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TRANSFORM FOOD USA 2023

Minneapolis | November 2-3, 2023

KEY SESSION SUMMARIES, TAKEAWAYS AND ARTICLES

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LOOKING BACK ON TRANSFORM FOOD 2023

After a year of research, agenda development and curation, our goal was to provide a meaningful forum for executives to align on the collective barriers to accelerating transformation at an ecosystem level.

To do this, we focussed on developing a platform to ask better questions of better people so that we can, in turn, better understand the strategic perspectives and lessons learned of executives from right across the value chain. With this in mind, I'm delighted that this report will share some of the leading insights, strategic signals and critical lessons learned in this comprehensive account of sessions throughout the program.

However, reflecting on conversations across the event, it's crystal clear that even more must be done. We must continue to ask better questions through 2024 and challenge executives on how to get ever closer to alignment on the key structural challenges, tensions and opportunities that will drive us closer to a more sustainable, just and resilient food future for all.

First, we must push for greater industry alignment on definitions and measurements in regenerative and sustainable agriculture practices. Whilst variability in markets, policy and environmental capacity will always create complexity, it's clear that a push towards how we benchmark these terms as an industry will help instil clarity, competence and confidence for all stakeholders, farm-to-fork.

Similarly, next year, we'll look for new lessons on how pre-competitive collaboration has delivered meaningful results, especially as speakers stressed the importance of just-do attitudes that reflect the urgency of transitioning away from pilots to programs at +1m acre scales.

Going further, we must look further downstream to innovative manufacturing, CPG and retail approaches that tackle infrastructure and capital gaps. Where market instability and uncertainty impede the development of alternative and sustainable food categories, we'll look in 2024 for new insights and roadmaps to catalyze demand for emerging food platforms, sustainable ingredients, and nutrition-driven consumer trends.

Finally, we saw that businesses are increasingly aware of the value of values. Yet, executives were eager to stress that transformation in global food systems is unprecedentedly complex, signifying that progress will be iterative, not revolutionary. In this context, Reuters Events has a clear role to play. We'll endeavour to continue building platforms that unite the whole value chain, showcase impactful thought leadership, and break down the strategic silos between all verticals, from grassroots producers to consumer-facing businesses at the other end.

On the flip side, we must continue to forge the space needed to debate critical tensions and disruptions as much as opportunities. Only then can we offer a balanced account of industry transformation that deescalates discourse and builds bridges between polarizing approaches.

The potential for real impact in events is incredible. That's why I'm excited to see how we can develop this platform further through 2024 and continue improving the insights, networking and strategic thought leadership you need to lead on transformational innovation, collaboration and scaling for your whole organization.

I hope you find the insights in this report valuable as you refine your strategy for next year, and I look forward to working with you, our partners, speakers, and advisors to do even more in the future.

Best regards,
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Ben Mand, CEO, Harmless Harvest leads key roundtable discussions at Transform Food 2023

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CONTENTS

4 KEY PILLARS: TACKLING THE CRITICAL QUESTIONS THAT WILL DRIVE A SUSTAINABLE AND RESILIENT FOOD FUTURE FOR ALL.

Our unique Reuters Events strategy leverages intensive research, and a limited pool of executive attendees to drive impactful innovation, scale technology impact, accelerate digitalization, and make sure that we're all aligned on delivering a just-transition for all, farm-to-fork.

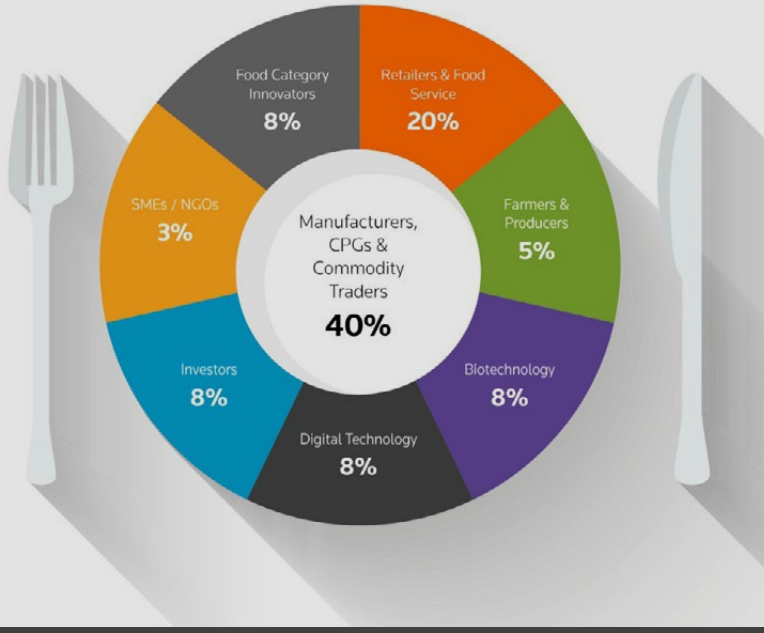
The following four-pillar impact agenda is designed to revolve around asking the right executives the fundamental questions that inspire us the think differently, and empower us to do differently, as we deliver on the challenges and opportunities of the transformation of global food systems.

- Starting with **Realize Resiliency**, we assessed progress toward a net-zero, food-secure, sustainable, and just food system. By analyzing lessons learned so far, we sought to unlock structural barriers to transformation, and lay the foundations for the acceleration of innovation, investment, and impact globally.
- In **Empower Analytics**, we debated how we can free the flow of analytics from farm-to-fork. Going further, we explored how greater digitalization, AI, and automation can serve as the key to strengthening measurements integrity, fortifying governance, and unlocking a new generation of as yet unimagined digital tools, products and services.
- Next, **in Thought Leaders to Change Makers**, we argued for diversity and collaboration in capital and incentives to better empower innovation champions at all levels. Diving deeper, we examined how, though collective action, we can better bridge the gaps between multinational muscle and grassroots pioneers.
- Finally, **Catalyze Consumer Demand** looked beyond the technical challenges of scaling innovation. Instead, we tackled the challenge of building emotional resonance between new foods, agricultural practices, and consumers, as a means to better mobilize mass markets for a future driven by regenerative, sustainable, climate-smart products.

Why was attendance limited at Transform Food 2023?

By limiting attendance to just 120 of the world's most forward-thinking and influential food and agriculture executives, we ensured that every connection and conversation held on site mattered.

By designing the forum for a closely curated group, we were also able to ensure maximum impact and the best experience for all speakers, sponsors, and attendees.



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PILLAR 1: REALIZE RESILIENCY

Key Theme: How do we unlock the structural barriers to transformation, and lay the foundations for the acceleration of innovation, investment, and impact improvements globally?

Keywords: Ecosystem Transformation, Supply Chain, Investment Opportunities, Agriculture Practices, Land Use, Farmland Conversation, Climate-Neutral, Carbon Marketplaces, Feed Management, Methane Reduction, Financing Solutions, Sustainability, Regeneration, Deforestation, Biodiversity, Water Use, Innovation Sharing, Precompetitive Collaboration, Farmer Incentives, Business Diversification, Consumer Behaviors, Net Zero.

Contributors: General Mills, Bunge, Tyson Foods, Naturally Minnesota, WBCSD, Bayer, Growers Insight, S2G Ventures, Cargill, Shake Shack, Cream Co., Richards Grassfed (California), Danone, Environmental Defense Fund + Business, Elanco, Nestle, Clear Frontier Ag, Bowery, First Capital, American Farmland Trust, Maple Acres (Wisconsin), Tillamook.

Brand Purpose as a Driver of Authentic Business Transformation

General Mills North America Retail Group President Jon Nudi highlighted three priorities the company has made around sustainability. In addition to getting to net zero emissions by 2050, it has also committed to working with farmers to ensure that regenerative practices are used to produce the raw materials used in its products. In 2019 the company made a commitment to incorporate regenerative practice on 1 million acres of farmland that provides it with raw materials. The third priority is to get to 100% recyclable packaging by 2030.

Some people look at big companies negatively and blame them for not doing their part, but Nudi said General Mills believes because of its size it can make a big difference. "Because of the number of impressions we serve, millions of boxes of cereal each week, we can use those boxes to talk about regenerative farming," he said. "Consumers tell you they care a lot about the environment, and I think they do, but at the end of the day are they willing to pay more for it? Are they willing to make a choice behind it? There's certainly a group of consumers that will but I will tell you the mass population isn't there yet. We will continue to use our scale to continue to do good."

Long-Term Transformation from the Board Room

Bunge Global announced in June its merger with Viterra Limited to create a global agribusiness company with the goal of better serving farmers and customers and using the combined company's scale across geographies, seasonal cycles, and crops to increase its ability to manage risk and increase resiliency. Bunge, with its processing capabilities and Viterra with its storage, handling and distribution

Jon Nudi of General in a fireside chat with Allison Hohn, Naturally Minnesota

provides global diversification. "We must improve the efficiency between where we grow and where we move from where we produce and where it's consumed. That's why it's important to have scale and have assets in the right place at the right size," said CEO Greg Heckman.

Heckman said the merger give the company global diversification across origination, processing, geography, and crops. I think everyone would probably agree the world's not going to get any less challenging. No one in the world really wants to see us open up more acres or hectares while at the same time we've got a global population that's going to continue to grow so that means we have got to increase production on the land that we have.

"When there is a weather problem I think we all agree the weather is more volatile with climate change and you have a production problem it's much more intensified because there's more production in each region and so as we as grow production to that feed population when its growing where we're not must move that and we must move it efficiently and that's going to take investment in origination, storage handling and try to lower that cost with effectiveness and efficiency between where its produced and where its consumed. This again, is a place where scale has its advantages of making those investments in long-lived assets that are going to live for 30 years. Building them in the right place at the right size and expanding them at the right places to make the system more efficient is really important and then when you think about sustainability and the demands around a lower carbon footprint, the products and services are being developed today and that takes investment and it takes some of the most experienced people and having them work with your customers in new way. It takes investment in managing the data all the way from the farm all the way through the value chain and making sure we're sending those value signals back down."

