects of our food system in order to build a more sustainable, healthy, and fair food system.

San Diego County Food Vision 2030, which the Alliance developed over 2 years and created in collaboration with our community, is a testament to that vision. Food Vision 2030 provides a 10-year roadmap for a food system that enhances the vitality of our local communities, protects our environment, and creates additional economic opportunities within our county.

For those who don't know, San Diego County is home to a robust food system. Across the county, food system activities generate over $35 billion in economic output and account for 15 percent of all jobs in the region. However, our local food system faces a myriad of challenges, from high operating costs to entrenched systems of inequality to a climate crisis that exacerbates water scarcity and other environmental stressors.

With this context, let me start off with a basic but important question for Ms. Brown. Given all the challenges farmers and other producers in our region face, why is a strong local food economy and agricultural sector key to San Diego's success?

Ms. BROWN. Thank you, Congressman Levin. It is an honor to be here to represent San Diego and our work in our region.

As I mentioned, $35 billion in economic output, that is significant. The majority of the food that is produced in our region, small farms, small fisheries, most of this food is exported. During the pandemic, the entire supply chain shut down, and many of us really had to step up to support our local food producers.

So imagine if we can create a more just food system for our local food producers and one that really looks at the environment and one that really looks at equity. There is a significant opportunity here. And keeping things localized can help us build more human relationships and really address that pain that everybody is talking about in the need for transition to one that we are really looking at the economy from many different ways.

So I love the local work, because it allows us to have real relationships and understand the needs on the ground and the realities on the ground of these farmers, fishermen, food businesses.

Mr. LEVIN. Thank you for that answer.

How can investing in local food systems help communities, especially underserved communities, become more resilient to the impacts of climate change, like drought and water scarcity?

Ms. BROWN. Yeah. Well, in terms of communities, there are a lot of issues. Food insecurity. These communities are at the front lines of climate change impact. So we need to address the issues, the symptoms first, the current inequities, through all tools available by government, public assistance grants, local incentives, to try to flow more resources into communities and towards a healthy local food economy.

And I speak specifically from the food system lens because that is the work that I am in. But at the same time, we also really need to address the root, and that these issues were not just created through the food system; it was through the history of injustices of the dominant economic system, and we need to redistribute power.

I wanted to provide a quote of Frances Moore Lappe: People do not go hungry from a lack of food, but rather from a lack of power—power to access food and power to access land to grow food.

Mr. LEVIN. I was also impressed by your local food economy lab and excited to hear about the USDA grant that you received. Can you expand on your vision for this lab and explain why building capacity at the local level is a key element of strengthening and increasing the resilience of a regional food system?

Ms. BROWN. Yes. This new program, through the Regional Food System Partnership grant, we have just co-created this program,

the Local Food Economy Lab, with the beneficiaries—farmers, fishermen, and food businesses—in our region in terms of what they were looking for. And the program is now a pretty robust program, which includes peer mentoring, customized support services, as well as financial support for these businesses. And we intend to work with an ecosystem of technical assistance providers in this region.

The intention is to really support the viability of these businesses and to treat it as sort of an experiment that we are observing over time in terms of how we are doing, setting ourselves accountable in terms of the goals that we want to see, and also to supporting with models that are different type of economic models that will help build community wealth, cooperatives, worker-owned businesses. These businesses, it is just not a common thing here in the United States, so we want to see how we can make these businesses viable in our region.

Mr. LEVIN. Thank you again. I am out of time, but thank you for your work on behalf of all of San Diego County.

And, Chair, I will yield back.

Ms. BROWN. Thank you.

Ms. CASTOR. Mr. Carter, you are recognized for 5 minutes.

Mr. CARTER. Thank you, Madam Chair, and thank all the witnesses for being here.

And I want to say right off that I really appreciate the fact that we are having this hearing about rural America. A big part of my district is rural, a lot of ag, a lot of forestry. And this is important because, just as I don't feel like the United States gets the credit for the decrease in carbon emissions that we have achieved over the years, I don't think our farmers, I don't think our foresters get the credit that they deserve for what they have done with sustainable forests serving as carbon sinks.

Our farmers who are producing more food, more fiber, more feed and renewable fuels without many using more resources. The United States farmer feeds the world, and here we are trying to criticize them for carbon emissions, for—it just baffles me.

I want to read you a couple of things here. First of all, agriculture productivity in the U.S. increased 287 percent from 1948 to 2017. American farmers now require 40 million fewer acres or 33 percent fewer acres in 2018 to produce the same amount of corn it would have had to in 1990. Four million fewer or 27 percent fewer for cotton.

And, you know, perhaps the most attacked part of farming, of agriculture, is livestock, but they continue to reduce their emissions. Emissions per unit of beef production have declined 8 percent since 1990, eighteen percent unit of pork, and 25 percent unit of milk. Even the Secretary of Agriculture appointed by President Biden, the Democratic Secretary of Agriculture said, and I quote, "I do not think we have to reduce the amount of meat or livestock produced in the U.S. And a significant percentage is exported. It is not a question of eating more or less or producing more or less. The question is making production more sustainable." End quote.

That is the Secretary of Agriculture. The Democratic Secretary of Agriculture said that. American farmers are part of the solution. They are not part of the problem.

Mr. Swisher, I appreciate you being here. And I want to start by saying that one of your members is located in my district, in Alma, Georgia in Bacon County. And I have visited there often and quite impressed with the work that they are doing there. But when I was listening to your testimony on the magnitude of animal byproducts that are recycled every day across the U.S., it reminds me of the critical role that renderers play in the sustainability of animal production systems by utilizing nearly all of the byproducts, almost all of the byproducts from the production of meat. In addition to preventing waste, they are also providing sustainability produced inputs of multiple consumer products we use each and every day.

So let me ask you, can you talk about some of the key inputs that renderers provide for the supply chain that would not exist without your industry?

