THE ORGANIC & NON-GMO REPORT

Information to ensure a safe, healthy, and regenerative food supply

Issue #212 • July / August 2023

Regenerative agriculture is more than soil health

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THE ORGANIC & NON-GMO R

Published bimonthly by Evergreen Publishing, Inc. © 2023 Evergreen Publishing, Inc. ISSN: 1940-1094

blisher/Editor	Ken Roseboro	ken@non-gmoreport.com
ntributing Editor:	Arianne Pfoutz	
vertising Sales:	David Carter	david@non-gmoreport.com
aphic Design:	Carolyn Bartels	
ice Manager:	Lori Larson	
bscription Information:	\$99/year — businesses \$55/year — individuals, non-profits \$35/year — digital version	
Phone: 800-854-058	6, 641-209-3426	Fax: 641-209-3428
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EDITOR'S NOTE



In May, I had the honor of speaking on a webinar titled "Overcoming Neoliberalism in the Mexican Agri-Food System: The Case of Corn," which was organized by Mexico's Vice Minister of Agriculture Victor Suárez. As its name suggests, the webinar focused on Mexico's initiative to increase food security and self-sufficiency, particularly with corn production.

Mexico is the birthplace of corn, and the nation has dozens of rare heirloom varieties. Unfortunately, Mexico's precious corn genetic resources are under assault from cheap GMO corn imports from the United States. Mexico wants to ban the GMO imports but the U.S. is arrogantly trying to force our neighbors to the south to continue buying GMO corn.

My presentation at the webinar focused on the growing non-GMO market in the U.S. and how American citizens are concerned about the negative health and environmental impacts of GMO crops and foods. Mexico has every right to decide for themselves what is best for their citizens to eat—without regard to U.S. economic interests.

In a rebuke to the United States, Mexico's President Andres Manuel Lopez Obrador recently announced that he will sign an agreement with his country's tortilla makers that ensures they only use non-GMO white corn (page 27).

Our publication and other organizations in the United States including the Institute for Agriculture and Trade Policy, Non-GMO Project, National Family Farm Coalition, and Farm Action, among others, support Mexico in its efforts to remain GMO-free.

The conventional wisdom is that regenerative agriculture is all about soil health. By contrast, John Kempf, founder of Advancing Eco Agriculture, offers a much more comprehensive and holistic perspective. In my interview with John (page 6), he emphasizes regenerative agriculture's essential role in producing nutrient dense foods. At the Regenerative Agriculture and Food Systems Summit held in March, Kempf was the only speaker to discuss nutrient dense foods in relation to regenerative agriculture.

As the sign at the entrance to the Rodale Institute says: "Healthy Soil, Healthy Food, Healthy People." That is the main purpose of organic and regenerative agriculture, and it is also why we are focusing on these important trends in our publication.

Ven Roseboro

Ken Roseboro Editor

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EXPERT INTERVIEW

John Kempf: "Regenerative agriculture should be a public health service"

Regenerative agriculture pioneer shares his thoughts on building plant immunity and why regenerative agriculture is about much more than soil health

BY KEN ROSEBORO

ohn Kempf is the founder of Advancing Eco Agriculture (AEA), a farm consultancy and nutritional products company that works with farmers to develop large-scale, regenerative farming systems. The company's products include biologicals and nutritionals, microbial and fungal inoculants, and liquid macronutrients and micronutrients to boost plant health. AEA offers customized farm programs, full consultations, and plant testing to help farmers succeed. AEA's regenerative agriculture systems balance microbial, mineral, and mechanical inputs to consistently improve farm profitability by increasing fruit size, quality, and overall yield.

Since its founding in 2006, AEA has worked with more than 10,000 farms nationwide—conventional and organic helping farmers transition to regenerative farming practices that build soil health, plant immunity, and nutrient dense foods. The company is growing fast with sales increasing by 35% from 2021 and 2022 and the number of employees growing to 77, a 40% increase in the past year. AEA also recently announced the opening of a new 55,000-square foot manufacturing facility in Aurora, Colorado.

What led you to start Advancing Eco Agriculture?

John Kempf: I grew up on a family fruit and vegetable farm. My father was a regional distributor for seeds, fertilizers, pesticides, and equipment for fruit and vegetable growers.

In 2004, I had an awakening experience. We started renting a field from a neighboring farm that borders one of our fields. At harvest time, on the field that we had been farming for the previous decade with intense pesticide applications, 80% of the leaves were infected with powdery mildew. On the rented field that had been farmed without the pesticide applications, there was no powdery mildew. I wanted to understand plant immunity and what allows one plant to be resistant to powdery mildew when the next plant two feet away is susceptible. What I learned is that all plants have an immune system, much like ours. Also like ours, they need to be supported with good nutrition and a functional microbiome. This was a completely new concept for us because in mainstream agronomy there is no mention of plant immune systems.

"I'd like to see 80% of all agricultural lands worldwide adopt these regenerative models of agronomy over the next 17 years. That's a very achievable goal, and we are well on the pathway to achieving it."

I realized that when you have healthy plants that have functional immune systems, they transfer that immunity to the



people who consume them as food. Agriculture should be a public health service to improve our health because the quality of the food produced has the capacity to prevent diseases and illnesses, which doctors and hospitals in our current medical system cannot do.

This model of agronomy has the potential to produce disease- and insectresistant and high-yielding crops, regenerate soil and public health, and reverse climate and ecological degradation. This is an obvious solution to many of our world's challenges, and I became inspired by the potential that this regenerative model of agriculture has and led me to start Advancing Eco Agriculture in 2006.

Tell me more about plant immunity.

John Kempf: Plant immune function rests on two foundations: nutritional integrity and microbiome integrity. When you have those two in place, it is possible for a plant to be 100% resistant to all known diseases and insects. That is a very significant claim to make. But it's one that I am confident making because we have done this successfully in the field for the last decade and a half.

Once you have plants that produce these robust immune responses and actively resist disease and insect pressure, their active immune system produces this broad range of compounds that we generically refer to as plant secondary metabolites, phenolics, and aromatic compounds. Two of these that you might be familiar with are anthocyanins in blueberries and lycopene in tomatoes.

When plants have functional immunity, they produce much higher concentrations of those compounds. In turn, consuming those plants improves our own immune system and enhances our own immune function.