Lessons Learning Expanding Climate-Smart Markets, Carbon Sequestration and Emissions Reduction through Regenerative Agriculture

Some of the nation's largest food producers have come to realize their influence in guiding toward sustainable farming practices can be substantial. Katherine Pickus, vice president of sustainability and global impact for Tyson Foods said one in five pounds of chicken, pork and beef comes from Tyson and this meat is sourced from 12,000 corn, wheat and bean farmers who provide grain for animal feed. The company is using money from a USDA grant program geared toward ag systems transformation to help show and train farmers on new environmentally sound practices. "I feel like we are reinventing the value chain for the better," she said.

Katherine Pickus, Vice President of sustainability and global impact for Tyson Foods explained how Tyson built a partnerships with the EDF, the Nature Conservancy and with the federal government, which under the Biden administration has launched grant programs focusing as much as $3 billion for agricultural systems to drive transformation toward sustainability and carbon sequestration. She said Tyson had started the year before looking at its own long-term sustainability program. The company's ability to drive change at scale is apparent from its significant footprint in providing one if every five pounds of chicken, beef and pork engaging 5,000 farmers in the process to raise the animals and the grain needed to feed them.

Tyson former chief sustainability officer and now Chief Financial Officer John R. Tyson voiced the desire two years ago to make the company a leader in sustainable food and driving change in the food system, she said. It started with long conversations with investors, farmers, customers, and consumers about what they expected. It also involved bringing in organizations including the Environmental Defense Fund to help the company ensure it has the right measures, the right accounting, and the right disclosure elements. The Nature Conservancy helped with grazing practices and the work the company was doing with farmers.

"We brought this program together in a way that was going to help our customers and everybody along the value chain meet their net zero ambitions, meaning that we're not just in this for Tyson," she said. The company wanted to deliver a competitive advantage to farmers who were increasingly finding pressures of pricing and other factors.

Then the Biden administration began offering grants as part of its broader climate change policy. The USDA grants would add another layer of complexity but provide access to investments and training that many farmers don't access, Pickus said. "We knew working with USDA was going to do number of things for us another level of rigor, another level of inclusiveness in terms of how we're going to work and not just our value chain but to really transform the American agricultural sector." She said the company learned it had to stay flexible since there is no roadmap or guidebooks for such a program. "Coming into this with some humility and openness and willingness to learn and be flexible has been really, really important," she said. Change is often done by leveraging processes that exist. Sometimes we need to

disrupt those processes or fundamental beliefs. I feel like we are reinventing the value chain for the better. This takes a little time. I think our biggest mistake was thinking this was going to be a little easier and was going to take a little less time. I think now that we know we need to be a little more patient and give ourselves more time for course corrections and be less hard on ourselves."

Lucie Smith, Senior Manager Soft Commodities Forum, WBCSD World Business Council For Sustainable Development said the council includes six large commodity traders including Bunge, Cargill and ADM. The platform is dedicated to fostering collaboration to make sure these companies are stronger together to address common industry challenges. "I'm firm believer in the role collaboration can play in driving transformation of these systems," Smith said.

Keynote Panel of Industry Leaders' on Realizing Resiliency

Transformation takes a willingness to begin thinking differently and striving to overcome the inevitable obstacles. General Mills' Jon Nudi said getting the message all the way through the organizations and into the minds of business leaders of various brands has been a gamechanger.

Bunge CEO Greg Heckman said the biggest challenge everyone is trying to solve is managing the data, the innovations and figuring out how to share innovations across the industry and share incentives with farmers.

Leonardo Bastos, senior vice president of global commercial ecosystems at Bayer said farmers must get paid to agree to implement farming practices that help meet climate smart goals. He said the company has 10 million acres of farms engaged in programs learning how to sustain new practices. "We're looking for things that go beyond compliance and create a real impact and a meaningful impact at scale," he said.

Aaron Rudberg, managing director and chief operating officer at S2G Ventures said it's clear from research that consumers do not pay for climate related messaging but will pay for health and wellness, a key growing trend that can be synonymous with climate to a degree, so he believes there may be a story to tell for consumers there. "I think part of the challenge is a lot of companies we see whether it's at the farm gate or downstream to the consumer they're talking about premium products and that, I think, doesn't work at scale." He said many entrepreneurs and new companies think what they've developed is a good product and people will pay for it, farmers will pay for it, the supply chain will pay for it but ultimately no one wants their margins to be impacted. "I think this industry has gotten smarter on that in the last few years there are a number of companies that have raised a lot of money at very big valuations that have seen significant down rounds now and I think hopefully that will be a good thing for the industry. It's tough, but I think that will show that it's got to be cheaper and better than the solutions that are out there."

Leaders from Bunge, General Mills, S2G Ventures and Bayer in conversation with Aaron Magenheim, Growers Insight

Rudberg said the reality is the industry must feed a lot of people and many of the movements are well intentioned but are going to be just local to their community and not able to scale. "Ultimately, we're moving millions and millions of tons around the world, and you've got to be able to work within that structure. What we're focused on quite a bit now is what is commonly known as grey to green sorts of initiatives where you take companies that have scale midstream and work with them on greening their operations. It's not going to happen immediately but there's huge appetite from those leaders running $500 million to $1 billion type companies supplying many of these customers and they're sitting there saying my customer is saying we need to change and maybe they're running 15 manufacturing facilities and they're not sure." He said many are family-owned operations looking to have someone come in and help them transition over the next 10, 15 to 20 years. "We think that's a massive opportunity to help them do a number of different initiatives to just meet the demands of a General Mills or others."

Rudberg said the data collected in the agriculture and food space has potential value in providing add-on services. "Can we wrap insurance, lending, and warranties. Look at a lot of other business models. Apple makes a ton of money on their warranty programs, so how do you rethink how you use this data and provide and manage risk for different parts of the value chain and we think that's a real opportunity.

Tackling Deforestation and Biodiversity Loss in Critical Agriculture Markets

Cargill has focused efforts on the ability to trace products to farms to ensure the company is buying grain that isn't contributing to deforestation, said Renata Nogueira, sustainability manager at Cargill. Since 2006 Cargill has made a sector commitment to buy only deforestation products from the Amazon biome. Cargill has a goal to have a deforestation-free supply chain by 2030.

Data from the United Nations Food and Agriculture Organization indicates 90% of deforestation globally is attributable to the agriculture sector, half of which is cropland expansion, said Ryan Whisnant, land use finance director for the World Business Council for Sustainable Development. That is estimated to contribute to 20% of global greenhouse gas emissions annually. Banks he works with are getting pressure from consumers, governments, and nongovernmental organizations to help curb climate change.

The Real Deal for Regenerative Agriculture Impact in Food Service

The definition of regenerative agriculture remains a challenge, but Carrie Richards-Prelip, an owner of Richards Grassfed Beef in California defines it with three primary metrics: practices including cover crops, minimum tillage and hosting animals on the land; mindset, changing the way of thinking to viewing the ecosystem as a whole and not just land and animal management; and monitoring, the careful tracking to verify ecological outcomes. She runs a five-generation regenerative operation.

Farmers adopting regenerative practices face obstacles, particularly smaller farmers lacking infrastructure support, said Clifford Pollard, CEO of Oakland, California-based Cream Co. Meats, a federally inspected processor and distributor of regenerative meat. The U.S. lacks slaughter capability, processing, cold storage and last-mile distribution for smaller farms focusing on regenerative practices. "These are all major hurdles for independent ranchers and families moving away from traditional systems we're used to operating," he said. "We're not asking for the world. We just want a seat at the table."

Jeffrey Amoscato, senior vice president of supply chain and menu innovation for Shake Shack, began working with Pollard five years ago to meet the desire of local customers in Palo Alto, California, to have Northern California grass-fed beef in the burgers. Creamco aggregates natural sustainable regenerative meat products from Northern California, Washington and Oregon allowing restaurant chains like Shake Shack to connect with farmers using these practices. "We've built incredible supply chains to move grains and products across the globe, yet we struggle at the local level to move small amounts and small quantities to very specific kinds of outlets," Amoscato said. His company also is working with pork producers with regenerative programs and other U.S. producers to expand the program in Shake Shack. "It's a challenge to incorporate these types of programs while also looking for efficiencies and all the other things you're trying to do as a restaurant chain but finding other areas within protein procurement and other types of ingredients that could possibly have a positive impact on the environment. It's certainly a passion for us and the challenge is to find new suppliers and programs with that benefit."

Building Meaningful Innovation and Collaboration on Methane.

The dairy and cattle industries are focused on methane reduction for their part of alleviating global warming. Methane is a powerful greenhouse gas the U.S government says is the second largest contributor to climate warming after carbon dioxide and the government estimates about 60% of methane emissions are from human activities, the largest sources being agriculture. (source: https://climate.nasa.gov/vital-signs/methane/)

Danone vice president for regenerative agriculture policy Chris Adamo acknowledged that reducing methane emissions by 30% by 2030 won't be easy. Next year the company will start reporting a line item for methane separately from carbon dioxide. The company is experimenting with solutions for manure including anerobic digesters, liquid-solid separators, composting on farms, manure application systems including injection systems. The company has committed $25 million toward a variety of those projects and has received a USDA climate smart grant for manure handling. Katie Anderson, Environmental Defense Fund + Business senior director for food and agriculture said: "At the end of the day the methane problem is really a critical problem here, but the solutions cost money and we need to find ways to finance them with the farmer."

Redefining the Problem-Solution Scenario for Climate-Neutral Cattle Farms

Athian, which benchmarks, validates and certifies greenhouse gas reductions, carbon capture and energy production in the animal agriculture industry and animal health services company Elanco announced at the Reuters event the establishment of the first ever voluntary livestock carbon marketplace aimed at reducing enteric methane emissions and improving feed utilization by using feed Elanco feed management products.

Jeff Simmons, President and CEO of Elanco, said the new market allows dairy and cattle farmers to access data to measure their emissions and can then work with Elanco on interventions to reduce it including certified feed ingredients that reduce the animal's production of methane. Data can be certified and monetized. Credits can be offered to companies like Nestle and Dannon to purchase and some of the cash flows back to the farmer. Simmons said reliance on plant-based protein food offerings to reduce beef cattle production isn't a solution. Time is too short to wait for widespread consumer acceptance, he said. "Plant-based protein is great, but I don't think we have enough time to stop the global diet. We just ate more animal protein last year than any time in history so our energy needs to go to climate-neutral cattle farms and it's going to happen, and today's announcement will be a catalyst," he said.