Mr. SWISHER. Yes. Thank you. We produce meals in fats and oils, so one really positive success story that we have is that we replaced fishmeal in aquatic rations so over time fishmeal production has been flat. Since the eighties, it hasn't increased. And aquaculture production has skyrocketed. And so because we are an animal protein, we fit in those rations much better because of our amino acid complex and things like that. So we are replacing fishmeal on a global level in Indonesia and other countries as well.

And then our fats and oils, you know, back in the early 1800s, we produced candles and things out of beef tallow, and those markets have changed over time. And now, we are producing more renewable diesel and biofuel as a complement to the liquid fuel.

Mr. CARTER. Well, let me ask you this. Earlier one of the other witnesses indicated that most of our landfills were animal products. Do your members, are they filling up the landfills or are they recycling byproducts?

Mr. SWISHER. We are recycling byproducts. We are keeping the raw material from going to landfills. And we are producing things like meals and fertilizers and fuels.

Mr. CARTER. You know, that is the one thing that bothers me about this committee. If I could, Madam Chair, just please indulge me. You know, the whole cycle—you got to look at the whole cycle. You cannot look at just one part of it. This is the whole cycle, and recycling the byproducts is part of the cycle.

Thank you. And I yield back.

Ms. CASTOR. Next, Ms. Brownley, you are recognized for 5 minutes.

Ms. BROWNLEY. Thank you, Madam Chair. And thanks for holding this hearing. I have been looking forward to it.

So my first question goes to Ms. Gunders. Food waste is a very large contributor, as we know, to greenhouse gas emissions, and as you have said, there are bills in Congress to address a myriad of labeling confusion. Can you speak to the labeling issue and its—and its contribution to food waste and climate change?

Ms. GUNDERS. Absolutely. Thank you. And first, I would like to clarify that I actually did not say animal products were filling up landfills, but food scraps overall, all types of food are the number one product entering landfills today.

On your question for date labels, yes. So the used by, best by, sell by, enjoy by, the many words that you see to describe the dates

on food are actually quite confusing to consumers, and consumers are misinterpreting those dates to mean that they are supposed to throw the food out. So about 86 percent of consumers are somewhat confused around the dates and are, therefore, throwing food away prematurely.

There is no Federal regulation for these dates. Consumers and many—I am sorry—manufactures can put whatever they want onto the product.

The solution that we see is to standardize the food date labels to have two phrases—one that is about quality and one that is about safety—and to require only those two phrases be used as a way to create actual definitions and be able to communicate with certainty to consumers and reduce confusion up there.

There is a bill that is currently introduced in this Congress to create that standardization. There is an industry voluntary agreement. And much of the industry is actually behind this change, including companies like Unilever.

Ms. BROWNLEY. Thank you for that. And staying on the same subject of labeling, what impact do you think labeling restrictions on alternative proteins, milks, and cheeses may have on their adoption, and how important is adoption to combatting climate change?

Ms. GUNDERS. Yes. Well, my understanding of the alternative protein realm is quite limited, but I understand that there are some labeling issues that, you know, that they would like to be able to call things—like almond milk, they would like to be able to call that milk still.

I think that, you know, there is no single bullet, but offering alternative products that are similar to animal products is one of the tools in the toolkit to having us reduce our overall consumption of meat as we look forward. And I think it is important to note that food demand is predicted to increase quite a bit by—the U.N. Predicts we will need about 50 percent more food by 2050 to feed our global population than we do today.

So I think when we are talking about reducing consumption, it is not necessarily reducing production but, rather, trying to freeze the footprint of food at what it is today in order to feed a growing population and that growing demand.

Ms. BROWNLEY. Thank you.

And staying on the same theme, Ms. Cep, so recently in grocery stores I have noticed that some food producers have begun to label their foods as carbon neutral. Do you believe creating a uniform climate-friendly labeling standard would help address climate impacts of food production and incentivize consumers to choose more climate-friendly alternatives just similar to calorie labeling and nutrition labeling?

Dr. CEP. Thank you for the question. So I think more generally, market-based conservation programs have the potential to diversify income opportunities for producers, which is great, and provide a signal from the marketplace to support durable on-the-ground conservation of climate smart, like adoption and large scale adoption in particular of climate-smart practices.

I think that there are certainly, you know, a wealth of different ways of approaching front-of-package labeling and doing so in a way that is consistent, fair, and transparent for consumers, and

also reflects the science of the practices and the outcomes in the field. And balancing that so that it is accessible for consumers in the marketplace is certainly needed. But those signals do have the potential to really help support large scale adoption of the practices, which is what we have talked about today is really being needed to realize the natural solutions potential of working lands.

Ms. BROWNLEY. Thank you.

With that, I will yield back. Thank you, Madam Chair.

Ms. CASTOR. Thank you.

Representative Graves, you are recognized for 5 minutes.

Mr. GRAVES. Thank you, Madam Chair.

Madam Chair, I want to respond to some comments that were made earlier.

First of all, comments were made that President Trump asked Saudi Arabia to cut oil production. I read the same reports, and that was in April of 2020. And I want to make note that oil prices at the time were actually in the negative range. They were in the negative range. You know, so if we are going to sit here and we are going to talk about oil prices, let's do that.

Can you come hold these for me, Huffman?

So look at what has happened with gas prices. This is during the Biden administration. So we were talking about prices—my friend was talking about prices when they were negative, literally the oil futures were negative. And so, yes, he did go to the cartel and ask them to cut production so we could continue to have energy production in the United States.

And here is why. We have some of the lowest emissions in the world for units of energy produced here. Why would you want to kill that industry? So this is what has happened during this administration. So to suggest that there were issues with that conversation, fascinating.