What is the mission of Advancing Eco Agriculture?

John Kempf: To have regenerative agriculture become the standard globally by 2040. I'd like to see 80% of all agricultural lands worldwide adopt these regenerative models of agronomy over the next 17 years. That's a very achievable goal, and we are well on the pathway to achieving it.

The purpose of Advancing Eco Agriculture is to show what is possible, and to set such a high standard of excellence that other companies in the agronomy space will be forced to change the way they do business as a result of our presence in the marketplace. Together we can change agronomy and agribusiness around the world.

> "Regenerative agriculture needs to include regenerating public health by producing high-quality food that can enhance people's immune systems."

How would you define regenerative agriculture?

John Kempf: There's no generally agreed upon definition of regenerative agriculture. However, I believe the narrative around regenerative agriculture is being too narrowly defined in terms of improving soil health. To me, that really misses the vision of what regenerative agriculture is capable of. Regenerative agriculture needs to include regenerating public health by producing high-quality food that can enhance people's immune systems. It needs to include restoring landscapes and regenerating whole ecosystems. It needs to include regenerating farm economics, having farms be economically viable enterprises. The most important piece is that regenerative agriculture needs to regenerate the capacity for stewardship. If we want to regenerate landscapes, that requires the presence of loving, caring hearts and hands on the landscape. Simply put, we need more people in rural landscapes, not fewer; particularly, we need more people who care. And we need to compensate them well, and right now agriculture struggles to compensate people well.

We don't need regenerative certified farms; we need regenerative verified supply chains. As a component of the regenerative supply chains, we need to ensure that an adequate proportion of the money that's spent on food goes back into revitalizing rural economies and regenerating the capacity for stewardship. That's what regenerative agriculture should be all about, not about regenerating soil health exclusively.

Can regenerative agriculture produce more nutrient dense foods?

John Kempf: Yes, definitely. However, nutrient density needs to be measured and quantified much better. There is a lot more

research that needs to be done in the nutrient density space. Nutrient density can now be measured in a laboratory for a few hundred dollars per sample. But in the next three to four years, that cost will come down to a few dollars per sample to measure tens of thousands of different compounds.

Just looking at mineral density, there are a few surprising observations. There are some non-organic, conventional farmers who are producing crops with very good mineral density because they are paying close attention to trace minerals and are supplying those minerals very effectively. This is particularly true for the higher value fruit and vegetable crops.

Whereas organic growers of those same types of crops, say if you were to buy broccoli from California, there's a reasonably good chance that the broccoli that is conventionally grown has better mineral content than the organic crop, because with the organic crop, farmers are using chicken manure and liquid fish, and completely ignoring trace minerals.

I suspect that there will be many organically certified farmers who will be caught by surprise once the technology develops to begin measuring nutrient density. Though I also suspect some organic crops will be found to be at the highest levels of mineral density because those organic farmers are using cover crops, building organic matter, and regenerating their soil's health. But some organic farmers are not doing those things.

CONTINUED ON PAGE 8 >





Steven Cardoza (left), organic raisin grape grower, and AEA consultant Richard Simas.

What are your thoughts about organic farming?

John Kempf: From a philosophical perspective, I think organic farming as it exists today misses the mark of the original pioneers. Organic certification is what I term a negative process certification. It's a list of thou shall nots, a process certification that just certifies that a certain process has been followed. It does nothing to certify the quality of the end product.

I am optimistic that agriculture of the future will take more a positive outcomes approach rather than a negative process approach. A positive approach includes all the things that you need to address: your soil and crops' nutritional and microbiome integrity. My vision for the future is an agriculture that is outcomes oriented to produce a high-quality product, high-quality outcomes, and to make sure that we do the things necessary to achieve those outcomes

What about increasing plant and crop yields using regenerative agriculture?

John Kempf: There is this narrative that when you transition from contemporary

agriculture to organic or regenerative, you should expect to see an initial yield loss and perhaps even a continuing yield reduction for the long-term. That is a fallacy of bad agronomy.

If you have good agronomic management, you should see a yield gain. We expect to see yield gains on the farms that we work with for the simple reason that when you improve plant health and you have a robust immune system, you can't help but to increase yields. Healthier plants just simply perform better.

Have you seen the conventional farmers you work with reduce their use of synthetic inputs such as pesticides or fertilizers?

John Kempf: Dramatically. It's very common for us when we start working with a farm that sometimes as rapidly as a single year, sometimes two or three years, they will reduce their pesticide use by 70% to 80%, sometimes entirely. They will reduce their fertilizer use by 60% to 70% or sometimes more.

A farmer will tell us: "I don't have diseases anymore. I don't have insects anymore. I'm not using very much fertilizer anymore. If I wanted to, I could be organic."

Many self-described regenerative farmers kill cover crops with glyphosate, saying that it is better for the soil than tillage. Can a farm be regenerative using glyphosate to terminate cover crops?

John Kempf: It's challenging to reduce this conversation to only two options that the choice must either be A or B. There's this dogmatic debate about tillage versus no-till. Some suggest that you should never till. For some soils that's probably true but in other soils and contexts, tillage can be a very valuable reset tool to facilitate developing a disease suppressive microbiome.

It's seldom useful to have these dogmatic debates because when we're working with living systems, there's always a spectrum. Are you using Roundup five times a year on an orchard floor to maintain clean rows underneath the trees or using it once every five years?

There is a rapidly developing next generation of organic herbicides that is going to be released on the market in the next year or two. I am optimistic that we will soon not need to have a conversation about killing cover crops with glyphosate or doing tillage because we will have other spray-on materials that will effectively terminate a cover crop without damaging the soil microbiome.

What is your vision for the future of agriculture?

John Kempf: When I look at how we can achieve our goal of having 80% adoption of regenerative agriculture globally by 2040, what does the pathway look like? It looks as if we are well on the path to achieving that outcome. We're shifting now from the innovators to the early adopters. Many people who have transitioned to regenerative agriculture over the last 10, 15, 20 years, the innovators, did so as a result of duress, either financial duress or family health. We are now in the early stages of shifting from those innovators to the early adopters where people are observing the success of the innovators, and are implementing their successful practices on their own farms. As this momentum continues, I expect we will be rapidly working with the majority of farms. I believe that shift is happening right now; we're shifting the early adopters, and that in another five to seven years or less will be shifting from the early adopters to the majority of farmers.

