

# SUPPORTING U.S. FOOD & AGRICULTURE INNOVATION & CLIMATE OBJECTIVES



**AGRICULTURE  
& FOOD SUPPLY  
CHAIN  
CONTRIBUTIONS**





# SUMMARY

The U.S. food system is:



## Safe, secure, affordable & accessible food supply

Hundreds of millions of Americans and people around the world rely on safe and nutritious U.S. agricultural products and foods. Americans have access to one of the safest, most diverse, most affordable food supplies in history<sup>1</sup>, and the United States exports more than \$135 billion worth of food and agricultural products every year, making core contributions to global food security and helping to meet growing global demand for food and feed.

According to the 2020 Global Agricultural Productivity (GAP) report, in order to sustainably double the amount of food, feed, fiber, and bio-energy needed to nourish nearly 10 billion people in 2050, “agricultural productivity needs to increase at an average annual rate of 1.73%.”<sup>2</sup>

## Thriving, resilient communities

The U.S. agriculture and food supply chain supports good jobs and strong communities and is a driver for sustainable economic growth and development. Total food and agricultural employment accounts for nearly 11% of U.S. jobs, many in rural communities where good-paying jobs are particularly important.<sup>3</sup> More than 98% of America’s 2 million farms are operated by families, and at least 56% of farms have at least one female decision-maker.<sup>4</sup>

U.S. agriculture and food supply chain stakeholders are at the forefront of research and innovation (including in partnerships with the public sector and academia) to increase agriculture’s resiliency in the face of supply chain disruptions from climate change, human and animal disease outbreaks, and/or other disruptions yet to come.

Leaders across the supply chain also give generously to help food-insecure Americans gain access to the nutritious foods they need, including by donating hundreds of millions of pounds of food to local and national food banks, as well as pet food for companion animals.

## Built on efficiency and innovation

The U.S. agriculture and food supply chain has dramatically reduced its impact on the environment in recent decades, including by reducing greenhouse gas (GHG) emissions and optimizing land, water, and energy use, all while increasing food production for a growing population and working to reduce food waste.



## Examples of achievements and commitments across the U.S. agriculture and food supply chain include:

### Growing more food and feeding more Americans, using fewer natural resources

Thanks in large part to technology, new production practices and a commitment to continuous improvement.

- U.S. dairy has the world's lowest dairy GHG emissions per liter of milk produced.<sup>1</sup>
- Farmers and ranchers produce beef using 33% less land, 12% less water, and with a 16% smaller carbon footprint in 2007 compared to 1977.<sup>2</sup>
- Pork producers use 76% less land, 25% less water, and 7% less energy to produce twice as much pork.<sup>3</sup>
- Chicken producers use 72% less land and 58% less water, with 36% lower GHG emissions.<sup>4</sup>
- U.S. corn producers are committed to long term continuous improvements and targets for 2030 that will build on a history of producing more while using less and leaving little to waste. Corn producers grow more corn today using 41% less land per bushel than in 1980.<sup>5</sup>
- By 2025 (with a 2000 baseline), U.S. soy is committed to reducing land use impacts by 10%; reducing soil erosion by 25%; increasing energy efficiency by 10%; and reducing total greenhouse gas emissions by 10%. Farmers today grow 55% more bushels per acre of soy, with 41% less soil erosion, 44% lower greenhouse gas emissions, 46% greater land use efficiency, 34% less irrigated water, and 42% less energy compared to 1980.<sup>6</sup>

### Proactively practicing soil health, maintenance, and conservation efforts

Efforts such as planting more cover crops, using more conservation tillage, and using more no-till methods preserve and increase nutrients, improve water quality, and trap excess carbon in the soil.

- 70% of U.S. soybean acres use conservation tillage, and 40% of U.S. soybean acreage is no-till.<sup>7</sup>
- 15% of all U.S. farmland is used for conservation & wildlife habitat.<sup>8</sup>
- Synthetic biology enables farmers to enhance soil health to grow more food on less land, manufacturers to create new food ingredients and alternative proteins, and industrial biotech companies to revolutionize manufacturing by optimizing processes for producing sustainable chemicals, biobased products, and biofuels.<sup>9</sup>

## Planting modern seed varieties and optimizing nutrient stewardship

**Using the right nutrients and the right seeds helps farmers produce a wide variety of consistent, high-yield crops with improved nutrition and environment benefits.**