Now, look, I don't have a crystal ball. As Mr. Huffman will tell you, I am not even very smart, but this was January 27 of 2021, okay, last year, January of last year. I could recognize what was going to happen with energy prices, and I said then, as a result of the executive orders and the other actions the Biden administration was taking, we are going to have higher electricity bills; higher prices at the gas pump; lost revenue sharing for hurricane protection, flood control, and coastal restoration in my home state of Louisiana, Alabama, Texas, Mississippi, and others; higher delivery costs for products being delivered all across the United States; more dependence on foreign energy from China, Russia, Iran, and other countries; a net increase in global emissions as a result of getting energy from other countries and off-shoring services. I have got to tell you, that is batting a thousand. That is better than I ever did in college.

So, you know, I don't think that this stuff is really rocket science here. In fact, it is so much not rocket science, you could make a cartoon off of what has happening right now and somebody apparently did. President Biden saying we don't want to pollute the air with our fossil fuels, so then he is going to Saudi and saying, can we use yours? That is exactly what has happening right now. This is completely baffling to me that that is what we see have going on—that is what we have going on.

The last thing is, is this right here. This is a letter from Senator Cantwell, Senator Menendez, Senator Markey, and Senator Schumer. Just read this one: "The current runup in world oil prices is effectively a tax on every American family's discretionary budget, except that the money goes to the OPEC cartel rather than the U.S. Treasury." Couldn't agree with them more.

I want to highlight this word "tax," because when you go back and you look at—you go back and you look at this one right here. That, that is a tax. President of the United States said that no one making less than $400,000 was going to get a tax. Cantwell, Schumer, Menendez, and somebody else—Markey—thanks—and Markey said that is a tax. That is a tax. Every American is paying it. It is pushing people into energy poverty. People have the false choice of deciding if they are going to open up—excuse me—if they are going to pay their electricity bill, fuel their car, or get groceries. This is unbelievable. And I am going to say it again, it is resulting in higher emissions.

I want to ask, I believe, you, Doctor, when you carry out better farming practices, as you noted, I assume that that results in sequestered greenhouse gases, improves sequestration of greenhouse gases. Is that accurate, or potentially?

Dr. CEP. Right. Yes, sir. The hope, right, is that by implementing sustainable practices you are storing more carbon in the soil, you are improving the water infiltration rate, right, like, and the list of co-benefits goes on. It is also improved habitat potential for wildlife. Yes.

Mr. GRAVES. Thank you. I didn't mean to go off on a diatribe, as I just kind of ate all of my time. So I am going to—I didn't have much coffee today. But I am going to yield back. I am going to submit some questions for the record because I do have a number of them. But I do want to note to my friend, Mr. Huffman, that your witness just said that sequestration is an option.

Ms. CASTOR. And we will go to Mr. Huffman for 5 minutes.

You are recognized.

Mr. HUFFMAN. Well, thank you, Madam Chair. I want to commend you for trying to have a serious conversation about how agriculture and our food supply can be part of the climate solution, how we can build a more affordable and resilient food supply chain.

So just for those maybe watching this hearing, this is not another rerun of the I love oil show. We see that rerun all the time around here. We are trying to talk about food security and resilience. And the piece of this that I am most interested in is food waste. And for those of our witnesses who work in this field, I just want to tell you, I think your work is so important. I want to make sure you know that it is appreciated.

And I would think food waste could be just something we would find common cause on. It seems like such an obvious thing to tackle together. It is a huge contributor to climate change. A report by the EPA found that annual greenhouse gas emissions of food loss and waste alone equals that of 42 coal-fired power plants. The annual water and energy used in food waste is enough to supply 50 million homes. So why would we not want to tackle this together, use our food better, reduce waste, and improve food security?

And by the way, there is a lot of methane involved in that food waste. And if we care about inflation, addressing food waste actually saves families money. So it is a win on so many levels.

Ms. Gunders, I want to ask you for some ideas for how Congress can tackle this issue. What are some thoughts about how we in Congress can invest upstream to try to reduce food waste?

Ms. GUNDERS. Thank you so much. And absolutely, I think it is a solution to the increasing prices that we are seeing today. You know, even—several studies have shown that lower income households and higher income households actually waste approximately the same percentage of their food budgets. And so helping those folks, especially in lower incomes, stretch those food budgets is a really important component especially today. And that is where really focusing on consumer food waste is an important place to focus, such as a national consumer campaign that really helps educate consumers, gives them the tools to stretch those food budgets.

Another place further upstream is creating a national public-private partnership. There is a really successful start to a public-private partnership on the West Coast right now. We have seven retail signatories, including Walmart, Kroger, Albertsons, some of the largest who are participating and working precompetitively to identify opportunities, and taking that type of partnership national can really expand the potential. They are piloting all sorts of new projects. They are sharing learning. They are looking at specific sectors, like dairy and produce, and how can they reduce waste, you know, through the manufacturer, even in production all the way through to retail. And so really looking at some of those partnerships is critical, and funding a national one would be a key step.

Another is looking at opportunities in schools. There are things that can be done, such as share tables being put out. All around the country, share tables are popping up where students who don't want their food can put it on a table and those who would like more or to take some home are able to take that food. Simple solutions like that can be elegant.

Another are milk dispensers. So instead of putting milk in little cartons, it can be in a dispenser, and those students who care for milk can take what they would like, and those who don't, don't have to just take the carton and put it straight into the garbage.

Lastly, I think, you know, waste is often a locally governed or jurisdicted issue. And so really providing funding to local and state jurisdictions to explore policies in this area, to fund technical assistance, food waste prevention programming can be a great solution as well.

Mr. HUFFMAN. Yeah. Well, thank you. And in the time that I have left, let me just respond to the suggestion earlier that by promoting healthier school lunches, Michele Obama somehow contributed to food waste because a million kids stopped eating their school lunches. Let's be clear. If Michele Obama had endorsed Twinkies, FOX News and right wing media would have promptly declared that Twinkies are yucky and a million people would have stopped eating them because that is what their parents and FOX News told them to do.

I have seen in my district and in my state and around the country that healthy food can also be yummy food. And so I hope we

can dispose of that canard and get back to the subject of healthy, nutritious food and reducing food waste and having a more resilient food system.

So thanks. I yield back.