Organic Trade Association, Rodale Institute to lead USDA Organic Partnership Program

Transition to Organic Partnership Program is key part of USDA's effort to expand organic

he Organic Trade Association (OTA) and Rodale Institute have been selected as national partners for the

U.S. Agriculture Department's (USDA) Transition to Organic Partnership Program, a key component of USDA's broad multi-agency drive to expand organic agriculture by providing more direct support and technical assistance to producers across the United States.

The Transition to Organic Partnership Program (TOPP) is a critical part of USDA's \$300 million Organic Transition Initiative (OTI) announced last year to help foster



organic agriculture and make much-needed technical assistance available to transitioning and existing organic farmers. OTI is the largest single investment in organic agriculture ever made by the USDA. In announcing the program, USDA said its aim is to "build new and better markets and streams of income for farmers and producers" and reverse a trend of slow growth in farmers transitioning to organic, open opportunities for new and beginning organic farmers, and expand consumer access to organic foods.

Through TOPP, USDA and its partnering organizations will provide locally-based farmer training and education in six regions throughout the country. The national-level TOPP agreements will supplement and collaborate with this regional work, providing nationally-focused coordination and services.

Among the various activities that OTA, Rodale and other partners will develop are:

- Technical assistance and workshops at the national and regional levels on the various aspects of developing markets for organic products, including educating and empowering farmers and handlers by addressing market trends, marketing and business strategies, and other relevant topics to help them succeed in the organic marketplace;
- Strategies to connect organic producers with buyers, including the organization of in-person buyer/seller events and hosted buyer tours of regional areas that will provide a forum for networking and interaction, as well as listing participants in online clearinghouses and databases that allow for targeted searching;
- The Handler Transition Training/Education program which will provide comprehensive training materials and educational resources to support handlers in effectively managing organic products, looking at such handling concerns as labeling, contamination prevention, storage, fraud prevention plans and more.

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Oregon could lead the U.S. in organic agriculture

regon has long been a trailblazer in organic, passing the first state legislation regulating organic food. Organic acreage in the state has doubled over the past 15 years.

But a mere 10-16% of organic food products eaten by Oregon consumers originate on Oregon farms. A new report points to significant potential growth in production, manufacturing, and sales of organic food. The state's infrastructure and organic and raw materials allow for expansion; moreover, mitigation of climate risk, improvement of public and environmental health, and economic benefits make the shift to organic an attractive step.

"I often hear that organics are only for rich white people," says Amy Wong, board chair at the Oregon Organic Coalition. "But we're seeing that's not the case."

The report emphasizes the social justice incentive for going organic—healthier workers (reduced pesticide exposure), lower poverty rates, food security, and higher incomes. The Organic Trade Association recently found that 14% of dedicated organic consumers identify as Black, 25% as Hispanic, and 10% as Asian.

The state economic development agency Business Oregon has made recommendations for prioritizing organic agriculture (see donna.greene@biz.oregon).

(SOURCES: Oregon Business; Business Oregon)



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STRENGTHENING ORGANIC SYSTEMS

New advisory firm to focus on preventing organic fraud

espected organic industry advisors and specialists, Gwendolyn Wyard and Kim Dietz, recently announced the launch of Strengthening Organic Systems, LLC—the only advisory firm focused entirely on organic fraud prevention, supply chain investigations, and compliance with the U.S. Department of Agriculture's (USDA) organic anti-fraud regulations.

SOS was founded to strengthen the resilience and overall integrity of global organic supply chains by advising businesses in developing effective organic fraud prevention plans and compliance practices. Its immediate area of concentration is to support the implementation of USDA's Strengthening Organic Enforcement Rule (SOE), the sweeping and historic update to U.S. organic regulations announced by the federal government earlier this year to close gaps in the current regulations to build consistent certification practices to deter and detect organic fraud.

"The importance of the SOE regulation for the organic sector cannot be emphasized enough, and now is the time to get it right," said Wyard. "Our company was formed to guide organic businesses through the SOE implementation process, and to assure not only the adoption of robust organic fraud prevention plans but to assist in the identification of high-risk ingredients and other supply-chain vulnerabilities that expose organic businesses to potential fraud and threaten organic integrity."

Founding partners Wyard and Dietz have over 65 years of combined experience in organic policy, certification, and leadership.

For more information, contact Gwendolyn Wyard at 503-798-3294 or email: gwenwyard@organicSOS.com. ■

Pennsylvania House establishes permanent PA Preferred Organic Program

he Pennsylvania House voted unanimously to make the PA Preferred Organic program a permanent promotional initiative in the state.

The 2019 Farm Bill created the organic arm of PA Preferred in recognition of Pennsylvania's status as third in the nation for organic production. Poultry is the chief organic commodity; overall, organic food accounts for 9% of the state's farm revenue.

Representative Eddie Day Pashinski, D-Luzerne—chairman of the House Agriculture and Rural Affairs Committee—sponsored the bill. "It means that in Pennsylvania we grow the finest food anywhere," he said.

In April, Pashinski's committee toured the Rodale Institute, the premier organic research organization in Kutztown. (SOURCE: *Lancaster Farming*)



The Giant Company raises close to \$1.5 million to promote sustainability with Rodale Institute

ennsylvania-based grocery The Giant Company, with "round up your purchase" help from its customers, will use \$1.46 million to support three agricultural sustainability initiatives.

Funds will benefit Rodale Institute, Planet Bee Foundation, and Keep Pennsylvania Beautiful. The Giant Company interim president John Ruane presented Rodale Institute with a check for \$850,092. The two have partnered since 2021, utilizing Rodale's 386-acre farm to focus on farmer training and mentorship, organic farm transition consulting, and soil health research.

"The Giant Company's Healing Our Planet campaign is an inclusive approach to building healthy, sustainable, and food secure communities for all," Ruane said. "Thanks to our customers and partners like Rodale Institute, we are turning dollars into actionable change."

Rodale Institute CEO Jeff Tkach added, "Change in our food system starts with consumers, and this investment in our global nonprofit signals the public's demand for a shift to regenerative organic farming."