Chris Adamo of Danone engaged in discussion with Katie Anderson, EDF+Business

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Exploring How Much Farmland We Need to Achieve Net-Zero, and How Do We Better Balance Development with Protection

As sustainability strategies become increasingly reliant on farmers adopting regenerative practices at a grassroots level, it's critical to explore the urgency of farmland protection in the face of growing pressures to convert it to residential development and other nonagricultural purposes. "Once you pave that soil you are capping it," said Jocelyn Bridson, director of environment and community impact at Oregon-based dairy cooperative Tillamook. "There are so many reasons to protect farmland beyond just reducing your emissions."

John Piotti, American Farmland Trust, said 8 million acres of U.S. farmland has been protected over 40 years with the use of agriculture conservation easements. He said in the U.S. from 350 to 380 million acres of farmland will change hands in next 15 years due to the age of farmland owners. A lot of that land is going to be highly vulnerable to sale to developers. "It's also an opportunity, with the right tools, that land can go into the hands of new operators that will bring new energy to farming and will be right there front and center wanting to adopt the best practices," he said.

Maple Acres farmer Kyle Zwieg said selling a conservation easement on is family's farm allowed him to become the seventh generation of his family to continue farming by providing capital to implement sustainable practices and provide and income for his family to continue farming. Such easements give farmers the ability to view things on a larger time horizon which fits well with sustainability efforts. "I'm not focused on just the next 12 months of profitability. I can focus on the next 10 to 25 years," Zwieg said.

Rethinking Capital for Scaling Regenerative Agriculture

Adele Durfey, Clear Frontier Ag Management sustainability director: "The biggest incentive for growers to make sustainability changes on the farm is to get paid for it. For example, she estimates farmers are getting paid about $25 an acre for trying cover crops but her data shows it would have to be closer to $45 an acre to make economic sense for the farmer. Those programs are great, but I don't think it will drive the change in practices for a lot of these growers.

Aaron Rudberg, managing director and chief Operating Officer at S2G Ventures said his company helped establish Clear Frontier, a Nebraska-based agricultural management company focused on promoting sustainable farming practices including carbon capturing, and crop diversification.

"One of the things we looked at early on is how do you flow capital toward these problems and these issues. There's enough capital in the world to solve many of these climate and transition needs, but it's allocated in the wrong place. It is our fundamental belief, so when we looked at Clear Frontier and set the business up, we were going out to institutional investors and saying your farmland portfolios are mainly conventional. Start to look at other niches regenerative, organic, and put capital in those other areas. The large institutional pension funds, endowments, family offices and sovereigns basically shook their heads saying number one I either hate farmland as an investment asset class or I do it but it's basically like fixed income bonds and I'm not looking for a return. So, we started to dissect that and found actually you can make more money in these sectors and do the right thing for the environment. So, that became something a lot of large institutional investors found attractive. However, I would say there were lots of incumbency issues there. A farmland investor is invested in a fund, and they don't want to take that out so there are issues around where capital is allocated. I think there are real challenges in the industry, however with Frontier, groups like Goldman Sachs and others stepped up and came into the model. The big piece though is measurement. They want to see measurement as a baseline.

In many cases if you stop paying farmers to do these things, they'll stop doing it. It goes back to the fact that people running a business. They have to figure out what works. It's foolish to think farmers are going to spend more money and get less profit. It just doesn't make sense.

We just put out a report at S2G where capital is flowing to what we called the missing middle. There is more money going to carbon accounting software than has gone into the entire ag tech space," he said. Investors hear software as it applies to carbon, and they throw money at it. But robotics, ag bioproducts or biologics are not attracting these investors because they take a long time.

"There is misallocation of capital in many ways."

Growing Pains in Vertical Farming Highlight Opportunities for More Thoughtful Growth

Irving Fain of Bowery Farming, a New York-based indoor producer of leafy greens, berries and herbs said indoor vertical farming is one solution to more efficient produce growing. His company is using technology to reinvent the supply chain to be simpler, safer, and shorter by taking lots of players, time, distance and collapsing it all into a building located close to consumers who will buy the products.

The market opportunity for vertical farming is about $1 trillion a year on a global basis encompassing the leafy greens and herbs now grown indoors but other crops as well. "The time for change feels very much now and feels very present today and the urgency, the immediacy of the need for new solutions is absolutely here," he said.

Rob Hayes, board partner at First Round Capital, said he invested in Bowery Farming early on when it was four people and before the first farm was built. "It was clear to me that there could be other ways to supplement how we grow crops today," he said.

He was intrigued not only by the growing techniques but the extensive use of software and technology to control growing and the ability to learn from one farm and expand the most efficient growing processes to others creating a network effect that enables the company to expand more quickly. He said Bowery has survived where other indoor vertical farming companies have not and it's in a good position to scale up. He said the food and agriculture industry has shown at the Reuters conference and others that the players are aligned in their goals and working toward building an ecosystem that companies like Bowery can be a part of. He said this is the time when the seeds are planted "for the next generation of companies that will define what the market looks like will begin taking hold," making it an exciting time for investors like him looking for opportunities.

Irving Fain debates key lessons learned with investor Rob Hayes, First Capital

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PILLAR 2: EMPOWER ANALYTICS

Key Theme: How do we free the flow of analytics farm-to-fork, and better leverage digitalization to strengthen impacts governance throughout the value chain?

Keywords: Compensation, Data-Driven Agronomy, Grants, Collaboration, Regenerative, Supply Chain, Seed Traits, Cover Crops, Biologicals, Risk Management, Carbon Emissions, Soil Resilience, Carbon Benefits, Land & Water Resilience, Natural Capital, Precision Agriculture, Nitrates, Cope 3 Emissions, Synthetic Fertilizers, Trust Relationships, Microbes, Sustainability

Contributors: Pivot Bio, Danone, Trimble, Nestle, Bayer, H&G Farms (Minnesota), Ecosystem Services Marketplace Consortium, Athian, ARVA Intelligence.

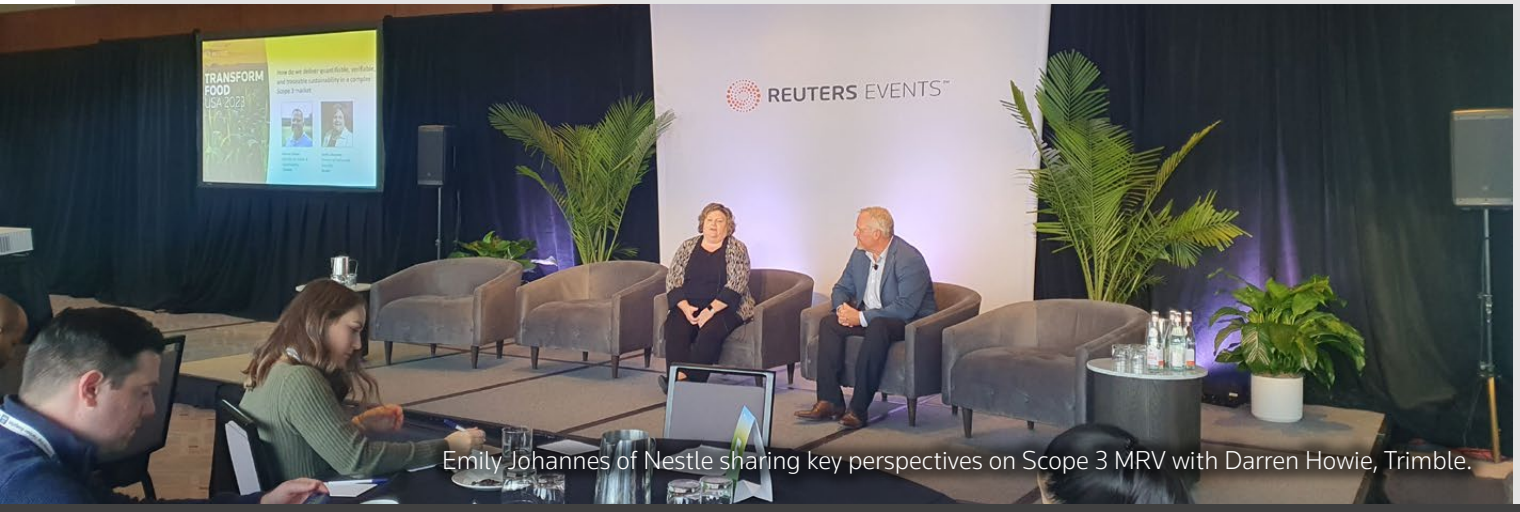
Beyond Carbon: Acceleration Actions on Synthetic Fertilizer and Water, While Addressing Your Scope 3 Emissions

Dairy manufacturer Danone has worked with its farmers for many years building a relationship of trust. Vice President Chris Adamo, the company's regenerative agriculture policy executive, said that allowed it to work with farmers on sustainability efforts that have included herd management practices, nutrition, animal welfare and in 2018 a soil heath program began. The farm challenge is keeping producers engaged and making sure they're feeling like they're being compensated adequately, Adamo said. "It also helps that the data system we've established through our program is their data. We're not collecting it and we're not holding it. We get the aggregated output but it's their data so first and foremost they get to decide what's useful for them and what they plan to do with it. That's a trust factor."

Christopher Abbott, Pivot Bio CEO said the trust relationship with growers is an absolute necessity. His company makes microbes that fix nitrogen, providing corn plants with 25% of the nitrogen they need, allowing farmers to reduce the use of synthetic nitrogen reducing the nitrate water contamination often associated with abundant fertilizer use on fields. The company's product is placed in the bags of seeds farmers buy, so Abbott said Pivot Bio introduced its product through trusted relationships the farmers already had established with seed dealers. The company has a program that captures data from farm usage including inputs, yield, outcomes from use of the product. We get our customers to share the data back with and out of the 3 million acres using the PivotBio product, 1 million acres came back with data, he said.