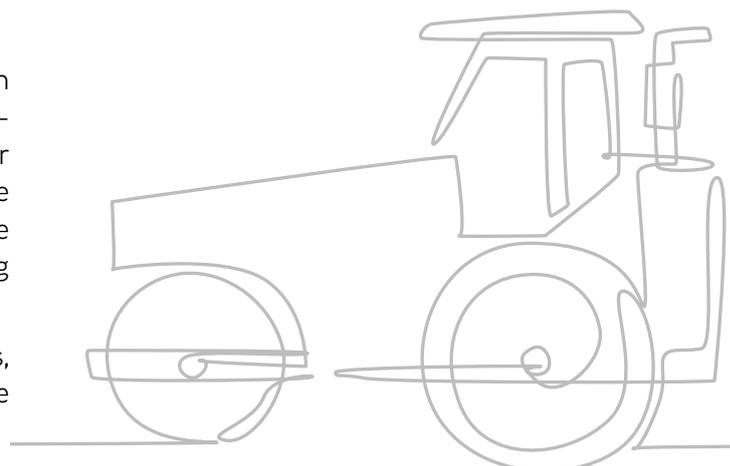
- Breeders have developed carrots with increased beta-carotene which improves the crop's appearance and nutrition profile.
- New seed varieties can help reduce food waste by yielding produce that stays fresh longer and has more consistent quality - like more uniform peppers, lettuces with longer shelf life, and smaller serving size varieties of produce like melons and avocados.
- Certain seed improvements allow for reduced pesticide use which by some estimates has reduced the environmental footprint associated with pesticide use by 19%.<sup>10</sup>
- Seed varieties developed for cover crops and grasses promote carbon sequestration and improve soil health, while seed varieties developed for conservation can restore land damaged by mining, forest fires or other environmental disasters.
- The 4R Nutrient Stewardship Principles<sup>11</sup> promoted and recognized by the fertilizer industry and the USDA Natural Resource Conservation Service provide a pathway to improved productivity and farmer profitability, improved water quality, and reducing GHG emissions.
- Case studies show the 4R principles at work. For example, one Illinois corn and soybean farmer reduced GHG emissions by 34%, improved nutrient use efficiency by 28%, and reduced cost of fertilizer management by \$24 per acre.<sup>12</sup>



## Harnessing the power of advanced technology

**Biotechnology has enabled farmers to produce high quality, high-yielding crops that have a direct bearing on improved food security and poverty alleviation with increased production, while also increasing resilience to heat and drought.**

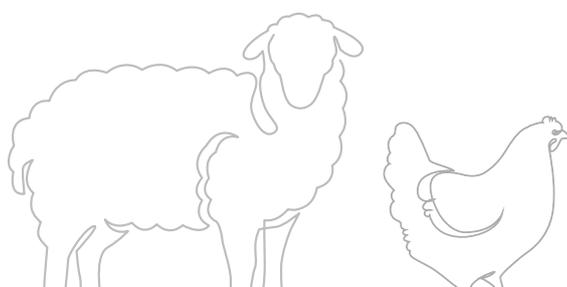
- Biotech crops, such as those that require no-tilling, have saved 27.1 billion kg of carbon dioxide, equivalent to taking 16.7 million cars off the road.<sup>13</sup>
- Biotech advancements allow for fewer blemishes, such as bruises, that lead to more sellable crops for farmers requiring less acreage. These technologies can also extend the shelf life of produce, cutting down on food waste, which creates eight percent of all global emissions.<sup>14</sup>
- Gene editing technology will play a vital role in making sure crops and livestock are more resilient to pests, disease, and extreme weather variabilities caused by climate change, while reducing the usage of agricultural inputs like pesticides, fertilizers, and water; and improving the nutritional value of food.<sup>15</sup>
- In a recent study published in Nature Plants, researchers used gene editing to increase the number of kernels on ears of corn.<sup>16</sup>
- Using gene editing, scientists have been able to modify the canopy architecture and root architecture of both sorghum and barley to improve water use efficiency.<sup>17</sup>
- Advancement in animal biotechnology has enormous potential to make livestock production more resilient and sustainable and help prevent, prepare, and respond to outbreaks of infectious diseases.