(SOURCE: Pennsylvania Business Report)



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GrubMarket

GrubMarket partners with CCOF to help socially disadvantaged farmers obtain organic certification

G rubMarket announced a multi-year partnership with California Certified Organic Farmers (CCOF) to aid socially disadvantaged state farmers, by sponsoring cohorts of farmers from underserved communities to receive organic certification.

The project is part of GrubMarket's *Sustainable California* initiative, providing farmers with financial and technical assistance to level the playing field for farmers who are without economic means to pursue organic certification. Results should be increased profits, improved product quality, and environmental stewardship.

Organic agriculture represents less than 5% of cropland in California and even less nationally. "Organic is truly the future of food and farming in California, so we will do everything we can to encourage marginalized farmers to adopt organic farming practices," said GrubMarket CEO Mike Xu.

California-based farmers or technologists interested in learning more can visit https://sustainability.grubmarket.com/ or send a message to SustainableCA@grubmarket.com.





USDA announces assistance to help organic dairy producers

he U.S. Department of Agriculture (USDA) is offering financial support for organic dairy farmers who have been hard hit by market volatility, higher input and transportation costs, and unstable feed supply and prices.

The new Organic Dairy Marketing Assistance Program (ODMAP) will make \$104 million available to organic operations to assist with projected marketing costs in 2023. ODMAP provides a one-time cost-share payment based on marketing costs from 2022. USDA's Farm Service Agency (FSA) will implement the program.

"Without assistance, many organic dairies, particularly small organic dairies, will cease production... [impacting domestic supply and consumption of organic milk and] well-being of many rural communities," said Kelly Adkins, FSA State Executive Director.

To participate, producers should contact their local USDA Service Center: https://www.farmers.gov/working-withus/service-center-locator and submit an application.

For more information on additional assistance available to dairy producers, go to: https://www.fsa.usda.gov/programs-and-ser-vices/farm-bill/farm-safety-net/dairy-programs/index. (SOURCE: USDA) ■

Vietnam could lead the world in organic coffee

B ehind the scenes, Vietnam has been supplying a large percentage of beans for the largest coffee brands. The country is the world's leading producer of the robusta variety, one of two primary varietals comprising the coffee industry; it supplies over 18% of global coffee. The government is promoting coffee exports by subsidizing inputs such as seedlings, fertilizers, and low-cost land. The robusta bean has been considered an "inferior" bean to arabica, its pricier relative.

Organic farming is on the rise in Vietnam, quadrupling from 2016 to 2020. The U.S., the largest consumer of organic and specialty coffee, is aware of increasing public interest—including from Vietnam's middle class—in organic crops for health and environmental reasons. Increased organic coffee production in Vietnam will boost accessibility of the worldwide supply.

The organic coffee market produced \$8.9 billion in 2022,

expected to surge to \$28.8 billion by 2030.

That's what Debbie Wei Mullin is counting on—she founded Copper Cow Coffee in Vietnam, a premium coffee grown using sustainable supply chain practices. Her hope is that Vietnamese coffee farms will begin conversion to organic—making premium organic coffee "cheaper than ever before." (SOURCE: *Fast Company*)



Nature's Path Organic Foods acquires Love Child Organics

orth American organic cereal and snack food company Nature's Path Organic will soon acquire Love Child Organics, a Canadian organic baby food and children's snack brand.

The baby food market in Canada is valued at \$499 million, and \$8.5 billion in the U.S. Love Child Organics is highly popular in Canada; this merger will provide opportunities to expand into the U.S market and explore new product innovations.



Nature's Path is known for its sustainably sourced, nutrientfilled organic products; now both companies can expand their reach to provide wholesome, nourishing food to even more children.

Nature's Path, headquartered in Richmond, British Columbia, produces USDA and Canadian Certified Organic and Non-GMO Project Verified breakfast and snack foods sold in grocery and natural food stores in over 50 countries.





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FEATURE

Mad Ag representatives Clark Harshbarger, Tanner Starbard, and Kaitlin Kimmel walk through a prairie strip in Minnesota.

Photo credit: Jane Cavagnero

Regenerative Impact Program: Connecting food brands to regenerative organic farms

BY ARIANNE PFOUTZ

wo Elizabeths have combined efforts and significant track records to tackle the food system crisis through widespread, datadriven implementation of regenerative agriculture.

"The scale of food production is enormous, but I believe it is also our greatest opportunity to make a positive impact," said Elizabeth Stein, CEO and founder of Purely Elizabeth natural breakfast foods. The company will partner with Mad Agriculture to launch a three-year pilot project, the first Regenerative Impact Program—focused on converting farmers to regenerative practices, sourcing a strong supply of regenerative oats, and sponsoring scientific research to confirm regenerative agriculture's impact on soil health, water conservation, biodiversity, and nutrient density.

"The Purely Elizabeth and Mad Agriculture partnership will showcase what regeneration actually looks like on a farm," said Elizabeth Candelario, Director of Strategic Partnerships at Mad Ag. "It is not just soil carbon...not just biodiversity. It is a full system approach that views the entire farm operation as an ecosystem." Boulder-based Purely Elizabeth manufactures granola, oatmeal, and cereal products. Its new value size certified organic Original Ancient Grain Granola is made with Regenerative Organic Certified coconut sugar and coconut oil.

For Stein, a holistic nutrition counselor, the work will "connect the dots between nutrition and regenerative ag," between soil health and food health. The company is working to source 5% of its oats from Montana and Idaho farmers—with a goal of raising that to 25% from regenerative organic farms.

Ecologist Philip Taylor, founder and executive director of Mad Ag, says the goal is to create direct sight lines from the brand to the farm. "The Regenerative Impact Program lifts the hood several levels deeper than a mere transaction of ingredients—it's about relationships, where buyers get unparalleled insight into the farm, and farmers can know their food is being appreciated for how it's grown. We see this becoming a model for many brands—any revolution depends on community and strong relationships."

"We're sponsoring the research...to determine the impact of regenerative particularly on nutrients," said Christin Powers, senior manager for sourcing and sustainability at Purely Elizabeth. "Mad Ag perfectly epitomizes our approach, doing due diligence to be transparent with our customers. We hope to share the results across the industry, to strengthen our collective influence."

"Through storytelling, we want to invite our customers on our regenerative journey," Stein said.