Scope 3 Action - Moving from Pilot to Scale Along Complex Ag Value Chains

Darren Howie, director of carbon and sustainability at Trimble said his company has worked in the precision agriculture space for 40 years, working with all major equipment manufacturers to install equipment that helps farmers separate fields into zones in which precise data



Emily Johannes of Nestle sharing key perspectives on Scope 3 MRV with Darren Howie, Trimble.

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measurements can help them apply fertilizer, pesticides, and herbicides in precise amounts for maximum crop benefit. This helps the farm with cost and crop efficiency and protects land and water from overapplication. This process can work with individual farmers and their trusted advisors like an agronomist to "tie the right new intervention on that farm and so it might be reduction in tillage or going to zero till on one farm or it might be a nitrogen management program on another farm to reduce nitrous oxide emissions," he said.

The company has a program that aggregates all the farm data and can provide it to companies like Nestle to prove their sustainability claims. "There is an appetite at farm level. They're wanting to participate. They're looking for guidance, looking for what information would be acceptable, what can drive revenue and returns," he said. The objective is to help farmers build more resilience in their soil through more organic matter, creating better soil, driving behaviors around nitrous oxide and nitrogen use. Those things that are good for the farm and good for the soil first also have a carbon benefit, he said.

Nestle Director of Sustainable Sourcing Emily Johannes said major food suppliers like Nestle had a great need for the farm level information to help establish they've met their sustainability and climate goals and partnering with companies that can accomplish that is critical. "For us at Nestle it was about proving that this can and will happen at scale very quickly. We've been moving very, very fast and we appreciate others moving with us very fast along this journey." When the company announced its net zero roadmap it announced a $3 billion investment in making changes to its supply chain, she said.

Business of Farming Today. Partnering, Regenerating for Future Generations

There's no question the business of farming has changed dramatically in recent decades with the advent of new technologies and farming practices that promise everything from improved yields on less land to new carbon revenue streams. Minnesota farmer and agronomist Harmon Wilts and his daughter, agriculture economist Katie Johnson discussed with Leonardo Bastos of Bayer Crop Science their farm journey to more sustainable practices and what farmers need to ensure they remain in business and meet expectations of those who buy and use the products they produce, and inevitably the consumer.

Wilts said since he began farming in 1999 in Minnesota, he has shifted to minimal tillage practices and use of auto steer on his farm equipment using technology that allows precise field data measurements for most effective application of fertilizer and other inputs. While he controls the data, he shares it with partners to improve farm efficiency. "We have about 28 different people that impact our farm on a partnership all the way from John Deere to Case to Bayer," he said. "We realized along the way that you need to grow, or you won't exist. We continued on the path of utilizing technology to get better."

Katie Johnson explained that farmers are willing to try new ideas but approach them with a concern about how they might impact profitability. Their Minnesota farm is planting cover crops for the first time, but they found in their short growing season the cover crop just emerged and began to grow before the first freeze set in. "We're curious to see what comes in spring. We're excited about them, hopeful for them but essentially looking at an $80 per acre additional cost and I don't know how much it's actually going to grow in the spring." This illustrates how some of the new practices are risky for the farmer, Wilts said, but most are willing to try but they cannot lose money. "We're willing to make some changes, manage risk, but I think we need your help on the knowledge base how do cover crops work, what do we do, where's the data flow to get the revenue back to the grower?" Wilts said. "We don't need all the revenue, but I think some value added is kind of key and then I'd say putting your heads together and figuring out new sources, new technology, new seed traits and those kinds of things working together as an industry to give us better products that uses less nitrogen, uses less water per bushel, these kinds of things."

How Do We Empower Analytics Through MMRV Platforms to Strengthen Collaboration and Shared Value Creation

From cutting carbon emissions to improving the fertility and structure of soils, greater digitalization, artificial intelligence (AI), and automation all have the potential to solve the most complex and business critical farm-to-fork challenges.

But the issue placed in front of panelists at the end of the first day of the Transform Food 2023 in Minneapolis, was how to unlock the power of data and new measuring, monitoring, reporting and verifying (MMRV) systems, without putting new burdens on producers.

Debbie Reed, executive director at the Ecosystem Services Marketplace Consortium, who was moderating the session,suggested that because of the complexities of agriculture, it is a sector that: "we need to think about it differently." Added to this, she said, was the fact that companies are already asking a lot of farmers, and that technology needed to lessen this load, not increase it.

"You have to begin with the end in mind, which is the farmer," said Paul Myer, chief executive at Athian, a technology company developing new ways of funding sustainability across the livestock value chain. "(Otherwise) there's no way you are going to move the needle on climate change."

Farmers need a technology platform that is easy to use and: "flexible enough to pull in multiple data inputs, because that is where all the innovation is taking place," he continued. It's about giving the farmer: "a holistic view of everything that's going on the farm," and must be: "something that can scale to work with hundreds of thousands of producers."

"The farmer wants to be part of the solution," agreed Jay McEntire, chief executive at Arva Intelligence, which works on sustainability initiatives using data-driven agronomics. What they are saying is: "treat us like your partners to get there, and we will make unbelievable, transformative impacts," he added.

New MMRV systems are going to provide a lot of information that can help farmers make better agronomic decisions, and by working with them, and the input manufacturers, we can prevent the over-use of fertilizers and other biologicals and reduce the negative environmental effects of agriculture; farmers are: "the engine that will generate this impact," continued McEntire.

But echoing Myer's point, he continued that we need to make it as easy as possible for farmers to become involved. Reporting and verification requirements all need to be available on one platform, he explained, so that farmers don't have to reinvent the wheel for every producer they work with.

The growth of MMRV systems is all part of the data driven economy, said Emily Johannes director of sustainable sourcing at Nestle. "It allows you to tackle issues simultaneously rather than one after the other... it's real-life problem solving." Johannes was also excited about the wider co-benefits these systems could bring across the value chain, such as helping making farming communities more sustainable and resilient. She also pinpointed other potential benefits, such as their ability to provide shareholders with the rigorous verification of company actions that they now demand, as well as providing company employees often more used to looking through a financial lens, with a new way to quantify value.

The panel also talked about the need to compensate farmers and ranchers who improve the environment through their agricultural practices and understood the importance of providing accurate data. "Farmers will do that if they see this as an incentive and not as a penalty," said Myer.

Payments need to be made in a predictable way, he continued, with producers fairly compensated and confident that it was on-going revenue stream. "Government can play a role with grants and projects, but you've got to have an ecosystem that will drive it for the long haul," he added.

As well as partnering with farmers, there was also a call for greater industry collaboration. "One supply chain actor can't do this alone," said Johannes. Reed agreed, adding that in order to create a system that can really maximise the benefits of MMRV: "supply chains need to work together."

PILLAR 3: THOUGH LEADERS TO CHANGE MAKERS

Key Theme: Key Theme: We need to empower innovation champions at all levels, so how do we bridge the gaps between multinational muscle, grassroots pioneers, and transformational entrepreneurs?

Keywords: Leadership, Transparency, Collaboration, Consumer Demand, Retailers, Adaptation, Shareholder Value, Trust, SBTI, Biodiversity, System Transformation, Partnership, Competition, Cover Crops, Risk Mitigation, Regenerative, Commercialization, Sustainability, Organic Certification, Private Label, Third-Party Verification, Certification, Greenwashing

Contributors: Whole Foods Market, Unilever, Elanco, Practical Farmers of Iowa, FoodShot Global, United States Department of Agriculture, Archer-Daniels Midland (ADM), WBCSD.

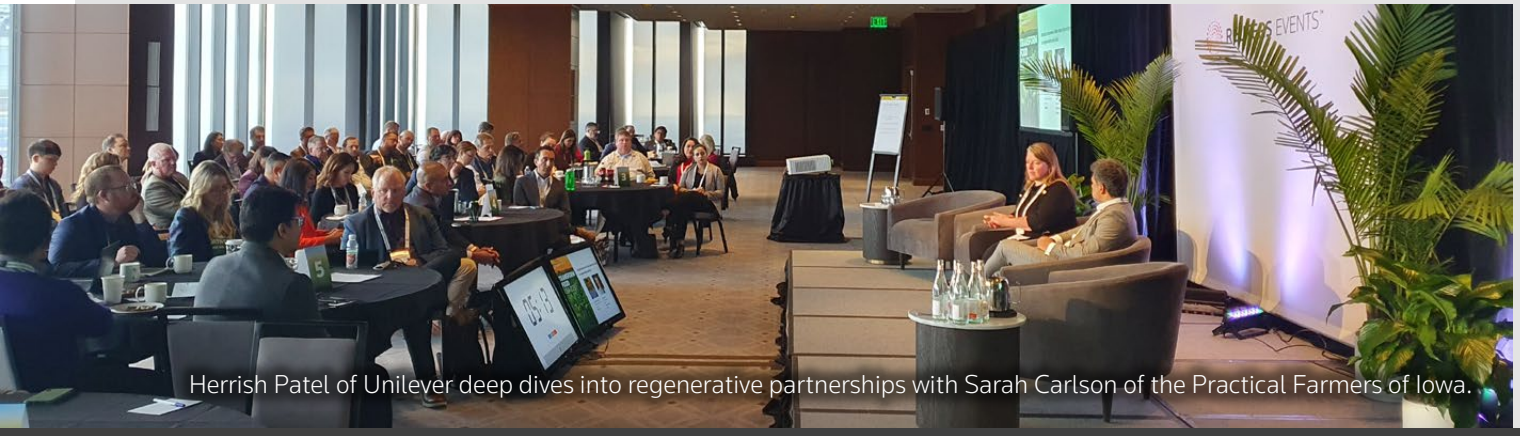
Empowering Innovators to Drive Business Transformation at Scale

Whole Foods Market CEO Jason Buechel said his company was certified organic 20 years ago, the first national retailer to accomplish it and now there's a focus on regenerative practices as his company works with hundreds of suppliers preparing for certification in that area. He said 50 suppliers have certified 250 regenerative products in Whole Foods stores and that number will grow. He said the company has taken the first steps in private label space, releasing the first three regenerative organic certified products in the marketplace including two lentil products and dried mango. "For us it's about how do we continue to elevate the standards so we can help protect our food systems for future generations."