Ms. CASTOR. All right. And next, we will go to Ms. Escobar. You are recognized for 5 minutes.

Ms. ESCOBAR. Thank you, Madam Chair. And many thanks to our panelists who are here today, both in person and virtually. Really grateful to all of you for your work.

Food is a really critical component of the effort to tackle the climate crisis. And so, Madam Chair, thank you for bringing us back to focus on really practical solutions and ideas around food. And I think too many Americans don't realize the power of their decisions as consumers and the impact that those decisions have on the climate crisis and the climate emergency.

Our country wastes between 30 to 40 percent of the food supply. This is not just immoral, but it is devastating to the environment. I do applaud communities and people across the country who are working to change that.

In my own home district of El Paso, Texas, we have seen a rise in urban farms, such as Fossil Face Farms, helping tackle food insecurity in our community and helping educate the community by showing individuals how to farm and garden effectively at a low cost.

There are also local organizations, such as No Lost Food, that provides meals to families in need by also focusing on reducing the food waste that goes into our landfills.

Congress has to do more, but we have to support, not just the local urban farmers, agricultural organizations, and ranchers who face climate-related risks to the food supply chain, but we also have to do everything possible to legislate around that and educate the public as well.

Ms. Gunders, I have a couple of questions for you—actually, I have one question for you. Can you please talk a little bit more about the importance of adopting existing technologies to reduce food waste and what Congress must do to encourage food waste technology innovation?

Ms. GUNDERS. Absolutely. There is an explosion of innovation right now happening around food waste reduction, and some of it is incredibly successful. So we are seeing things like using big data and machine learning to improve forecasting for retailers, using new types of imaging and technical vision to evaluate the quality of products, using sensors to evaluate how much temperature exposure has happened and allowing companies to route products that have a shorter life to places that are closer and that have a longer life to places that are further.

There is a ton of technology popping up. And yet it is, you know, taking some time to innovate and to be adopted. And so, certainly, incentives that would help both create more incentives for R&D and innovation as well as for early deployment and adoption of some of the technologies that are proven would be hugely impactful.

Ms. ESCOBAR. Well, I agree. I think those incentives are really important so that we can ensure that there is an urgency to that

innovation and we get it into the marketplace as quickly as possible.

I have a question for Elly Brown. Ensuring that families have affordable and healthy foods is crucial, especially in economically disadvantaged communities like my own. Not having healthy options leads to health risks and environmental impacts that affect the most vulnerable.

Can you please explain the importance of improving community food environments, especially in economically disadvantaged communities, and what policies, specifically what Federal policies, are necessary to ensure that food environments improve?

Ms. BROWN. Thank you for this question. Really, the reality is that our current dominant food system, that is, one that is very top down fuels chronic disease, and most of the folks that live in communities where, you know, they are struggling, do have issues around accessing healthy food. Some folks call it food deserts or food apartheid. Ultimately, really reclaiming the type of food that is available in these communities. Like you mentioned, urban farming. This is a movement for communities, in terms of their own power to reclaim their food system and food sovereignty.

So really what is important ultimately is a more community driven food system, more community governed food system. But in the short term, we could do everything that we have in our government toolkit to support these communities from economic incentives. Of course, public assistance dollars that really help match resources to flow into the local food economy. We have seen a lot of great things happen from EBT matching, farmers markets, different programs that exist around incentives for that. And grants really to really support grassroots organizations in their access through these grants that are available. We often are trying to navigate the system with grassroots organizations. That really is hard to get these resources to flow into communities.

So in the short term, there is a lot of tools that we could get the government to support more access to healthy food. However, in the long term, we need to really shift the power so communities can really decide for themselves the type of food environment they would like to see.

Ms. ESCOBAR. Thank you so much. I am out of time.

Madam Chair, I yield back.

Ms. CASTOR. Well, thank you very much.

And I agree with you, this has been a—it is a hearing that we intended to focus on those practical solutions. And we know with the escalading climate crisis, higher temperatures, the higher energy and food cost, the food system can provide a lot of those solutions. And I want to thank our witnesses for helping us today.

Ms. Gunders, you have been very clear on the call to action. Thank you. You have now given us some practical solutions on food labeling, how we fund and empower public-private partnerships.

Ms. Brown, I have been impressed with what you are doing in San Diego for many years on reimagining and reconfiguring the food system. But we—as Ms. Gunders said, the innovative technologies are exciting, but we need action right away. And one of the solutions I think we need to add to the list, and talk about, is preventing the conversion of cropland. I see it in Florida as popu-

lation growth and other stressors try to expand into our—into critical areas. You want food and everything produced nearby.

So, Ms. Gunders, what is the most important, right now, policy at the Federal level to ensure that we are more efficient on the cropland we have now and we don't continue to convert that cropland to other uses?

Ms. GUNDERS. Yes. I think there are a few. One is supporting the North American Grasslands Conservation Act. There is already a great program called the Sod Saver that has been part of our bills in the past, that expanding this program could reduce negative impacts of—that happen out there. And then also, rethinking renewable fuel standards and policies is the other.

And I would point you towards a report that has been written on this by the World Wildlife Fund, who are really kind of the experts on the policies about this.

Ms. CASTOR. And, Dr. Cep, you focused on this as well, and I do appreciate how you pointed out early that our farmers and producers need help. I met with farmers in Florida not too long ago across all industries—citrus, cattle, dairy, the plant nurseries, the specialty crops—and they are hungry for help because their productivity is suffering under extreme temperatures, extreme rainfall events.

So what do you point out to us are the most important policies that we need to be focused on to help our farmers and to conserve cropland?

Dr. CEP. Yes. Thank you for the question. I would like to come back to just a few points that, frankly, you know, I think apply a lot across a lot of different landscapes in the producer community that you are talking with, right, whether they are grow crop producers, cattle producers, they are thinking about orchard or private timber stands. And that is, we already have an existing suite of Federal and state conservation programs that producers know, they are familiar with. There are recommendations about how to improve, streamline those, make them more accessible, make them more equitable. But also, those programs are already heavily oversubscribed, right?