## Continuously improving animal feed, animal health, and sustainable production of nutrient-dense foods like meat, poultry, dairy and eggs

**As recognized in U.S. dietary guidance, nutrient-dense meat, poultry, dairy, and eggs are critical sources of essential nutrients including high-quality protein, calcium, phosphorus, potassium, iodine, and vitamins B2 and B12, which contribute to addressing all forms of malnutrition.**

- Evidence shows diverse products provide the most cost-effective sources of critical nutrients - for example, dairy for calcium and vitamin D, grains for iron and magnesium, meat for protein and choline, fruits and vegetables for potassium and vitamin C.<sup>18</sup>
- U.S. beef, pork, poultry, lamb, and dairy producers are committed to develop transparent metrics and ambitious targets to further strengthen contributions to safe food, balanced diets, thriving communities, healthy and humanely treated animals, and the environment.
- U.S. dairy farmers lead the way on animal welfare standards, implementing the world's first dairy welfare standard to meet the International Organization for Standardization (ISO) Technical Specification requirements as set by the World Organization for Animal Health (OIE). The FARM Animal Care pillar boasts participation from 99% of U.S. domestic milk production and includes more than 31,000 dairy farm participants from more than 130 cooperatives and processors in 49 of the 50 U.S. states.
- Dairy companies representing 74% of U.S. milk production have adopted the U.S. Dairy Stewardship Commitment, a rigorous set of standards that demonstrate positive impact and contribute to U.S. dairy's ability to track, aggregate and report on progress. In 2020, the U.S. dairy industry made the commitment to be carbon neutral or better by 2050, while also optimizing water use and improving water quality.<sup>19</sup>
- The animal health industry is working to improve prevention and treatment to help reduce the burden of disease on livestock around the world, including by developing new and innovative vaccines, alternatives to antibiotics, digital veterinary care technologies, improved diagnostic tools, and new methods of parasite control to combat the impact of climate change.
- In 2019, America's domestic livestock and pets consumed nearly 284 million tons of safe, high quality and nutritious food, which not only helps to keep the U.S. food supply chain stable, but also supports the economic growth of rural communities through the purchases of farm products. Innovative new feed ingredients help optimize nutrient absorption and protect the environment. For example:
  - » The use of feed additives for ruminant livestock, has been demonstrated to reduce methane levels produced by ruminants by up to 30 percent.<sup>20</sup>
  - » Phytase is used in roughly 90% of poultry diets and 70% of swine diets and promotes better water quality by reducing excess phosphorous in manure.
  - » Probiotics aren't just for humans - when used in chicken feed, probiotics allow good bacteria in the gut to thrive, keeping chickens healthy and growing with less feed.
  - » Amylase helps chickens and piglets better digest sugar and starch, so they eat less corn.
- The U.S. animal food industry also helps close the food supply cycle and reduces food waste that would otherwise end up in landfills.
- More than 40% of U.S. animal feed ingredients are byproducts from other production processes, such as soybean oil and dried distillers' grains,<sup>21</sup> and pet food makes use of nutritious ingredients left over from human food production (e.g., unsold bakery or brewery items or wholesome parts of the animal that people do not eat).
- Diverting food waste away from landfills is a key goal of the Food Waste Reduction Alliance, including through partnership with the U.S. Environmental Protection Agency.<sup>22</sup> Nearly 90% of food waste from frozen food facilities is repurposed for animal feed.<sup>23</sup>



## Supporting diet diversity, reducing waste, and sourcing ingredients sustainably

**The Dietary Guidelines for Americans explicitly emphasize that a healthy dietary pattern is not a rigid prescription. Americans need a variety of foods to make tailored and affordable choices that meet their personal, cultural, and traditional preferences.**

- Americans throw out 25% of the food they bring home. Frozen foods are nutritious, often lower in cost-per-serving, and are a waste solution. They have a much longer shelf life than fresh or refrigerated foods and can be stored and used when needed, allowing for portion size flexibility.<sup>24</sup>
- Emotional and physical well-being are interrelated<sup>25</sup>, and healthy diets must take both into account. As a proud collaborator with the Partnership for a Healthier America (PHA), the U.S. confectionery industry has committed to make half of individually wrapped products in packages that contain 200 calories or fewer by 2022, empowering consumers to make informed choices that satisfy their emotional well-being needs one treat at a time. Progress is tracked and verified by the Hudson Institute and published by PHA.<sup>26</sup>
- U.S. confectionery companies are leaders in sustainable sourcing of ingredients, with company examples including achievement of deforestation-free palm oil supply chains and sustainable cocoa sourcing.<sup>27</sup>



# Examples of game-changing solutions submitted by U.S. agriculture and food stakeholders

## BeefUp Sustainability

Partners: Cargill, World Wildlife Fund, McDonald's, Walmart

In support of Cargill's commitment to achieve a 30% GHG intensity reduction across its North American beef supply chain by 2030, this initiative builds on the strong environmental stewardship work already led by farmers and ranchers – creating connections across the beef supply chain to drive advancements in grazing management, feed production and food waste reduction.