Going further, he's concerned that terms like regenerative may be diluted creating confusion in the minds of customers. "What I worry about is there will be a lot of greenwashing from using that word and lot of self-proclaimed certifications and labeling processes where a customer is not going to know the difference in what they're buying," he said. Whole Foods has a regenerative agriculture labeling policy that involves third-party verification like the company's other quality standards.

What Does True Action on Regenerative Look Like?

Unilever has worked for more than 10 years to make sustainability a commonplace driver throughout its business, said Herrish Patel, the general manager of North American Nutrition. The company has a goal of making 3.7 million acres (1.5 million hectares) regenerative by 2040 and in North America 90% of the business will be regenerative by 2027, a goal for which the company has committed $35 million. He said the supply chain must be resilient and reliable for future generations and there is a business case that goes with regenerative. He said it's not just a corporate social responsibility campaign, but it makes financial sense reducing costs, improving productivity, supporting the longevity of farms and taking away risk mitigation for suppliers.



Herrish Patel of Unilever deep dives into regenerative partnerships with Sarah Carlson of the Practical Farmers of Iowa.

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Unilever, which supplies brands including Ben & Jerry's and Breyers ice cream and Hellmann's mayonnaise said it has 520 farmers in Iowa and 180,000 acres (72,800 hectares) using cover crops in a partnership with Pepsi, ADM and Practical Farmers of Iowa. "It's a new horizon of thinking that requires system transformation cannot be done by one big manufacturer. It's a total change leading it." Ultimately, change comes when the consumer will demand it," he said. "That's the big question, how do we commercialize it with consumers."

Sarah Carlson, Practical Farmers of Iowa senior program director said even though her organization and Unilever are at different ends of supply chain they agreed a decade ago to work together on sustainability. "Humans learn from other humans and make change because of stories in their community," she said. "We're investing in human agronomists to coach farmers then help farmers mentor others. The organization hosts 300 events a year for farmers to discuss practices. Unilever helps invest in the human resources we need so we can say to farmers they're not going away. They care about your soil. They want to pay for cover crops on your farm and want us to help you reduce your risk."

Driving Seismic Change Across the Food and Agriculture Value Chain

Alison Taylor, ADM chief sustainability officer said many companies including ADM are saying sustainability and company strategy are one in the same. She said investors and consumers want to know more about the company's sustainability policies and achievements and consumers particularly want to know more about where the food is coming from. She said trust is being built among competitors working together on issues like climate change. "The more we come together, we put our resources together, our heads together and also common messages to a very important population to all of us like the producers, the farmers, the more effective we're likely to be," she said. She said determining the baseline using scientific information is a current challenge.

The company has a new partnership with an organization focused on biodiversity to understand more about where global hotspots and sensitive areas are located. "Farmers have the right to convert their land, to plant more land, so there's going to be some interesting conversations that we'll try to center on the science and lot of the information that were gaining through our partnerships," she said.

Keynote Panel of Industry Leaders' on Though Leaders to Change Makers

Major retailers and others in the food supply chain struggle with how to convince consumers that products from regenerative and sustainable farm practices are worth buying.

The reality is we've got a great story. We just have to figure out how to get it out there," said Whole Foods CEO Jason Buechel. "I get excited when we can talk about how companies who otherwise might be competing are working together and taking on the challenge to say we're not going to have sustainable businesses years from now if we can't actually help solve this problem. If we don't work together in support of those efforts."

ADM's Alison Taylor said she was happy to hear business executives talk about farmers as business people who should be involved in discussions about resilience, yield, soil health and how these things can help their business improve. "It's the right thing to do. It's great for nature. It's important for farmers who care about nature too and most of them think they are stewards of nature, and most of them are. So, meeting them where they are is also an approach we take with regenerative agriculture. Not everyone is ready for a full menu of practices. I'm glad to hear everyone recognizing that."

Katie Cook, vice president of farm animals at Elanco, said there will be many ways farmers can utilize sustainable practices and interventions and it's wise to be open minded and talk through the different options and give producers choices "doing it in a way that is impactful and educational, so they understand what we're doing."

Patel said the customer journey will take five to six years. "Anybody who knows the food industry will know we hate change. It will take multiyear investments between

manufacturers and retailers to drive consumer awareness and we have to stay the course," he said. "This decade does need a new form of leadership that's very different from the last 20 years. We're going to have to have leaders that will stand tall in industry events and say how we work together to go at a 10x versus the 2x were going now. For us, this is how we want to run our business and it's the only way to run the business if we're going to be here for another 100 years. It's important to the business we've got to create shareholder value at the same time."

Concerns were voiced about the cost to consumers of products from regenerative, sustainable practices and where they're willing yet to pay a higher price.

"As we bring more transparency into the mix, I think understanding the value of what you've been paying for is going to be much more on the minds of our consumers," Buechel said. It's not likely in the next year or two probably the next five to 10 years, he said. "Our Gen Z consumers, they see what we're going to be passing on to them if we don't solve this now, then their children and grandchildren are at risk of not being able to enjoy the products that we know and love today." He said communicating the fact to consumers that everyone is learning more is important. "We are trying to deal with results, what's happening in our food systems. While it's not always something that everybody wants to hear, but the reality is just take the past 12 months what we've seen in climate impact is directly tied to leafy greens, berries. The cost of olive oil is going to be going up really soon, all due to the unprecedented temperatures we saw this summer. As you learn more and see more you have to continue to evolve. Practices we're using, even certifications we're putting in place aren't necessarily going to move the needle of what we need them to do. We need to relate tangible examples of why we need to raise the bar."

Patel said leaders need to show vulnerability and be transparent. We're learning as we go and we evolve as we go. "We are learning and we will adapt. We're in a new dawn of leadership."

Leaders of Whole Foods, ADM, Unilever and Elanco respond to key questions from Sara Eckhouse, FoodShot Global.

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PILLAR 4: CATALYZE CONSUMER DEMAND

Key Theme: Looking beyond the technical challenges of emerging food categories, how are we going to build greater mass market demand for regenerative, sustainable, alternative or climate-smart products?

Keywords: Sustainability, Regenerative, Climate-Smart, Inflation Reduction Act, Farmland Loss, Resilience, Profitability, Routes-to-Market, Healthcare, Generation Z, Plant-Based, Nutrition, Wellness, Waste, Farm Practices, Food Insecurity, Malnutrition, Social Impact, Diversity, Consumer Habits, Communications, Storytelling.

Contributors: Whole Foods Market, Mars, Edelman Impact, Impossible Foods, Morrisons Healthcare / Compass Group, Target, Harmless Harvest, United Soybean Board, Flashfood, The Childrens Hospital of Philadelphia

Going Beyond Climate-Smart Commodities Partnership to Deliver a Just Transformation

The U.S. Department of Agriculture under Secretary Tom Vilsack has begun a discussion about how the national focus on producing more has led to consolidation of farms into few bigger operations. That has cost the U.S. 440,000 farms lost since 1980. About 141 million acres of farmland also has been lost. "We can't sequester carbon in a parking lot so that loss is really huge," said Sanah Baig, deputy undersecretary for research, education and economics at USDA. The impact is significant on rural communities.

She further echoed statistics Vilsack has mentioned in other recent conferences: even with record net farm income in recent years, half of the nation's farmers do not make a profit and another 40% must earn off-farm income to financially survive. Around 10% of farmers do very well and reap the benefit of a system built up over decades through traditional agriculture policy. Baig said everyone needs farmers to continue to be productive "but we also recognize we need a whole different approach and mindset to be able to build in sustainability, resilience and profitability not just for the few but for the many and the most."

She said the USDA received $20 billion from the Inflation Reduction Act to be used mostly for conservation programs. She said such investments are critical to making sure the U.S. remains prosperous. These and other investments are an effort to improve the ability of the agency to gather data on climate smart technologies to determine what is effective. She said it is an opportunity to translate information into practical applied knowledge, tools and resources for farmers who are making tough decisions.

Sanah Baig of the USDA and Sara Eckhouse share updates on a major federal drive for a just transformation in food and agriculture.

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Lessons Learned Catalyzing Mass Markets for Innovative Food Categories

Many consumers are beginning to look at food broadly in the context of their health and increasingly at the impact of food production on the health of the planet.

Sherene Jagla, chief demand officer for Impossible Foods, a California creator of soy-based meat alternatives, said recent research shows that 65% of consumers no longer just consider nutrition when buying food products but consider impact on the planet. She said 80% of Generation Z consumers are very concerned about the health of the planet and are already making choices to go meatless at least one day a week and 65% of Gen Z want a more health forward diet that also has less impact on the planet. "We see this trend as long-lasting and that influences how we work on product development," she said.

Jeffrey Quasha, a chef and director of culinary innovation at Morrison Healthcare, said plant-based healthier food can be made to be appealing to consumers. When his company sets up a buffet it leads with plants beginning with grains and vegetables and protein becomes the garnish. "That's part of the mindset. We can take alternative proteins or legumes and we can incorporate a lot of regenerative ag ingredients into our recipes," he said. Quasha said his company is looking at opportunities for alternative protein, focusing on plants including lentils, chickpeas, and mushrooms.

Building a Sustainable Food System by Addressing Food Waste and Food Insecurity

Dr. Saba Khan, medical director of food pharmacies, The Children's Hospital of Philadelphia works with families dealing with issues ranging from malnutrition due to lack of adequate nutritious food to children with obesity. The challenge is to define healthy foods which aren't available to many families. She worked with grocery Giant Companies to create a food pharmacy program which provides free of charge five days of appropriate food. It's a program that has expanded to eight food pharmacies in her area. "Hunger is invisible. You really can't tell who is suffering in silence," she said. "How can we create solutions with dignity?" She said there must be equity in the food system which ensures that all individuals have fair and equal access to nutritious,

Dr Saba Khan and Nicholas Bertram tackle food waste, consumer health and diet transformation at scale.