Just the one example that I gave earlier, in a single year, $1.1 billion in one program of interested but unfunded applications. And those are producers coming in. They have already done the research. They have a proposal. They have submitted it for a competitive review process.

So when we think about how we can scale up the action of now, right, like, scale up sustainable agriculture and forestry practices across landscapes across the country, it really is about helping meat producers where they are with what they need, when it is technical assistance and cost share for practice implementation.

And then I would say also recognizing the value of the private marketplace. So that is back to the opportunity around some of those market-based conservation signals to really think about how those can connect and tie in with increased revenue and share of profit for producers.

Ms. CASTOR. Thank you very much.

And, Ms. Brown, San Diego, the alliance there, can be a model for other communities across the country. But I am worried there

are many communities that simply don't have the resources to implement that kind of local grassroots effort. What can we be doing to encourage that model and empowering people at the local level across the country?

Ms. BROWN. You would be surprised. Johns Hopkins facilitates a food policy network nationally. And I know several years ago there was at least 250 organizations in various different communities across the nation, city level, county level, state level, really organizing around food policy, very bottom-up, grassroots approach. So you would be surprised. A lot of folks are really getting together around this issue. I think it really crosses political lines. Food is a necessity. We want to support our local farmers. We want to support our local businesses. How do we do that together? So there is a lot of groups out there; you just really have to listen.

Ms. CASTOR. Thank you very much.

Next, I see Mr. Crenshaw has joined us virtually.

Mr. Crenshaw, you are recognized for 5 minutes for questions.

Mr. CRENSHAW. Thank you, Madam Chair, and thank you to the Ranking Member, for holding this hearing.

And, look, listening to the testimony, there are some real pragmatic ideas here on how to reduce food waste and improve farming practices. And I am sure there is a lot of space for bipartisan legislation there.

But like many of these hearings, what we also hear is these good ideas crowded out by more radical ideas that end up hurting Americans, especially on their most basic needs: energy and food. And it is worth pointing out some of the other countries very recently that have taken these radical approaches.

Sri Lanka banned pesticides, herbicides, and other chemicals that provide crop protection. That was because of their environmentalist lobby. They are currently in a devastating humanitarian crisis because they have not been able to produce enough food to eat. Don't worry, because Sri Lanka has a near perfect ESG score of 98, so that makes them feel good.

Environmental groups sued the Netherlands into enforcing a limitation on carbon emissions in their country. Now the Netherlands is bound by their Supreme Court to enforcing this, and it started enforcing bans on agricultural emissions. To meet that goal, the Prime Minister said the only way they can do it is to cut cattle by 30 percent. You can imagine what is going on in their country right now as there is an uprising and a potential food shortage.

In the United States, the EPA has said that the Supreme Court won't stop them from perusing hardline emission targets for industry, which suggested the EPA is going to try to use a little known authority called section 115 of the Clean Air Act to enforce the emissions targets set out in the Paris Climate Agreement and potentially put us on the same track as the Netherlands and Sri Lanka.

When it comes to crop protection and the EPA, with crops going unharvested, leading to an increase of both carbon and methane emissions, and they often go unharvested because of damage caused by pests and disease. The EPA is restricting crop protection products, restricting natural gas production for fertilizer, constraining the production of chlorine through restrictions on both of

the ways we produce chlorine, and restricting the use of several other commonly used herbicides and pesticides.

Ms. Gunders, this question is for you. Without immediately available affordable crop protection products, do you anticipate that farmers increase the number of unharvested products?

Ms. GUNDERS. I apologize that I am not super familiar with various crop protection laws or regulations, but I do——

Mr. CRENSHAW. Well, you don't need to be. I mean, just to be clear, I mean, it is a basic question.

If you don't have the materials necessary to fend off pests, then do you think you are going to have more unharvested products in the fields, which is a concern of yours, of course?

Ms. GUNDERS. I do believe that crop protection plays a role in protecting crops. And therefore, yes, certainly saving crops from pests can help lead to more harvest.

Mr. CRENSHAW. And you have indicated that crop waste leads to higher carbon emissions. You make a good argument for that.

So these products would be good and helpful in reducing carbon emissions overall. Would you agree with that? I am not trying to trick you here. I promise you. I know that is what it feels like.

Ms. GUNDERS. I do believe that a certain level of crop protection can help lead to full utilization of crops and better growth.

Mr. CRENSHAW. Thank you.

And on the subject of food prices, these actions I have been talking about are increasing costs for Americans. And I want us to continue what we know how to do. And we know how to do this actually pretty well in this country. Pursue environmental goals and promote human flourishing at the same time. We can protect people while also producing enough food and energy for Americans. I truly believe that.

And I yield back. Thank you.

Ms. CASTOR. Great. Well, I would like to thank our witnesses for your testimony today on how we build a climate smart food system and lower costs for our neighbors, and lower pollution from farm to fork, and build a more sustainable food supply chain.

Without objection, I would like to enter into the record a July 15, 2022 letter from the Biotechnology Innovation Organization in favor of investments in policies supporting agricultural innovation as a climate solution that helps farmers and ranchers be resilient in a changing world.

Submission for the Record

Representative Kathy Castor
Select Committee on the Climate Crisis

July 15, 2022

July 15, 2022

The Honorable Kathy Castor
Select Committee on the Climate Crisis
Chair
H2–359 Ford House Office Building
U.S. House of Representatives
Washington, DC 20515

The Honorable Garret Graves
Select Committee on the Climate Crisis
Ranking Member
H2–361 Ford House Office Building
U.S. House of Representatives
Washington, DC 20515

Dear Chair Castor, Ranking Member Graves, and Members of the Committee:

The Biotechnology Innovation Organization (BIO) is pleased to submit a statement for the record to the United States House of Representatives Select Committee on the Climate Crisis hearing entitled, "Climate Smart From Farm to Fork: Building an Affordable and Resilient Food Supply Chain."