More information: <https://www.beefupsustainability.com/>

## National Pork Board Carbon Footprint Calculator

Partners: National Pork Board

The U.S. pork industry carbon footprint calculator will help producers reduce their environmental impact by establishing a carbon footprint baseline and evaluate management practices to reduce carbon emissions. The tool has a web-based data entry and reporting application, an Application Programming Interface (API) for integration with other tools and systems. An open-source library that will allow anyone to use and/or improve the core calculator as new research is funded.

More information: <https://www.pork.org/Resources/1220/CarbonFootprintCalculatorHomepage.aspx>

## Dairy Sustainability Framework

Innovation Center for U.S. Dairy

The Dairy Sustainability Framework will enable the dairy sector to take a holistic approach to sustainability through a common language, alignment of international sustainability activity and through this generate a common sustainability commitment that can be expressed at a global level, but also regional, national and organizational levels.

More information: [www.dairysustainabilityframework.org](http://www.dairysustainabilityframework.org)

## Farm to Families

Partners: National Dairy Council, Feeding Families

The Farm to Families initiative aims to: (i) provide people, especially children, experiencing food insecurity with nutrient-rich dairy foods; (ii) support producer livelihoods by ensuring nutrient rich foods enter the marketplace; and (iii) promote resource conservation by fortifying supply chains to get food from the farm to schools and food banks. This initiative was vital as the U.S. dairy community pivoted during the early days of the COVID-19 pandemic as many communities faced unprecedented need for nutritious food and farmers were in need of outlets for their continued production. Schools and food banks, along with supply chain partners, worked together to develop innovative program strategies to meet unprecedented demand due to the pandemic and provide new and safer food distribution methods, which can be sustained in a post-pandemic world.

## 4R Nutrient Stewardship

Partners: The Fertilizer Institute

4R Nutrient Stewardship is a framework for implementing nutrient management best practices to increase cropping system productivity, improve on-farm economics, optimize nutrient use and reduce nutrient loss to the environment via water and air pathways (including GHG mitigation). The 4R framework pursues using the right nutrient source, at the right rate, the right time and in the right place. In the US, farmers implementing the 4Rs have achieved nitrogen use efficiencies that are (on average) double that of their global peers and 50 percent improved beyond their US peers. While being more efficient, they have been able to double corn and wheat yields beyond their global peers and achieve 20 percent improved yield beyond their US peers. 4R practices can include (but are not limited to) improved soil testing, precision agriculture, data-based recommendations and use of enhanced products.

More information: [www.4Rfarming.org](http://www.4Rfarming.org)

## Hatching Hope

Partners: Cargill Inc., Heifer International

Hatching Hope uses a market systems approach to achieve this goal by (1) supporting smallholder poultry farmers to improve production, (2) supporting markets to meet the needs of smallholder poultry farmers and poultry product consumers, and (3) supporting consumers in understanding the nutritional value of poultry products.

More information: <https://www.hatchinghopeglobal.com>

## National Dairy FARM Program

Partners: National Milk Producers Federation

The FARM Program is U.S. dairy's industry wide, on-farm social responsibility program that provides assurances that U.S. dairy farmers are global leaders in animal care (UN SDG 9 and 12), antibiotic stewardship (UN SDG 9 and 12), biosecurity (UN SDG 9 and 12), environmental stewardship (UND SDG 13, 14, and 15), and workforce development (UN SDG 8 and 12), all as part of a One Health approach. FARM is the world's first dairy first dairy welfare standard to meet the International Organization for Standardization (ISO) Technical Specification requirements as set by the World Organization for Animal Health (OIE). The FARM Animal Care pillar boasts participation from 99% of U.S. domestic milk production and includes more than 31,000 dairy farm participants from more than 130 cooperatives and processors in 49 of the 50 U.S. states.