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healthy and culturally appropriate food. Not food that is dense in carbohydrates and sugar that may create further health issues for families and those already vulnerable. Systems also must be resilient to weather, economic and health crises to protect the most vulnerable in society and must be equitable so that farmers are getting adequately funded for their efforts when they choose to incorporate new renewable practices. Helping people get the right food for their health with reduce the need for social services and emergency food assistance, which she said is massive in the United States. "Most important is the education outcomes. The young people I take care of, whether it's from the obesity perspective or failure to thrive, cannot function and cannot learn on a stomach full of the wrong food or not enough food," she said. Food waste compounds food insecurity.

Nicholas Bertram, president, and chief operating officer at Flashfood, and former president of GIANT Company, said American consumers have come to expect perfection in their grocery stores which has created a standard in stores to remove fresh produce that is perfectly healthy to consumer but has minor flaws or has surpassed its best-by date. "It's just a crazy amount of food that you pull off. Grocers worked very hard to divert as much of that food into the food recovery system as possible, but there are certain things you just cannot do. You cannot shift a sandwich very easily or cost effectively into the food bank system." Flashfood provides customers with an application from which they can buy food about to expire on the shelf at a discount. Bertrand and Khan agreed that studies are showing that people want to be part of solutions and that they want food that is culturally appropriate. Bertram said of the Reuters conference: "What I love about this conference and what I love about this movement is that you really do get to see a whole food system trying to solve problems that actually need to be solved and there's an economic benefit to the companies trying to solve them and that's not a bad thing."

Keynote Panel of Industry Leaders' on How Do We Catalyze Consumer Demand for Emerging and Regenerative Food Categories

A panel of food industry professionals discussed how to overcome the emotional connection consumers have with food to get them to understand the need for prioritizing factors like nutrition and planet health in their choices.

Transformation decision makers at Target, Whole Foods, United Soybean Board, Harmless Harvest and Mars in discussion with Paige Graham, Edelman.

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Ben Mand, CEO of Harmless Harvest, which offers a variety of organic products including coconut water and dairy-free yogurt alternatives, said consumers are increasingly starting to understand the importance of what they eat and its contribution to health and the impact on the planet. "I see consumers increasingly using their wallets to reward companies and retailers for making good smart decisions. I made the decision to start transitioning our company to regenerative organic over five years go. For me, it's not only a bet for the environment and farmers one of our goals is that they raise incomes by at least 10% but I fundamentally believe it's a smart business decision. It may cost us in the short term but long term we'll drive greater loyalty and get better yields, so it's also to drive sales and profit, but it's important that I think we can actually find that win across all metrics."

Paige Graham, senior vice president for social impact and sustainability at public relations consultant Edelman, who moderated the session, said a report last summer on trust and brands found that 62% of Generation Z found that if a brand doesn't communicate actions taken to positively impact society from a social or environmental standpoint, they're going to feel that you're hiding something or that you're not doing something. "More consumers are using their purchase power to move money to products that align with their values," she said.

Eating habits are deeply ingrained in cultural, social and personal structures, making them very difficult to change, said Karina Zimerfeld, global vice president of research and development for snack, candy and pet food manufacturer Mars, Inc. She said there are more than 6,000 plant species but humans have been eating nine crops, three of which make up 50% of human calorie intake: rice, wheat and corn. She said we need to innovate more in diverse crops and diverse plants. The company has recently launched its Seeds of Change line of super grain products packed with sorghum, millet and quinoa. "It brings a whole new world of flavors in it, and it's actually helping us promote a more diverse diet and promoting more diverse crops," she said. The packets launched in Whole Foods in September and will be available nationwide in grocery stores next year, the company said in a statement.

Brandon Moore, vice president for food and beverages at Target, said building customer trust is essential is guiding them to healthier sustainable choices. "Guests love us and that's not necessarily true everywhere else. There's an opportunity that comes with that," he said. Significant consumer input went into Target's development of its in-house Good & Gather brand. Discussions included the food as medicine idea focused on health and wellness. "In listening to our guests, we realized that was really important to guests. We had to distill a lot of market research about what matters most," he said. It led to a promise Target made that there would never be artificial colors, artificial flavors, preservatives, or trans fats in any Good & Gather product, which has thousands of items now. It's not easy. You do it because you're investing in the equity of what love means to you. To earn that trust over time."

Mac Marshall, vice president of market intelligence with the United Soybean Board said soy is having an increasing role in decarbonizing the economy through its use in renewable diesel. This has led to a wave of expansion in soybean use coming online now, which is also enabling more production of protein meal, used an important feed for animals used in the production of chicken, pork and fish globally. "We're at this nice intersection where energy and food, unlike in the past, are actually working together and I'm real excited to see how that's going to evolve not just in the near term but the longer term as soy can take on a greater role as a petroleum replacement ingredient."

Marshall further highlighted the importance of opening communication lines between consumers on one end of the food value chain and farmers on the other. He said while surveys show farmers are the most trusted source of information about food and agriculture, most consumers have never met a farmer and are unfamiliar with how it starts with soil and grows a healthy plant to eventually nourishing people. "As long as there is this disconnect in the middle and there isn't this shared recognition and communication

channel, that's going to exist between the consumer and the farmer, this disruption will always be there or that perception for us. Being able to bring those two ends together is absolutely critical."

Ann Marie Hourigan, the executive leader for quality standards at Whole Foods Market heads the team that works on food standards including animal welfare, social responsibility, seafood sustainability and other agriculture related issues.

She said she's most excited about innovations that unlock the potential of agriculture to be a force for climate good.

"I think we are at the precipice of a lot of research telling us what Whole Foods has had as a hypothesis for many years, that through more responsible production practices we can do good things for the planet, whether that be climate health, soil health or biodiversity. I think in a lot of the research what we are starting to see is they are starting to unlock those metrics to quantify those deliverables on an ecosystem services scale. The other thing I'm excited about is nutrient density studies. We're here to talk about consumers and I think nutrient density study is going to be a huge unlock once we have enough data and research to say solid things about how organic, regenerative and climate smart agriculture benefits consumers their health and their family's health."

Whole Foods is in its 20th year as a certified organic national grocer and Hourigan said when the company opened its doors 40 years ago organic was not the brand name it is today. The company believed in organic and invested in it early on. "We were a founding member of the USDA's National Organic Standards Board which went on to develop and write the organic standards we know and love today. Once those standards were published, we furthered our commitment and walked the walk by becoming the first certified organic national grocer and that was in 2003 so this is the 20th anniversary of our organic certification. We carry on that legacy today going above and beyond to ensure integrity of the organic label and by offering a wide variety of organic products in our stores."

She said establishment of the organic standard was accomplished by working with farmers, consumers, suppliers, and brands to create a coalition dedicated to building the organic industry to the $60 billion sector it is today. "It wouldn't have gotten there if we didn't connect in a precompetitive marketplace to talk about the challenges of the organic industry and to invite consumers along with us. To that point, reaching out to consumers and bringing them along with us, we have to be able to articulate the benefits of the work we are doing with the consumer, not just the lofty benefits of saving the planet which is important. Don't get me wrong, that is very important. It's critical. Our businesses depend on it. Our lives depend on it. Our children's future will depend on it but consumers have chaotic lives. They are making quick decisions, and they need to understand if I buy this and not that, how is this going to affect me and my family today when I have to feed my kid and I have a screaming toddler who has big feelings. And that's where nutrient density studies and having products of high quality. They've got to taste great. They got to be great for me and my kids got to eat it. We have to quantify those benefits and articulate them clearly to the consumer, so they come on this journey with us."

ADDITIONAL CONTRIBUTIONS & ARTICLE

To help you understand the priorities, pressures, and opportunities availability in the transformation of global food systems, we invited key speakers and partners to bring you fresh perspectives that expand on the key takeaways delivered on stage.

Contributors: Unilever, Elanco, Harmless Harvest, Produce Pay, Trimble, Yara North America.

HERRISH PATEL PREVIEWS HIS KEY PRIORITIES FOR UNILEVER AHEAD OF JOINING REUTERS EVENTS: TRANSFORM FOOD 2023 THIS NOVEMBER.

Contributor: Herrish Patel, General Manager Nutrition North America, Unilever

What are your top three priorities for 2024, and why are they important to both your business, and society at large?

The future of our planet depends on feeding our growing population – yet the food industry is a significant contributor to climate change. Working towards solving the climate crisis is the top priority for us and we believe nature holds the key to that. Our biggest opportunity towards doing so is wide-scale implementation of regenerative agriculture practices – enabled by partnerships, transparency, and technology – to protect soil, ensure supply chain resilience and safeguard our future food supply for generations to come.

As head of Unilever Nutrition North America, I have three priorities for regenerative agriculture in 2024:

1. **Raise awareness and engage stakeholders** on the importance of regenerative agriculture to restore nature and decrease the climate impact of food.
2. **Support farmers in adopting regenerative agriculture.** We're working with stakeholders to provide targeted programs that engage and support the farmers and smallholders who are vital to the maintenance of our food system.
3. **Embrace private and public partnerships to collaborate on wide-scale climate solutions.** Our success relies on better collaboration with government, industry, NGOs, and farmer organizations to unlock and scale solutions faster.

How are you reaching your goals? What have you learned about transitioning from strategy to action?

As I noted, regenerative agriculture is core to Unilever's ambition to be a force for good in food and the clearest way to secure our future food supply. Together with our network of suppliers and their farmers, we are nourishing the soil, increasing farm biodiversity, improving water quality and climate resilience, capturing carbon, and restoring the land – all as part of our effort to protect and regenerate 1.5 million hectares by 2030.

Our brands bring this to life. Knorr, for example, launched 50 Regenerative Agriculture projects worldwide that are predicted to reduce greenhouse gas emissions and water use by an estimated 30%, while Hellmann's is working with Practical Farmers of Iowa to better protect the soil used to grow soybeans for its mayonnaise in the US, which has already seen 14% less nitrate runoff water and 6% less greenhouse gases compared to comparison fields, with 1 in 3 jars created by cover crop farmed ingredients today.

We're proud of our accomplishments to date, though as we make steady progress, we're quickly learning that this is an uphill journey – and one which will require extensive scaling-up by the entire industry moving forward. The industry must work together to move from supply chain programs to landscape programs, all of us working collaboratively instead of project by project.