Mad Agriculture: Four separate arms to help farmers and brands

The "Mad" in Mad Agriculture derives from the Mad Farmer poems of Wendell Berry, poet and environmental activist who was prepared to "go in at exits and come out at entrances," if that's what it takes to restore balance to a broken social, economic, and food system.

Elizabeth Candelario has been working at the nexus of climate, food, and agriculture for 15 years—11 of them at Demeter USA, certifier of biodynamic farms and products. In 2021 she started with Mad Ag and is thrilled with the comprehensive vision of its founder, Philip Taylor. "This company is about revolutionary systems change. It has the four branches under one roof, to handle all the challenges."

Candelario sees four major challenges for farmers in transitioning: 1) agronomic know-how (the practices); 2) access to capital; 3) access to markets; and 4) support from education and media to tell the story.

Mad Capital offers financing for farmers at all stages, with

adaptive loan terms; Mad Lands provides farmer-first, place-based land and business planning; Mad Markets makes the critical connection between farmers and brands who need their product; and Mad Revolution is the creative media and cultural outreach arm.

"Mad Ag is like a Swiss army knife to help farmers with every aspect of transitioning to regenerative—whether the farm is 200 or 20,000 acres," Candelario said. "Brands need help too...they need sources of high-quality regenerative organic foods, and strong scientific data. Farmers always carry the risk; when food companies meet the farmers, they usually buy in for longer contracts. Supply chains have gotten so long-and this connection emphasizes the personal investment both parties have made."

The vision of Mad Ag centers on "letting nature set the goal": listening to what the land needs us to do to maintain the continual regeneration of the earth as Indigenous wisdom and practices outlined. "What regenerative ag means must flow from the farm to the C-Suite-not the other way around," said Candelario. Mad Ag's goal is to facilitate conversion of five million acres to regenerative organic by 2030.

The value of research

"Purely Elizabeth is activating our research arm to compare conventionally grown oats with regenerative organic oats," Candelario said. "We'll ask: 'How does regenerative ag impact soil carbon compared to conventional? How does the soil carbon accu-

CONTINUED ON PAGE 16



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REGENERATIVE IMPACT PROGRAM

FROM PAGE 15



Purely Elizabeth Ancient Grain Granola is made with Regenerative Organic Certified coconut sugar and coconut oil

mulate in each? Are the micronutrients and microbiota pointing to healthy soil? What about diversity, and nutrient density—levels of antioxidants, protein, minerals?' The answers will give companies a fuller picture to share with consumers—while strengthening the regenerative organic brand."

Although Mad Ag hopes that farmers will go organic and eliminate synthetic chemicals, Candelario says there is no legal definition for regenerative ag at the moment. "The Regenerative Organic Alliance set the standard, and the ROC certification requires organic as a baseline...but some farmers may not want to go organic. Every farm has a unique situation. Basically, the standards should help farmers to grow better food and regenerate the land. Farming is a journey, not a destination."

Why has regenerative ag become a hot topic recently? "Agriculture has been the elephant in the climate living room," said Candelario. "But this has really changed over the past few years. Climate change-fueled disasters have accelerated dramatically in recent years, touching everyone's lives and inciting companies and politicians to take action. Additionally, recent SEC rulings indicate that publicly traded companies and companies seeking financing will be required to make climate impact disclosures, which for food companies will include their supply chain. Typically, a food company's supply chain represents up to 70% of its total emissions, largely the result of the agricultural practices that produce their ingredients."

Revolution back to the roots

"As we do to the Earth, we do to ourselves" epitomizes the understanding driving the Mad Revolution. Regenerative agriculture starts with regenerative soil.

"How can we heal the land?" has been Stein's focus all along. "As any great farmer will tell you...their first priority is to farm soil, not to farm plants," noted Candelario.

REGENERATIVE AGRICULTURE



Food companies need to invest in farmers transitioning to regenerative agriculture

Farmers stand to see increase crop yields and profits with 15-25% return on investment by transitioning to regenerative farming practices

armers could expect a 15-25% return on investment after transitioning from conventional to regenerative agriculture systems, however the transition can take three to five years, according to a report and economic analysis released recently by Boston Consulting Group (BCG) and the World Business Council for Sustainable Development's (WBCSD) One Planet Business for Biodiversity (OP2B) coalition. The new report, "Cultivating Farmer Prosperity: Investing in Regenerative Agriculture," examines the major financial advantages and systemic barriers for farmers trying to adopt sustainable farming practices and offers public and private-sector solutions to assist farmers in the transition period.

The report, which surveyed and interviewed over 100 U.S. farmers, found that early adopters cited tangible benefits from regenerative systems—notably healthier soil, reduced input costs, fewer complications from fertilizer run-off, greater biodiversity, and better resilience to extreme climate.

Based on the surveys and interviews with farmers and a financial analysis of wheat farmers in Kansas, the report found that there can be a positive business case for regenerative agriculture in the long run, with profits reaching as much as 120% above the earnings of farmers using conventional practices.

"The time to support large-scale transition to regenerative agricultural practices is now," according to Doug Petry, report author and manager, One Planet Business for Biodiversity (OP2B), WBCSD. "Our findings show that there is a positive business case to be made for transitioning to regenerative agricultural practices, but farmers need more help. The short-term risks during the transition period are significant, which is why we must provide a support structure that includes both financial and technical assistance. We can't let our farmers shoulder the upfront financial costs of transitioning to regenerative agricultural practices on their own."

The report found that during the three-to-five-year transition period, farmers can expect up to nearly a \$40 per acre profitability loss due to decreased crop yields and capital outlays for specialized equipment. But the short-term financial risk to transitioning farmers can be mitigated by a myriad of support options including cost share programs, sustainable leases, improved insurance terms, regenerative crop warranties, government subsidies, price premiums, lending programs, and ecosystem services markets.

CONTINUED ON PAGE 18

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REGENERATIVE AGRICULTURE

FROM PAGE 17

"Our goal should be to de-risk the transition from conventional to regenerative systems for farmers," said Sonya Hoo, managing director and partner, BCG. "Both companies and governments need to step up to the plate to lessen the burden on farmers and accelerate the overall transition to more sustainable farming practices. Our economic modeling shows that in the long run, the switch to regenerative farming is a win-win for farmers, consumers, and the planet."