More information: <https://nationaldairyfarm.com>

## U.S. Net Zero Initiative

Partners: Innovation Center for U.S. Dairy, Dairy Management Inc, Nutrient, U.S. Dairy Export Council, International Dairy Foods Association, National Milk Producers Federation

The Net Zero Initiative (NZI) launched in 2020 as an industry-wide effort to accelerate voluntary action on farm to reduce environmental impacts by making sustainable practices and technologies more accessible and affordable to U.S. dairy farms of all sizes and geographies. This is achievable through research, on-farm pilots, development of manure-based products and ecosystem markets, and other farmer technical support and opportunities. The primary expected outcomes include 1) the collective U.S. dairy industry advances to net zero carbon emissions by 2050 and makes significant improvements in water use and quality, 2) in addition to continuing to provide nutrient-dense foods and beverages, dairy farms provide products and services that enable other industries and communities to be more sustainable, and 3) farmers are able to realize the untapped value on-farm, making the system of continuous improvement self-sustaining.

More information: <https://www.usdairy.com/getmedia/5dfcdf05-c7bc-40ca-b6d0-a5e74702f20d/earth-day-fact-sheetv8.pdf>

## Rethinking Methane

Partners: University of California, Davis, CLEAR Center

Methane (CH<sub>4</sub>) is a potent greenhouse gas that is 25-28 times stronger than carbon dioxide (CO<sub>2</sub>) - the primary greenhouse gas driving climate change in California - but how it influences actual warming is much different, according to research released by UC Davis professors Frank Mitloehner, Ph.D., and Ermias Kebreab, Ph.D., along with Michael Boccadoro, executive director of Dairy Cares. The publication, "Methane, Cows, and Climate Change: California's Dairy's Pathway to Climate Neutrality," examines recent literature from leading climate scientists and its implications for the California dairy sector.

More information: <https://clear.ucdavis.edu/news/methane-cows-and-climate-change-california-dairys-path-climate-neutrality>

## Studying the Impact of GM-Free Livestock and Poultry Feed on U.S. Feed Industry

Partners: Institute for Feed Education & Research

The livestock, poultry and aquaculture industries have used genetically modified feed ingredients for more than 20 years. Research to date has not demonstrated any health risks to those humans who have consumed food containing GM products or from animal food products from animals fed GM ingredients in feed. However, calls to remove GM ingredients from feed in the name of greater sustainability pose a threat to the feed and food industries, particularly in continuing to provide choices in the marketplace. The results of this proposal are likely to underscore the environmental and economic impacts of going GM-free in U.S. feed production. Several other agricultural organizations will be assisting to fund this important project.

More information: <https://ifeeder.org/research/#toggle-id-1>

## Trust in Animal Protein

Partners: North American Meat Institute, National Pork Producers Council, National Pork Board, American Feed Industry Association, Beef Alliance, Dairy Management Inc., Elanco, National Corn Growers Association, United Soybean Board, U.S. Meat Export Federation, U.S. Roundtable for Sustainable Beef

Trust in Animal Protein (TAP) unites animal protein producers, packers, and processors in the largest-ever effort to increase trust and grow demand for animal protein through a program of proactive continuous improvement and communications over the next 10 years, focused on wholesome animal protein sustaining healthy animals, thriving communities, safe food, balanced diets, and our environment.

## Tyson Foods Food Donation Efforts

Partners: Tyson Foods

Tyson Foods, Inc. has donated more food over the past year than ever in its 85-year history, the company reported today. More than 30 million pounds, or the equivalent of 120 million meals, were donated by the company during the last 12 months to fight hunger. The food donations were part of more than \$75 million the company invested to fulfil its commitment to address hunger insecurity, support its team members and improve the quality of life in the communities where it operates.

More information: <https://www.tysonfoods.com/who-we-are/giving-back/hunger-relief>

## Upward Academy & Upward Pathways

Partners: Tyson Foods

Upward Academy helps team members develop important life skills, offering free and accessible classes in English as a Second Language (ESL), High School Equivalency (HSE), U.S. citizenship, financial literacy and digital literacy. Pathways is an in-plant career development program that provides frontline team members with job skills training and workforce certifications at no cost.