How do we align on the value of values, to enable a net positive transformation of food production, processing, supply chains and consumerism?

I firmly believe that doing good for the planet is also good for business. And today's consumers expect companies to spearhead the fight against climate change – 67% feel large-scale initiatives from brands are needed to protect the environment.

The Unilever Compass is our global roadmap for delivering an ambitious sustainability agenda that works to drive climate action to reach net zero, reduce plastic as part of a waste-free world, regenerate nature and agriculture, and raise living standards in our value chain. As part of this overarching strategy, we're setting out to reach 50% of our agricultural food footprint to be grown following regenerative agriculture principles by 2027.

What more can we do to transform the food system?

The number one thing we can do right now to transform the food system is implement regenerative practices, which is crucial to setting ourselves up for long-term success. Beyond this, there's certainly more that we can do collectively to mitigate climate change and stabilize the future of food:

1. **Generate stronger government support to implement regenerative agriculture.** Unilever's policy advocacy efforts are focused on supporting farmers to transition to regenerative agriculture practices. This includes increasing the availability of technical assistance to farmers; developing universal metrics to report impact; and financial assistance to help mitigate any risk of making a practice change.
2. **Unlock innovative financing.** The financial sector can accelerate transformation by supplying the much-needed capital required to develop and deploy solutions at scale.
3. **Catalyze more partnerships.** Increasing the number of partnerships with government, industry, NGOs, farmer organizations will drive efficiency and unlock creative solutions.

VISION FOR CLIMATE NEUTRAL CATTLE FARMS: THE ROLE OF FEED ADDITIVES IN REDUCING METHANE EMISSIONS

Contributors: Jeff Simmons, President & CEO, Elanco (Written by Sarah LeBreque, Thomson Reuters)

As the decade marches on, one big, unanswered question continues to pervade the thoughts of business and government leaders, scientists and the general populace alike: will we be able to limit global heating to 1.5C?

Some reports say yes, some say no. Despite varying assessments, opinions and projections, the goal is still very much alive. And there is one strategy that is seen as crucial in keeping it that way: reducing methane emissions from energy, agriculture, and waste. Doing so, rapidly, and decisively, is seen as the single most effective strategy to keep the 1.5C goal within reach.

Methane makes up 20% of greenhouse gas emissions globally and is responsible for approximately half of the global net rise in temperatures since the pre-industrial period. Agriculture in particular accounts for up to 53% of all human-caused methane emissions, with livestock contributing about one third of that total, according to the United Nations Environment Programme.

Methane is a potent greenhouse gas that arises through enteric fermentation (primarily burps from cows), and from manure. Other sources of greenhouse gas emissions from livestock operations are attributed to feed production, land use change, energy use on farms, and beyond the farm gate through processing of the animals. So how are farmers and companies reducing methane, and – going further – is a fully climate-neutral farm a realistic possibility?

According to Chris Adamo, VP public affairs and regenerative agriculture policy at Danone, there are a range of strategies

that farmers and companies can take, from using anaerobic digesters to treat manure, to innovations around feed additives.

Animal health company Elanco is on the front line of some of these methods. "Enteric methane reduction is one of the greatest areas of innovation and will have one of the biggest immediate impacts on the environmental movement in the livestock sector," says Jeff Simmons, CEO of Elanco. "This type of work in livestock is so valuable from a sustainability perspective because it's a permanent reduction versus a carbon sink, for example."

Danone, for their part, is watching with interest. "We are starting to see a few things come to market, the most common is Bovaer, a product from DSM, which is starting to be used in Europe and parts of Latin America and across some of our farming supply chains... The question for us is, where do we place our bets in order to help those options accelerate and find that connectivity with the farm – they need to be practical and affordable. The science and economics need to come together for a number of these options."

Bovaer, a first-in-class feed additive that Elanco Animal Health has the exclusive rights to develop, manufacture and commercialize in the US, helps to reduce livestock methane emissions. It is now approved for use in 45 markets and could prove a game-changer.

According to DSM-Firmenich, which developed it, a quarter teaspoon per day per cow can reduce methane from dairy cows by 30%, and up to 45% for beef cattle. The methane reduction from feeding a million cows Bovaer is equivalent to planting 45 million trees or removing 300,000 cars from the road. And farm operations are beginning to use it: Bel Group, which makes Babybel cheese, will roll it out to 80% of its dairy producers in Slovakia. Meanwhile, a six-month trial in the Netherlands between dairy co-op FrieslandCampina, feed supplier Agrifirm and DSM, resulted in a 28% reduction in methane emissions – DSM is now hopeful that the product will be introduced on a larger scale in the country. In an interview with McKinsey, Mark van Nieuwland, vice president of Bovaer at DSM, confirmed that over an eight month period, the additive has saved approximately 40,000 metric tons of carbon dioxide equivalent or CO2e.

The U.S. aims to reduce methane emissions by 30% by 2030, in line with the Global Methane Pledge, and high hopes are pinned on the potential of Bovaer to aid in this target. While it's not yet approved for use in the U.S., Elanco expects it will become available sometime in the first half of 2024.

But, as Simmons and Adamo are quick to point out, there is no sustainability without profitability when it comes to farming. The extent to which products like Bovaer can scale, notes Simmons, will be through the development of a carbon insetting market for livestock, something currently in development by technology company Athian. Investors of the platform include Elanco, Tyson Ventures, Newtrient, LLC, California Dairies, Inc. and DSM Venturing, and Simmons expects it will be up and running this year. "This is the very first livestock carbon inset market, which will revolutionize and accelerate enteric methane reduction," he says.

Whereas offsetting has traditionally meant that emissions-heavy industries can compensate for their impacts by paying for emissions reductions in other industries, insetting focuses on funding CO2 or CO2e reductions within a company's own value chain. "What Athian has done is created something that aggregates, certifies, and monetizes carbon so companies in the food supply chain can buy into it," Simmons said in a recent panel discussion held by the Bipartisan Policy Center.

A truly climate neutral farm won't be achieved through enteric methane reductions alone, of course. There is much that can be done around land use – regenerative agriculture methods such as no-till and employing cover crops. Technologies and techniques that improve manure management, such as composting and separating liquids from solids, can also be utilized, as well as other innovations that make animals more efficient, like technologies that increase feed utilization, minimize waste by products and more.

Simmons remains optimistic saying, "We believe that climate-neutral farming will happen within some operations in the next couple years," adding that by the end of the decade it will be much more widespread. "We're going to be capturing as many emissions as we're creating, reducing methane, and impacting temperature, maybe as much as any industry."

BEN MAND PREVIEWS HIS KEY PRIORITIES FOR HARMLESS HARVEST AHEAD OF JOINING REUTERS EVENTS: TRANSFORM FOOD 2023 THIS NOVEMBER.

Contributor: Ben Mand, Chief Executive Officer, Harmless Harvest

Is your business on track to meet its stated transformation goals? What have you learned about transitioning from strategy to action?

Harmless Harvest has been clear that by 2030, we will source 100% of coconuts from farms that utilize regenerative agriculture practices, use 100% renewable energy in owned operations, and reach carbon neutrality. I'm happy to report that we are on track to meet those goals. Not every success comes easily, but as we move through a complex landscape of success, setbacks, and lessons learned, we are making immense progress. As of today, we have transitioned our products' packaging to 100% rPET, earned our upcycled certification, and are close to achieving zero waste from coconut (to landfill). These milestones are some of many that will propel us to success - for our team and the planet - by 2030.

What are your top three priorities for 2024, and why are they important to both your business, and society at large?

As we head toward 2030, each year provides us with an opportunity to be aggressive with our goals and bold in our actions. In 2024, Harmless Harvest will focus on three core areas.

First, continuing our transition to 100% regenerative organic farming practices – while we're pleased with implementing regenerative practices on 50% of our farms, we're anxious to expand across every farm we work with. By introducing techniques such as cover cropping, intercropping, integration of animals, introduction of pollinators, and the inclusion of farm residue (damaged coconuts, coconut leaves, etc.) into the nutrient-rich compost we're making from coconut husks, helps reduce emissions and sequester more carbon into the soil. Not to mention, I think the coconuts taste better knowing the passion we put behind our mission!

Second, finding a feasible way to turn our coconut husks into biochar. With new technology advancements, there are many paths to explore and discover which will be the best for Harmless Harvest to implement. Finding a commercially viable way to make this happen would be a game changer!

Going further, pressing harder on using recycled and compostable packaging across all products – including integrating aluminum – and educating consumers on the environmental impact of the materials they purchase. As we learn more about sustainable packaging and what is the healthiest option for our planet, we look forward to implementing these changes and hope other companies will join in too.

What new technologies or market developments could emerge in the next 5 years that excite you personally and professionally? Further, what are the potential pitfalls, possibilities and limits of this new technology or market disruptions?

I love seeing innovation across the CPG industry, and am excited to see the emergence of new tech to create biochar. It's thrilling to see what we can do and what this will lead to in terms of carbon capture. Of course, these new processes have risks that may end in failure and loss of capital, but that is the gamble we take when innovating for the future! I am also excited about the possibility of integrating new, emerging processing technologies that could unlock new products for our team to bring to market.

What are you most proud of in your career, and how do those lessons learned continue to help you to succeed today?

Growing up in rural Wisconsin with little means, I feel immense pride reflecting on my journey of getting to where I am today. I have learned over the years that my modest background is different from many of my fellow CEOs, but despite the seemingly naive world view I had as a child, my creativity and disruptive thinking led me to put myself through college, build a dynamic career, and sit here as the CEO of Harmless Harvest today. I strive to use that same passion and imagination every day. Most importantly, I feel it's my duty to help other leaders and first-generation college students find their own success.

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MAKING COMMERCE MORE PREDICTABLE FOR FRESH PRODUCE GROWERS AND BUYERS CUTS FOOD WASTE.

Contributor: Patrick McCullough, Chief Executive Officer, Produce Pay (Written by Catherine Early, Thomson Reuters)

"One of the healthiest things that we consume has one of the dirtiest paths to our mouth," says Patrick McCullough, CEO of ProducePay. The fresh produce supply chain results in nearly 60% waste in the form of economic value and food loss, he laments.