"The urgent need to transition to and maintain regenerative agriculture requires multiple players providing educational and financial support to farmers to help mitigate the risks and reward positive outcomes. This report shows the value and economics to help enable us to collectively support farmers," said Hanneke Faber, Nutrition Business Group President, Unilever.

The global environmental, health and socioeconomic costs associated with the current food and land use system total nearly USD \$12 trillion per year. Sustainable farming practices can help mitigate that damage while restoring ecosystem health. With the increasing frequency of extreme weather events (such as droughts, flooding, and extreme heat), combined with the immense loss of biodiversity due to agriculture over the past several decades, regenerative farming practices can be a powerful tool for farmers to adapt to a changing climate and increase profitability by doing so—for legacy and novice farmers alike.

UC Berkeley research reveals cover cropping could potentially mitigate climate change

study by University of California Berkeley's Agroecology Lab on cover cropping found that implementation of this practice in farms during their off season could mitigate carbon emissions.

Cover cropping is when crops are put on top of the soil during the "off season" of farming. It has been shown to decrease carbon output, according to Isaac Vendig, a campus researcher and study co-author. He added that as a result, cover cropping is growing immensely in popularity among researchers who are trying to solve the climate crisis.

"While cover crops are in the ground, they can also nourish soil microbial communities and fix nitrogen from the air (rather than using artificial fertilizer), improving the soil in many ways," said Alastair Iles, campus professor of sustainability transitions, in an email. "Cover crops can also protect farm fields that would otherwise be barren during off-growth periods."

According to Iles, the lab's research discovered that in addition to cover cropping showing promising results for the decrease in carbon emissions, it also showed an increase in crop yield by about 60%.

Iles noted that using cover crops such as crimson clover, legumes, hairy vetch, field peas and subterranean clover led to these increases in yields and soil organic content.

"What we did find specifically with cover cropping is that whether or not there is a direct connection between organic carbon and yields, you can still find these situations in which cover cropping can provide pretty substantial yield benefits, and at the same time it provides some fairly decent organic carbon increases," Vendig said.

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New study finds only 4% of U.S. adults understand the significance of regenerative agriculture

iss the Ground, a non-profit organization dedicated to raising awareness for regeneration, has released a new study that shows a lack of consumer awareness of regenerative agriculture.

The study found that while 20% of U.S. adults are familiar with the term "regenerative agriculture," only 4% grasp its true significance. These findings, derived from a comprehensive national survey with 1,100 respondents, illuminate an opportunity for increased awareness regarding the importance of regenerative agriculture as a transformative solution for tackling the climate crisis, preserving water resources, and promoting human health.

For the past decade, Kiss the Ground has been working to build industry and consumer awareness. Recognizing the necessity to assess and monitor the progress of this movement, the non-profit conducted the survey to gain insight into consumer adoption of the term and its underlying concept.

Regenerative Agriculture Momentum A 2022 study" highlighted the rapid growth of the term "Regenerative Agriculture" within corporate and agricultural sectors. 549 entities now use the term, up from 219 in 2019. Industry momentum often serves as a bellwether for mass adoption. A NEW KISS THE GROUND STUDY' FOUND 5% support organizations tackling climate change of US Adults **Understand the** Significance of feel it's important to "do my Regenerative part to protect the planet" Agriculture % purchased organic, non-GMO, and/or sustainable products this year Visit www.kisstheground.com/research ROUND

Other notable outcomes from the Kiss the Ground study show that 45% of U.S. adults believe supporting organizations combating climate change is very important, and 55% of U.S. adults say purchasing products that give back to communities is important to them.

A previous study conducted in 2022 by

HowGood, an independent research company, highlighted the rapid growth of the terms "Regenerative Agriculture" and "Regenerative Farming" within the corporate and agricultural sectors. They discovered that at least 549 entities now use the term(s), up from 219 in 2019. ■

California launches initiative to define regenerative agriculture

n a move with potential repercussions for the future of farming, California is starting a months-long campaign to create a definition for the term "regenerative agriculture." The process will iron out controversies as the California State Board of Food and Agriculture tries to assimilate the viewpoints of 400 different ag commodities.

Karen Ross, secretary of California's Department of Food and



Agriculture (CDFA), is seeking a broad basic popular understanding of regenerative to facilitate the term's use in policies or guidelines. One initial difference of opinion centers on whether regenerative agriculture should rest on a foundation of organic.

Elizabeth Whitlow, executive director of the Regenerative Organic Alliance, is concerned the State Board could allow regenerative ag to be "outcomes-based"—meaning the use of pesticides would not be banned and organic would not figure into the definition. Alternatively, it could "attach regenerative to organic." Organic and regenerative organic producers meet rigorous standards and the integrity of those terms is integral to their continued success.

Lundberg Family Farms hopes a "high bar" for regenerative is maintained, disallowing farmers merely taking incremental steps to regenerative from using the term.

Vernon Peterson of Abundant Harvest Organics feels that organic is what makes regenerative agriculture effective. "Not only are you taking care of the land," Peterson said, "but it improves soil organic matter. That's what consumers want. They want agriculture to fix the environment." He fears the state being involved will skew the definition toward the "guy with the most money." (SOURCE: *New Hope Network*)



New study confirms regenerative agriculture's beneficial impact on both types of soil organic carbon

esearchers from Colorado State University's Department of Soil and Crop Sciences and the Graduate Degree Program in Ecology found that regenerative farming practices positively impact two key pools of soil organic carbon (SOC). Their paper was recently published in *Proceedings of the National Academy of Sciences*.

Aaron Prairie, study lead and ecology Ph.D. candidate, looked beyond the total SOC to examine the particulate organic carbon (POC) and mineral-associated organic carbon (MAOC)—which his co-author, professor Francesca Cotrufo, had shown are formed through different processes. "They behave very differently in soil," Prairie said, noting that POC cycles faster.

"This analysis is the first... to demonstrate the differential impact of regenerative practices on both [soil carbon pools]," Cotrufo said. Though more research is needed, it's a "big call" to move towards a regenerative management model.

The increase in SOC pools is even greater when regenerative practices are combined such as polyculture farming, cover cropping, integrated crop-livestock systems, and even tillage. This integrated management system was common prior to industrialization of agriculture, which separated animal production from crop production. "We have increased productivity, but ...at a huge cost to the environment," Cotrufo said.