More information: <https://www.tysonsustainability.com/workplace/helping-team-members-succeed>

# Independent Dialogues convened by U.S. agriculture and food stakeholders

## Boosting nature-positive agricultural solutions: U.S. farmer, rancher, grower perspectives

Convened by: **Solutions from the Land** April 6, 2021

### Key Findings

U.S. farmers, ranchers and other food producers have, for decades, practiced nature-positive agriculture, and they have steadily expanded those efforts – for both environmental and efficiency reasons.

Participants discussed decades of implementation and progress from regenerative agriculture practices in the United States, for example low and no-till practices, use of cover crops, manure management and use (e.g., biodigesters and gas lines for energy from manure, reducing waste by using hulls from one crop to mulch others, more effective irrigation, and many more. Participants are concerned the benefits of such approaches are not adequately reflected in current Action Track 3 or broader FSS preparatory processes and materials.

Scaling up the sustainable production of high quality protein, grains, and fruits and vegetables will be key to achieving the goals of the UNFSS. Producers seek a balance in how agriculture as a whole becomes more sustainable, productive, and profitable, and they envision a more collaborative approach to regulation and progress. That vision also includes promoting a full toolbox that gives farmers a range of options to creatively meet and exceed shared goals.

Producers' decades of knowledge must be incorporated in FSS outcomes, by ensuring that producers have:

- A place at the table for policymaking
- A diverse toolbox and the opportunity to experiment and innovate
- Access to localized food chains, along with broader food chains, to ensure resilience

### Discussion group findings

In breakout groups, facilitators posed the following questions to stimulate discussion:

1. What innovative practices are producers currently using to sustainably intensify production, reduce greenhouse gas emissions and deliver solutions to other Sustainable Development Goals?
2. What current incentives are most successful for scaling adoption of sustainable practices and what new incentives may be necessary? What action needs to occur to create those incentives?
3. What role does technology and innovation play in promoting sustainability on your farm?
4. What are some of the regulatory or research constraints or obstacles that need to be addressed to move this forward?
5. What information do you need to understand sustainable goals and how they apply to your farm?

Across the breakout groups, common themes emerged in discussing these questions. Keeping in mind the value of diverse food production for nutrition security (not just “food security”), participants agreed that sustainability, efficiency and adaptability of practices will vary across geographies and farming conditions. Animal agriculture should be viewed as a part of this broad, diversified system – and as a solution rather than a problem, both for its contributions as a unique source of high-quality protein and other critical nutrients and for its role in land management.

Recommendations for nature-positive agriculture need include and be centered on producers but must also reach up and down the value chain, with a focus on increasing communication, knowledge-sharing, and collaboration within value chains and with regulators to find effective, flexible, diverse solutions. Timelines must also be considered, as practices and policies cannot change from one crop year to the next.

Increased investment in holistic agricultural research is needed and should include technical elements (like soil quality, water quality, air quality, renewable-energy generation) and research into changing tastes and variety relevant to specialty crops. Technology and data, for example as in precision agriculture, are driving more and more of agriculture. Technology and broadband access need to be scaled appropriately and made available and affordable to farms of all sizes, with continual outreach to keep farmers abreast of technology changes.

Participants agreed solutions will require:

1. Diversified and sustainable intensification of production strategies appropriate to different geographies, cultures and a wide variety of farm types and scales to produce high-quality protein, grains, and fruits and vegetables and reconnect production processes that reintegrate livestock, aquaculture, and crop agriculture as systems to better recycle nutrients.
2. Private activities and public policies that incentivize markets and food system distribution infrastructure – ensuring food access to low-income households and vulnerable, benefit all scales of production. and provide profitable agricultural livelihoods.
3. Evidence-based and people-centered approaches that reflect the concerns of producers and multiple stakeholder groups to implement solutions and partnerships at landscape scale.
4. Systems-based agricultural research that is energized and integrated with SDG goals. Integrated research agendas should advance a systems approach to ensure health

## U.S. animal agriculture as a solution for global food systems challenges

**Convened by: The Animal Agriculture Alliance** April 8, 2021

### Key findings

Consensus was clear across participants that sustainability must be viewed as a diverse, continuous, and inclusive journey - not a single, universal, or exclusive destination. Across diverse areas of expertise, production systems, and organization sizes, participants were united around the idea that all stakeholders can and must find commonalities and work productively together to make progress toward food systems that are more economically, socially, and environmentally sustainable while also ensuring continued sufficient food availability, affordability, and appropriateness to diverse consumer needs.