The sector has the most volatile pricing in the world. Unpredictable weather, markets, pests, disease, and supply chain disruptions from labor issues, pandemics and civil unrest have resulted in a highly fragmented, speculative, and wasteful supply chain.

A single shipment of produce will typically travel 1,600 miles from farm to plate, be handled by four to eight intermediaries, each with a price markup and rebranded at least twice making traceability challenging.

These supply chain inefficiencies result in significant waste of highly perishable fruits, vegetables and salad crops. It is not only the produce itself that is wasted, but also the time, fuel and emissions used in refrigerating and transporting it, McCullough points out.

In a recent survey undertaken by ProducePay last month, 83% of produce stakeholders, including growers and buyers, identified price volatility as a significant challenge to managing their day-to-day operations, while 60% estimate that greater than 10% of their produce is wasted, degraded or damaged due to supply chain inefficiencies.

ProducePay is on a mission to solve these twin problems. Its theory is that by more directly connecting grower and end-buyer, non-value add steps can be removed from the supply chain and food and economic waste reduced, keeping prices stable for consumers.

Its platform enables this by pre-vetting and matching growers and buyers. Retailers become off-takers and their investment-grade balance sheets can reduce the cost of capital deployed to marketers and suppliers.

ProducePay sits in between the growers and retailers to ensure that both parties honor their commitments. This role is essential in a sector where trust has been "eroded over decades," according to McCullough.

"Unfortunately, the big corporate farms and aggregators and retail are designed to fight over price every day of the year. They're not designed to strategically source what your European or US consumer needs over the long haul," he says.

ProducePay provides growers with capital advances and agronomists who can use technology to streamline information about the quality of the produce being grown direct to retailers to give them more certainty.

"In the past, they haven't seen quality until a truck shows up at a distribution center and sometimes they're disappointed," he explains. "Our technology is about the only one in this space that handles quality monitoring from both breakthrough development in the field to pre- and post-harvest and during shipment," he adds.

The technology can also enable growers to ask retailers if they want their produce harvested early if it is close to the specified condition, and they know they are short of produce.

"In a perfect world, we would have the full development of fruits and vegetables matching demand. People argue that's impossible, but I don't think it is. Today, 80% of our industry is done last minute, and that could be 15%."

"It's a result of our analog past, and the fact that we haven't advanced to 2023 standards for produce, where most industries in the world have," he says.

In July, ProducePay signed a deal with Four Star Fruit, one of the largest growers and shippers of table grapes in a first-of-a-kind predictable commerce program in the fresh produce industry. As a proof of concept during the 2023 season, the two companies sourced 430,000 cases of Mexican table grapes.

They found that the model reduced days in transit for the produce by 31%, with 50% fewer stops along the distribution chain to retail, 80% less volume rejected, and 41% fewer days in cold storage.

The model has come into play to deal with the aftermath of hurricane Hillary which battered California and the Pacific coast of Mexico in August, resulting in a 30-35% industry-wide crop loss. This threatens a shortage of grapes in December, but through its work with ProducePay, Four Star Fruit has started bringing in Peruvian fruit to help fill the gap.

Jack Campbell, owner and CEO of Four-Star Fruit said: "Providing retailers with enhanced transparency into the annual supply chain and enabling growers direct access to the leading national retailers in collaboration with ProducePay will significantly mitigate inefficiencies, and assure that consumers can enjoy year-round delicious produce with stable pricing."

DEBBIE WATTS PREVIEWS HER KEY PRIORITIES FOR YARA AHEAD OF JOINING REUTERS EVENTS: TRANSFORM FOOD 2023 THIS NOVEMBER.

Contributor: Debbie Watts, VP Innovation & Market Development, Yara North America

How do we align on the value of values, to enable a net positive transformation of food production, processing, supply chains and consumerism?

At Yara, we strive to bring solutions that can drive forward our ambition of Growing a Nature Positive Food Future, while simultaneously enabling partners across the food value chain to reach their own specific sustainability goals. Ultimately, we all have a need to support business growth while also ensuring a transformative change to food production; I believe at the center of success for both is collaboration, a willingness to take risk to explore new innovations and opportunities, and empowering growers to be instrumental in the positive change we're all working towards.

We're positioned to bring food value chain partners customized programs putting our more than 100 years of research and science-based solutions into action. Together we can achieve critical advancements in lowering carbon-footprint, improving soil health, promoting regenerative farming, and more.

In what areas are you investing the most R&D resources to solve which problems? Where do you need more support on innovation investment from the rest of the food ecosystem?

Two core areas Yara's R&D is centered around is reducing emissions to reach climate neutrality and exploring solutions to support regenerative farming. We're committed to ensuring our nitrogen production is not only energy efficient but that we do our part to limit emissions during production. Today we have achieved this through our production of the lowest carbon footprint fertilizer on the market, YaraLiva Calcium Nitrate. With our investments in green and blue ammonia, we will further decarbonize our production for the future of agriculture in the years to come.

We're also focused on the synergy of fertilizer produced with low emissions and the efficient agronomic application of that fertilizer. We know how to maximize yield & quality, but now the knowledge that is needed is how to do so in a way that is resource efficient and lowers the overall carbon footprint of the food produced – key pillars of a Regenerative Ag approach. That is why we have invested in our Incubator Farm Network to explore systematic solutions in regenerative agriculture at farm scale. Our newest example of this is our Soil Health Incubator Farm in Auburn, AL examining practical approaches to positively impact the soil microbiome, mitigating soil acidification and increasing active carbon.

To add, Yara recently announced the results of a 65-year trial in Dulmen Germany, and we can confidently share that the role of balanced use of mineral fertilizers contributes to enhanced water & mineral-use efficiency and ensures soil health for future crop growth.

In order to make meaningful change, the entire value chain needs to collaborate closely. Yara has a critical role to play with crop inputs, but if only done in isolation our ability to impact the entire food chain will be limited. We need help from the food ecosystem to understand how best to plug in our solutions and work together on measuring, recording, and verifying sustainable practices.

What new technologies or market developments could emerge in the next 5 years that excite you?

Like many industries, agriculture has been and will continue to be hugely impacted by technological innovation. Continuous innovation is critical to meet the food production demands of the globe, while simultaneously preserving our resources and environment. Core areas of agriculture innovation to achieve this are nutrient sourcing, and crop sensing underlined by reporting through available data.

Broadly speaking, the path to increase nutrient efficiency with a simultaneous reduction in environmental impact will be paved with technologies that have a lower or neutral carbon footprint. This next generation of crop nutrition products will defy current classification systems and likely blur the lines between mineral, organic and biological, and feature characteristics that are engineered to mitigate the risk of nutrient loss and to facilitate nutrient availably based on crop demand.

Human vision has been, and continues to be, augmented by new technologies in the form of myriad of sensors in our soil, on our plants, and remotely on aircraft and satellites in space. Today, our ability to sense crop conditions has never been greater. This ability results in the generation of data, often with minimal latency, that informs on the ground decisions that have the potential to mitigate grower risk and inform nutrient management decisions to optimize productivity. This ensures profitability for the farmer and allows for, potentially, greater transparency into supply for the food value chain.

The sharing of data to demonstrate the changes happening at ground level is imperative to the entire system. Interoperability and improved traceability are necessary in order to unify regenerative agriculture reporting. This is an area in which Yara is committed to partner and participate.

HEADLINE: UNLOCKING A COMPLEX SCOPE 3 MARKET WITH A JOINT SUPPLY CHAIN APPROACH SUPPORTED BY DATA

Contributor: Kat Rogers, Product Marketing Manager, Trimble Agriculture

Data is quickly becoming the currency of the scope 3 market; without it major consumer packaged goods companies, agronomists and farmers alike struggle to deliver quantifiable, verifiable and traceable scope 3 emissions reductions and removals at scale. However, given that the agriculture supply chain is a vast and complex system made up of numerous stakeholders, the resulting data structure is often disparate, fragmented and lacking standardization, thus making it challenging to scale carbon emissions reductions and removals for all stakeholders along the ag supply chain.

At Trimble, we are working to rewrite this all too common sustainability data story. It is our goal to connect information across agriculture, bridging the gap between the farmer, his or her trusted advisor or agronomist and those large consumer brands looking to decarbonize. As a technology company with over 15 years of experience as a project developer in carbon markets, we have seen first hand that a joint approach to emissions reductions is critical to building quantifiable, verifiable and traceable scope 3 programs.

As commodities buyers, many large CPG companies understand that in order to meaningfully impact their footprint they need to purchase lower intensity commodities. This journey starts at the farm, with the grower. However, many large CPGs have very limited influence over the many

growers who are providing the raw ingredients going into their wide array of products on the market today. This is why a supply shed program approach is needed, where farmers working within specific regions within a particular commodity supply shed can work together with their trusted advisors to develop intervention plans that work for them, their farm, their business and a company's scope 3 program.

The challenge is that access to farmers at scale can't happen without participation of their trusted advisors – the agronomists and ag retailers who are working alongside farmers to develop key practice decisions, as well as assisting them with data management in the field and on the farm. At Trimble, it is our mission to work alongside those trusted advisors across the ag value chain to deliver additional value to farmers in the form of carbon payments through our verified data solutions that connect the physical and digital worlds.

Using our data solutions, Trimble works with farmers and their trusted advisors to aggregate crop production data, verify that data and quantify the sustainability impact, thus painting a comprehensive picture of a particular commodity within a company's supply chain. Through these efforts, Trimble is working collaboratively along the ag supply chain to provide farmers, at scale, with the opportunity to profit from their sustainability and carbon data, while helping companies gain greater traceability throughout their supply chains and realize greater emissions reductions and removals that will drive a sustainable future for all.

Learn more about Trimble's verified data solution, the Connected Climate Exchange.

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With a priority on securing new perspectives, we were delighted to welcome influential leaders of transformation from across the entire value chain. With these new voices, Transform Food 2023 was able to unlock the new insights needed to accelerate the transformation of global food supply chains.

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