Introduction

BIO[1] represents 1,000 members in a biotech ecosystem with a central mission—to advance public policy that supports a wide range of companies and academic research centers that are working to apply biology and technology in the energy, agriculture, manufacturing, and health sectors to improve the lives of people and the health of the planet. BIO is committed to speaking up for the millions of families around the globe who depend upon our success. We will drive a revolution that aims to cure patients, protect our climate, and nourish humanity.

Addressing Climate Change with Innovation

BIO applauds the select Committee for exploring how to create a sustainable food system that is resilient in the face of climate change. As many have rightly noted in recent weeks, the impact Russia's invasion of Ukraine has had on global food prices, pales in comparison to the impact climate change will have on food supplies in the future.[2]

Climate change is already impacting agricultural production. According to research by *Nature Climate Change*[3] 21 percent of global agriculture production, including livestock, tree farming, and traditional crops such as corn and soybeans, has been negatively impacted by climate change. A slowdown that is equivalent to losing the last seven years of productivity growth.[4]

To meet the challenge of climate change, and foster resiliency and sustainability throughout the agricultural value chain, it is crucial to lead with science and U.S. innovation.

Biotechnology in plants, animals and microbes continues to develop and now includes more targeted and precise tools, which are the subject of significant agricultural research and development efforts, as they offer exciting potential to address growing challenges in agriculture and society generally. Innovation in agriculture has the potential to provide solutions and tools that can increase crop yields, improve crop quality, nutritional value, and food safety; increase resistance to pests and diseases; reduce water use; improve carbon sequestration; enhance tolerance to changes in climate and other environmental conditions; reduce food waste; improve health and wellness; decrease reliance on costly crop inputs; and bolster animal wel-

[1] https://www.bio.org/
[2] https://www.scientificamerican.com/article/war-in-ukraine-and-climate-change-could-combine-to-create-a-food-crisis/
[3] https://www.nature.com/articles/s41558-021-01000-1
[4] https://www.ehn.org/climate-change-and-agriculture-2651320768.html

fare. For additional information on these technologies and their benefits, please see the attached op-ed by BIO President and CEO, Dr. Michelle McMurry-Heath in *STAT* entitled, "To help solve climate change, look to the biosciences."[5]

We must incentivize the adoption of innovative, sustainable technologies and practices; and streamline and expedite regulatory pathways for breakthrough technology solutions. Investment in and deployment of cutting-edge technologies will be crucial to ensure farmers, ranchers, sustainable fuel producers, and manufacturers are able to respond to climate change and maintain the U.S.'s global leadership in agriculture. This includes removing barriers and assisting beginning and socially disadvantaged farmers and ranchers to access and utilize these technologies, so all producers can adapt to the challenges ahead.

Supporting Innovation

BIO supports administrative and legislative action on climate change that catalyzes resilient and sustainable biobased economies. Policies centered on innovation stand to incentivize the adoption of cutting-edge technologies and practices, resulting in benefits to the environment and rural economies.

The United States must employ a science-based regulatory system that evaluates products based on human health and safety and potential benefits and risks to the environment. Such a system must both foster public confidence in biotechnology and avoid undue regulatory burdens. A regulatory climate that fosters innovation in agricultural biotechnology will be an important component in meeting that goal and ensuring development of a set of precise yet flexible tools for meeting the challenges facing U.S. farmers today and into the future.

Practical, workable regulations are key to harnessing the resources necessary to address these challenges, and to providing opportunities for economic growth, job creation, and environmental benefits. BIO is committed to maintaining a strong partnership with the federal government to ensure the development and implementation of risk-proportionate regulations that underpin a workable, predictable, legally defensible, durable, and science-based regulatory system that facilitates innovation for all innovative biology-based products.

Legislatively, we urge the House of Representatives to take immediate action and pass the bipartisan *Growing Climate Solutions Act,* H.R. 2820[6]. This legislation will help producers solve the technical entry barriers to participating in carbon credit markets and incentivize the adoption of modern agricultural techniques and innovative technologies. This bicameral, bipartisan bill passed the U.S. Senate last summer by a vote of 92–8,[7] but is still awaiting consideration in the House.

The next farm bill also offers a timely opportunity to examine innovation's influence on the resiliency of our economy in the face of global climate challenges. As Congress examines how U.S. Department of Agriculture (USDA) programs can address climate change, it will be critical to ensure USDA and other federal programs keep pace and continue to foster acceptance for new technologies, thereby protecting the stability of the agricultural supply chain.

Finally, BIO recognizes that long-term innovation successes are driven by more than just sound regulatory policy. Public and marketplace support matter a great deal in the successful introduction of new products. BIO is committed to proactive transparency measures, including driving authentic dialogues with producers, stakeholders, and consumers to identify shared values and energize public understanding about innovation in food and agriculture.

Conclusion

The agricultural innovations that BIO's member companies are developing will allow producers to sustainably provide the food, feed, fuel, and fiber needed for a growing world. The development and deployment of these technologies will be crucial to helping farmers and ranchers be a part of the solution to climate change and provide them with the tools to be self-sustaining and resilient to a volatile climate.

BIO is committed to working with the Select Committee toward developing policies to address the climate crisis and support innovation in agriculture.

Sincerely,
John A. Murphy III, Esq.
Chief Policy Officer
Biotechnology Innovation Organization

---

[5] https://www.statnews.com/2021/05/21/climate-change-solutions-from-biosciences/
[6] https://www.congress.gov/bill/117th-congress/house-bill/2820
[7] https://www.congress.gov/bill/117th-congress/senate-bill/1251/actions

ATTACHMENT: *Stat,* "To help solve climate change, look to the biosciences"

https://www.statnews.com/2021/05/21/climate-change-solutions-from-biosciences/#

To help solve climate change, look to the biosciences

By Michelle McMurry-Heath
May 21, 2021

President Biden's pledge to cut U.S. greenhouse gas emissions in half by 2030 is an admirable and ambitious undertaking. It's nearly double the goal set by President Obama in 2015. And it establishes the United States as a world leader in battling climate change. But reaching the president's target in just under 10 years is a monumental task. It's so big, in fact, that we'll never get there by government action alone. No amount of vehicle efficiency standards, forest conservation efforts, or gas taxes can fully solve the problem.