Prairie added that regenerative benefits take time to manifest about six years after implementation. Unfortunately, most SOC programs such as carbon credits measure SOC on a five-year timeline.

"This paper shows that regenerative integration and regenerative principles definitely work," Cotrufo said. "Optimizing them for context is where we need to work next."

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RODUCT OF THE USA

Handsome Brook Farms partners with Soil Carbon Initiative to implement regenerative agriculture on organic layer hen farms

andsome Brook Farms, a leading pasture-raised organic egg producer, is partnering with Green America's Soil Carbon Initiative (SCI) to accelerate regenerative agriculture on layer hen farms across the U.S.

SCI's Go-To-Market Pilot Program was launched in 2022 to incentivize farmers to adopt regenerative practices at increasing scale. Handsome Brook Farms joined as a "founding company" with SCI as part of the Regenerative Egg Farming Project (REFP), to reach its conservation goals.

Through REFP, five Handsome Brook growers in Kentucky are adopting regenerative practices, formerly seen as cost-prohibi-



tive, including tree and shrub establishment in the pasture, crossfencing to promote vegetative cover, more robust rotational grazing strategies, and building manure storage structures.

Consumers don't know the term "regenerative," a Food Information Council study found. SCI's program aims to increase awareness of regenerative agriculture by partnering across the supply chain to educate growers, brands, retailers, and consumers on the holistic benefits of regenerative agriculture systems.



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SUPPLY CHAIN PARTNERSHIPS

Hippeas® announces regenerative agriculture collaboration with Avena Foods

Pulse-based snack brand and specialty pulse and oat miller launching "Living Lab" on Canadian prairies

Pea-based snack maker Hippeas is piloting a cutting-edge regenerative agriculture pilot program with Canadian specialty pulse and oat miller Avena Foods Limited. The collaboration includes the development of a field crop



"living lab" demonstration with Rosengren Farms, an Avena grower. Rosengren has over a decade of experience in the innovative practice of growing multiple crops (grains and pulses) in combination, which is also referred to as intercropping. This important sustainability project, with the support Saskatchewan's South East Research Farm, will evaluate the intercropping practice for climate impacts through scientific modeling.

Intercropping is based on the principle that different crops have different nutrient requirements, growth patterns, and ecological niches, which can be complementary when grown together. Intercropping can enhance soil fertility, reduce pest and disease pressure, increase yield, and diversify farm income. By sponsoring this science-based assessment, HIPPEAS seeks to measure the impact of regenerative farming methods on soil health, biodiversity, and nutrient density, aiming for the following outcomes:

- Double biodiversity by seeding a mixed field of peas with canola, and chickpeas with flax
- Greater resilience in the field to extremes of moisture, disease, and pest infestations
- Enhanced soil protection from soil erosion after harvest when compared to pea or chickpea monoculture (i.e., just one crop in a field)
- Minimum soil disturbance with fertilizer stewardship, reductions in fertilizer.

SunOpta and Seven Sunday's partner to produce upcycled oat protein cereal

S unOpta, sustainable plant-based and fruit-based foods company, has joined with breakfast company Seven Sundays to manufacture an upcycled oat protein cereal. The Seven Sundays Oat Protein Cereal contains SunOpta's OatGold[™], a nutrient-rich upcycled oat protein powder which is a

byproduct of oatmilk production. Upcycling is a zero-waste philosophy using byproducts and

their nutrients from agriculture and food manufacturing, which otherwise would not have gone to human consumption. Partnering with Seven Sundays creates a sustainable solution for SunOpta's OatGold.

The cereal comes in four flavors and is sweetened with natural sources like dates and organic maple syrup. The brand is gluten free and Non-GMO Project Verified.

"The leftover product from producing oat milk has three times the protein, twice the fiber and significantly more nutrients compared to ... whole rolled oats," said Hannah Barnstable, Seven Sundays founder.

NON-GMO NEWS



New study proves that certified, sustainable non-GMO soybean meal has a significantly reduced carbon footprint

Sustainable certified European soybean meal leads to 82% less carbon emissions compared to the average soybean available on the European market.

The study, which was carried out by the Research Institute of Organic Agriculture (FIBL) Austria, on behalf of Donau Soja, demonstrates that by using only certified, sustainable and non-GMO Donau Soja/Europe Soya certified beans, the soymeal produced at the AdamSolSoya (ATK Group) crusher in Ukraine has hugely reduced CO2 emissions.

The study illustrates that 1kg (kilogram) of Europe Soya certified soybean meal by AdamSolSoya causes 0.36kg of CO2 per kg of product. In comparison, average soybean meal, produced in Europe with the usual imported soybean mix, causes 1.99kg CO2 per kg of product. This significant reduction of carbon emissions is mainly because the imported mix is linked to deforestation and land conversion of the cultivation of soybeans in regions such as the Amazon and the Cerrado. Comparing AdamSolSoya soybean meal with European soybean meal produced exclusively from an average European soybean mix, the reduction in CO2 emissions is still up to 56%.

Deforestation-free and non-GMO: Key theme of Non-GMO Summit

This study was a talking point of the International Non-GMO Summit, where it was presented by Donau Soja in the context of non-GMO, sustainable standards which go hand-in-hand with deforestation-free. Deforestation-free is especially high up on the EU agenda as a key sustainability topic, because it is now EU law that that commodities like beef, palm oil, soy beans, wood, cacao, and coffee sold on the EU market should not be linked to deforestation or land conversion.

To ensure a lower environmental impact of soy, traceability or complete documenta-

tion and certification, respectively, is key. The EU is heavily dependent on soy imports; with only 8% self-sufficiency in soy (in 2020, the EU imported 34 million tons of soybeans)-40% of them come from Brazil and this is a big cause for concern, as too often area cultivated for soy in Brazil is linked to deforestation. Gold standard sustainability labels, such as Donau Soja and ProTerra, guarantee that the soy used to produced feed for animals in Europe is non-GMO and deforestationfree. In the case of Europe Soya (Donau Soja's standard) it is of European origin and AdamPolSoya, whose soybean meal was examined for this study, processes only certified beans from Ukraine.