Participants noted the critical importance of framing the UNFSS' challenge in constructive, positive, inclusive, and solutions-oriented ways. For example, rather than viewing food systems as inherently broken or beyond repair, there is great potential in harnessing and building on the innovations that have made our food systems the most effective and productive in history, with room for improvement. By agreeing that all production practices and foods can be made more sustainable, we allow all stakeholders to participate, rather than setting unrealistic extremes that exclude some communities entirely.

Stakeholders estimated that 60% of sustainable gains over the next 30 years will come from conventional agriculture, and that these 30 years will be the most influential and important in the history of agriculture. The animal agriculture community has made tremendous progress and should continue striving to optimize its nutritional and environmental impacts within food systems that encourage consumers to build and maintain overall healthy diets, balancing nutrient-density, diet quality, diet diversity, consumer acceptance, taste, value, convenience, safety, and more.

In sum, participants strongly agreed that by incorporating solutions pioneered by the U.S. animal agriculture community, the UNFSS can maximize its impact on food systems in the United States and around the world. Farmers and ranchers are central to achieving these outcomes and must be central to the preparations and decision-making. Currently, producer participants feel that decisions are being made in places very distant from where change actually happens.

## **Discussion group findings**

### **Action Track 1**

Stakeholders agreed that producing and processing nutrient-dense food, including meat, poultry, dairy, eggs and seafood must be a core element of achieving Action Track 1's objective to prevent malnutrition while optimizing environmental impact. Action Track 1 strategies must also take into account consumer awareness, education, acceptance, and choice are equally important.

Solutions must be accessible for a broad range of stakeholders and must, in particular, support investments in and partnerships with small-scale stakeholders to increase sustainable practices across businesses and farms of all sizes, alleviating burdens on the environment and on food systems.

Solutions should promote a more open, predictable, rules-based global trading environment with fewer barriers which will allow for more efficient movement of agriculture and food products, including to regions suffering from malnutrition and food insecurity.

### **Action Track 2**

To gain the support needed to actually make a difference, UNFSS approaches must be inclusive and flexible. Participants agreed that the FSS should focus on making diets more sustainable and more nutrient-dense, not promote a narrow set of policies, practices, and products that target specific foods and/or are not inclusive of diverse needs and choices. Narrow approaches are likely to have less positive impact and may introduce unintended consequences. For example, fruits and vegetables provide great nutritional value, but meat, poultry, dairy and eggs are very nutrient-dense and should not be discouraged. Produce is also most likely to be wasted.

Practical solutions for more diverse, healthy, affordable and sustainable diets must include innovations and improvements in food processing. Solutions that denigrate specific foods or seek to limit production, consumption, or consumer choice will not contribute to implementation of real, urgently needed solutions based on evidence and proven impacts.

### **Action Track 3**

Participants agreed that the U.S. animal agriculture community has made considerable progress to drive more sustainable practices over recent decades, progress that should be celebrated. Participants cited numerous examples of innovations that have reduced energy, land, and water use all while producing more food for a growing population. Participants urged that all stakeholders embrace and amplify these gains to reach our shared goals and to convince the public of the value and impact of practical improvements that must be continued.

### **Action Track 4**

Agriculture and food are diverse sectors that support hundreds of millions of people's livelihoods in the United States and around the world. Yet, recruitment, training, and retention can be challenging with future generations of food supply talent too often discouraged about the economic viability, lifestyle, and popular perception of agriculture as a desirable and rewarding endeavor. Attracting and educating a diverse next generation of talent is a high priority for the future of food security and the food supply. Properly embracing animal agriculture's potential and amplifying the cutting-edge work taking place will also help attract brilliant and inspired minds into the field of agriculture.

To achieve the food supply's goals today and in the future, multiple types of production systems are and must be part of more sustainable food systems - for example, organic and conventional agriculture should not be viewed as mutually exclusive. Both are necessary to meet consumers' needs and achieve our common goals.

### **Action Track 5**

Resiliency, like sustainability, must be based on three components - economic, social, and environmental (including context related to specific geographies) and must be viewed as a journey of continuous improvement.

Farmer voices emphasized that their resiliency depends very much on flexibility and adaptability, which can be hindered by overly prescriptive regulatory approaches and by lack of understanding of on-farm realities. Resiliency is boosted by mutual understanding and enhanced communication between stakeholders, governments, technical experts, and consumers. Youth voices were also particularly focused on improving ag and food stakeholders' connectivity and communications, including through digital media.

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