We have to science our way out of it.

The biosciences, including biotechnology, will play a pivotal role in the fight against climate change. It is already leading the way on several fronts. According to a report from BIO, the organization I work for, the biotech industry's green initiatives could mitigate the equivalent of 3 billion tons of carbon dioxide every year by 2030, or about half of the country's annual CO_2 emissions.

Take food, for example.

Food consumption—and production—is central to human existence. Global food production accounts for one-quarter of greenhouse gas emissions. A recent report from an international team of researchers concluded that even if all other fossil fuel emissions were eliminated, emissions from food production alone would prevent us from reaching a key goal of the climate change agreement signed in Paris: preventing the global temperature from rising more than 2 degrees Celsius.

Halting food production isn't an option, so biotech companies are helping farmers become part of the climate solution. Take, for example, Boston-based Joyn Bio. It is engineering bacteria that pull nitrogen directly from the atmosphere. These microbes then pass the nitrogen to crops like wheat and corn, reducing the need to make, transport, and apply nitrogen fertilizers, which reduces greenhouse gas emissions.

Minnesota-based Acceligen is using a technique it calls precision breeding that improves the health of livestock while reducing their waste, greenhouse gas emissions, and water usage.

Biotechnology can also help protect food from climate change. As fungal and bacterial infections accelerated by human-driven environmental disturbances threaten to wipe out Cavendish bananas, Tropic Biosciences in the United Kingdom is using CRISPR gene-editing technology to engineer infection-resistant bananas.

Companies are also rethinking how food is packaged to reduce plastic pollution and open high-tech paths to broader adoption of biodegradables. This would be a game-changer in the interlinked fight to modulate climate change and protect the oceans.

Globally, 100 million tons of plastic are produced every year, 8 million of which ends up in the oceans. The production of plastic requires at least 8% of the world's petroleum. Greenhouse gas emissions from plastic production and incineration could rise from the current 850 million tons a year to 3 billion tons a year by 2050. And discarded plastic that ends up in the ocean slowly breaks down in sunlight, releasing greenhouse gases and toxic microplastics.

Georgia-based Danimer Scientific—partnering with the Mars Wrigley candy company—is working on biodegradable packaging that uses plant oils to manufacture "plastic" that dissolves in soil and water. Bioplastics and biopolymers can reduce greenhouse gas emissions reductions by up to 80% more compared to their petroleum-based counterparts.

Fuel is another target for biotechnology. Transportation accounts for the highest percentage of U.S. greenhouse gas emissions. While electric cars are gaining popularity, and the $174 billion allocated to support the transition to electrics in Biden's American Jobs Plan is important, biofuels—which are carbon neutral—will be needed to help reduce emissions in transportation and need comparable support.

The biotech company Synthetic Genomics, for instance, is utilizing saltwater algae, which convert sunlight and carbon dioxide into biomass, to make sustainable auto fuel. By 2025, 10,000 barrels of the algal biofuel could be produced per day for commercial use.

Biofuels will also play an important role in air travel. While flying accounts for less than 3% of global CO_2 emissions a year, on a per-mile calculation it's the least green form of travel. With the number of air travel passengers expected to double

by 2040, the Biden administration is upping the financial incentives—through tax credits—for companies that produce sustainable aircraft fuels.

Biotech firms are already stepping up. Companies like Neste, Gevo, and World Energy are using everything from algae to used or wasted cooking oil to create sustainable jet fuels. LanzaTech recycles carbon from industrial emissions and other sources and turns it into aviation fuel—and has recently partnered with other corporations to bring that fuel to market for commercial airline use.

With help from biotechnology, the U.S. can achieve the climate change goals outlined by the Biden administration and the Paris Agreement. Human progress and technology got us into this mess. That same ingenuity can help get us out.

Michelle McMurry-Heath is a physician-scientist and the president and CEO of the Biotechnology Innovation Organization.

And, without objection, all members will have 10 business days within which to submit additional written questions for the witnesses. I ask our witnesses to respond as promptly as you are able.

Thanks again, everyone, for joining our climate-smart solutions from farm to fork hearing today.

The meeting is adjourned.

[The information follows:]

[Whereupon, at 10:47 a.m., the committee was adjourned.]

United States House of Representatives
Select Committee on the Climate Crisis

Hearing on July 15, 2022
"Climate Smart from Farm to Fork:
Building an Affordable and Resilient Food Supply Chain"

Questions for the Record

Kent Swisher
President & CEO
North American Renderers Association

THE HONORABLE GARRET GRAVES

1. Mr. Swisher, Darling Ingredients and Valero Energy partnered to develop the Diamond Green Diesel facility in Norco, Louisiana. The facility is the largest renewable diesel production facility in North America and has a production capacity of more than 50,000 barrels per day (bpd).

a. Can you talk about the role that the rendering industry plays in this facility being productive and creating jobs in Louisiana?

Diamond Green Diesel (DGD) is a major user of waste fats including animal fat and used cooking oil, both of which are traditionally processed by renderers. Such waste fats allow DGD to produce low carbon renewable fuels which reduce greenhouse gas emissions by up to 85%. In addition, to helping the environment, DGD brings over one hundred green energy jobs to Norco, Louisiana and contributes to the local tax base.

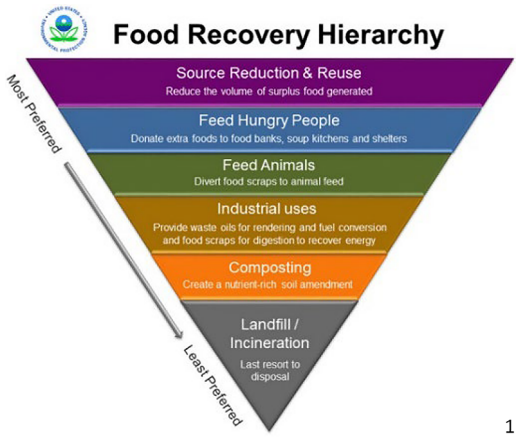
b. How does your industry help create jobs and make products that encourage more efficient agriculture production?

The rendering industry takes waste products from the meat industry and restaurant industries and processes those wastes into value-added products that can be used as inputs into other production processes that produce pet foods, animal feeds, oleochemicals, and/or renewable fuels. As such, our industry supports other industries thereby creating jobs. It does this while upcycling wastes in an environmentally friendly manner and reducing agriculture's carbon footprint.

Rendering provides tens of thousands of stable, full-time jobs with benefits, coast to coast, in both urban and rural areas. These positions generate important economic activity in rural areas and helps support the economic vitality of local communities.

Rendering companies and their employees are longstanding members of their communities, improving the quality of life by volunteering and supporting local char-

ities, providing jobs, and offering essential recycling services for farmers, restaurants, and food service.



[1]

2. Mr. Swisher, your testimony discussed that the rendering industry helps to prevent animal by-products from ending up in landfills by creating products that feed animals or lead to other industrial uses. This benefit is illustrated in the Environmental Protection Agency's Food Recovery Hierarchy that is pictured above.

a. What steps has the rendering industry taken to help prevent food waste from going to landfills?

Rendering is a large and integral part of the solution to reducing food waste.

By rendering the leftover material from the food we eat, like meat and bone scraps, we stop it from going to the landfill, which saves huge volumes of landfill space. According to the Environmental Protection Agency, food waste takes up more space in landfills than any other material. Finding ways to reuse leftover meat materials offers a powerful solution for sustainable waste management. Renderers provide a critical solution to save landfill space and help protect the environment.

Rendering also stops greenhouse gasses from being released into the environment, which they would, should that meat material be allowed to decompose in a landfill. By diverting this material from landfills, we are upcycling it into new products like nutritious pet food, biomass- based diesel, and while sustainably reducing food waste.

The rendering industry supports recognition by federal and state governments of the importance of rendering's contribution to reducing food waste and diverting it from landfills.

b. What are the environmental benefits posed by your members' processes that prevent waste from ending up in landfills?

A huge volume, approximately fifty-six billion pounds, of unused animal meat is left over in the U.S. from livestock and poultry farming, meat processing, supermarkets, and restaurants each year.

This volume of animal by-products is so massive that it would fill all U.S. landfills in only four years if discarded there as waste. By preventing the disposal of animal leftovers in U.S. landfills or other disposal methods, renderers prevent the release of substantial amounts of GHGs into the atmosphere. Rendering's carbon emissions reduction and other environmental contributions are significant. Rendering sequesters five times more greenhouse gas (GHG) emissions from the environment (such as carbon dioxide) than it emits. Rendering avoids at least 90 percent of the potential GHG emissions compared with industrial composting. The rendering industry's contribution to carbon emission reduction in the U.S. and Canada is equivalent to removing 18.5 million cars from the road each year.

Rendering also reclaims and protects valuable water that could otherwise be wasted or contaminated. Roughly four billion gallons of water are reclaimed during the rendering process. That water meets federal, state, and local standards when returned to rivers and streams.

---

[1] https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy

Rendering helps water in more ways than only output—renderer pickup of used cooking grease and oil, saves municipal sewer and wastewater systems from becoming clogged causing millions of dollars in damage, repairs and compromising water quality. Thanks to rendering, that is not a concern.

3. We've also seen how Russia's aggression in Ukraine is "putting the world on the brink of a food crisis."[2] One of the specific challenges from the crisis in Ukraine that relates to the agriculture industry is skyrocketing fertilizer prices and a fertilizer shortage,[3] which will exacerbate the food shortage and make it harder for American farmers to produce.

a. How can your members' work alleviate the challenges posed by this pending crisis?

Rendered protein products can be used for fertilizer or as a soil conditioner, providing an alternative to chemical fertilizers. Rendered products contain nitrogen, potassium, phosphorous, and calcium and can be applied as an organic fertilizer. Bone meal and blood meals are both a readily available fertilizer in garden centers nationwide. Rendered fertilizers add to the domestic supply of fertilizer.

4. My colleagues and I often talk about the importance of American resources and American production to supply as much as possible to the global market—whether it's energy, food, or manufactured goods. For the agriculture industry, that means enacting policies that encourage greater efficiency and greater productivity.

a. Can you talk about how the rendering process—and the proteins that your members develop—help lead to more efficient agriculture practices that ultimately increase productivity and help feed Americans and people all over the world?

Rendered animal proteins are a nutrient rich ingredient for livestock feed and aquaculture feed. These proteins also have an amino acid profile that complements grain-based diets. Hence, the inclusion of rendered protein meals help to lower the cost of feed production, while providing a nutrient and energy dense ingredient. To put this in perspective, for poultry, over 60 percent of the cost of production is the feed cost. By lowering the cost of feed, our livestock and poultry industries can more efficiently provide products more economical to consumers both in America and overseas.

In addition, rendered animal protein meals are a good substitute for fishmeal in aquatic rations, hence lowering the cost of production and reducing the pressure on fishmeal as a feed ingredient in aquaculture feed. This, is in turn, alleviates pressure on our marine fisheries.

[2] https://www.rferl.org/a/ukraine-food-crisis-russian-invasion/31797590.html

[3] https://www.cnbc.com/2022/04/06/a-fertilizer-shortage-worsened-by-war-in-ukraine-is-driving-up-global-food-prices-and-scarcity.html#:~:text=A%20fertilizer%20shortage%20has%20added,exports%20were%20hit%20by%20sanctions.