Susanne Fromwald, Senior Advisor Donau Soja and Project Manager Protein Partnership Programme, says: "Sustainable soya can be a bridge to connect Europe, helping build home-grown food systems which are good for people and planet. Sustainable, non-GMO, deforestation and conversion-free certified soybeans have a significantly lower carbon footprint than most imported soya. Donau Soja's consistent work with European farmers including Ukraine means that there are significant volumes of sustainable soya available, that comply and even go beyond EU requirements. ATK/AdamPolSoya sets the example for other crushers on how to be both EU compliant in a non-EU country and contribute to climate change mitigation."

(SOURCE: European Non-GMO Industry Association)

Prices for GMO seeds have risen much faster than non-GMO seeds

GMO seed prices increased by 463% between 1990 and 2020.

Prices farmers paid for crop seed increased significantly faster than the prices farmers received for crop commodities between 1990 and 2020. During that period the average price farmers paid for all seed rose by 270%, while the crop commodity price index rose 56%. For crops planted predominantly with genetically modified (GMO) seed (corn, soybeans, and cotton), seed prices rose by an average of 463% between 1990 and 2020. During this period, GMO seed prices peaked in 2014 at 639% above 1990 price levels.

Meanwhile, prices for non-GMO crop seeds, which includes wheat, barley, oats, sorghum, rice, flaxseed, potatoes, and peanuts, peaked at about 200%, which was lower than the overall average of 270%.

(SOURCE: USDA Economic Research Service)

Seed price indexes and USDA crop price index by genetically modified status, 1990–2020





Note: GM = genetically modified. Seed price index for GM crops is the simple average of seed price indexes for corn, soybeans, and cotton. Seed price index for non-GM crops is a simple average of seed price indexes for wheat, barley, oats, sorghum, rice, flaxseed, potatoes, and peanuts. Source: USDA, Economic Research Service using crop and seed price indexes from USDA, National Agricultural Statistics Service (NASS).

Bumper crop for Brazil's non-GMO soybeans

dramatic turnaround in non-GMO soybean yields is expected for the 2022-23 season in Brazil—over four million tons. The 2021/22 harvest yielded less than two million tons. With the help of favorable weather, yields from Brazil's major non-GMO soybean growing regions have averaged 3.6 to 4 tons per hectare, with some close to 5 tons. Projected initial traceable production is over 3.6 million tons with the total non-GMO crop between 4 and 5 million tons.

In its latest market report, ProTerra Foundation—auditor and labeler of non-GMO sustainable soybeans globally highlights tremendous recoveries from previous seasons in Brazil. The state Parana has seen current production fixed at 82% higher than 2021/22. Mato Grosso, the largest non-GMO producing state, experienced a historic 44.4 million tons (of all soybeans), surpassing the total crop in Argentina this season.

The Brazilian government, spurred by new EU legislation on products linked to deforestation or forest degradation, is acting to comply by strong intention to end deforestation. At the International Non-GMO Summit, Brazil voiced concern about low prices for their non-GMO soybeans, noting "market lethargy" for buyers and lack of premiums for many farmers. ProTerra managing director Emese Van Maanen said, "At the European end, stable demand and fair premiums need to be ensured for non-GMO, sustainable Brazilian soybeans so that this strong harvest has a market." (SOURCE: ENGA (European Non-GMO Industry Association)





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Elizabeth Golay and Sheila Bommakanti, co-owners of Tiffin Asha, are the recipients of the first Non-GMO Project Equity Transfer Program.

The Non-GMO Project announces Equitable Transfer Program recipient

he Non-GMO Project named the recipient of its first round of Equitable Transfer Program grants: Tiffin Asha, a Portland, OR-based, women-owned and operated maker of South Indian-inspired condiments founded by Sheila Bommakanti and Elizabeth Golay.

Launched in March 2023, the Equitable Transfer Program was designed to address some of the barriers BIMPOC-led companies face in accessing financial resources, industry infrastructure, and visibility for their products. The program will cover or offset the costs associated with achieving verification with the Non-GMO Project.

"Justice and diversity are essential to building a better food system," said Megan Westgate, executive director of the Project. "As a predominantly white-led organization, we are on a learning journey to understand the role we play in systemic racism...[to help] transfer power and resources to people of color who own and lead businesses in the natural products industry."

Tiffin Asha's products are vegetarian, vegan, and gluten free. As a maker of specialty foods, becoming Non-GMO Project Verified was a first priority.

FEATURE

Mexico's president signs agreement with tortilla makers to only use non-GMO white corn exico's President Andres Manuel Lopez

exico's President Andres Manuel Lopez Obrador recently announced that he will sign an agreement with his country's tortilla makers that ensures they only use non-GMO white corn while also setting new 50% tariffs on white corn imports.

Lopez Obrador said that tariffs on white corn imports from countries that don't have trade deals with Mexico will promote more domestic purchases. The tariffs won't apply to the U.S. or Canada.

"[There is] an agreement that I am about to sign, this week, so that only white and non-transgenic corn is used in tortilla shops. This is going to be accompanied by the establishment of tariffs so that white corn is not imported and that it is purchased from national producers," he said during a press conference in June.

Rubén Rocha Moya, the governor of the Mexican state of Sinaloa, praised Lopez Obrador's decision, and thanked him for following up on the purchase of 1.5 million tons of grain from small and medium-sized corn producers in Sinaloa.

"There is a message from the president to use only non-transgenic white corn in tortilla shops. This is great news for us that the dough and tortilla manufacturers only buy white corn, which now only we have," Rocha Moya said.

Mexico, the birthplace of modern corn, produces most of the white corn used to make the country's staple tortillas but imports large quantities of yellow corn, which is mostly GMO, for live-stock feed. Most of the yellow corn comes from the U.S., which represents a \$5 billion market for the U.S.

Of the 17 million tons of corn that Mexico imports from the U.S., only about 5% is white corn. Mexico purchased 658,800 tons of white corn in 2022, which was 3% less than in 2021. According to the Ministry of Finance and the Agricultural Market Consultancy Group, those white corn shipments came from the United States (87.9%) and South Africa (12.1%).

This past February the Mexican government published a decree prohibiting the use of GMO corn for the preparation of dough and tortillas with the aim of guaranteeing "food security in a central input in the culture of Mexicans." The decree followed an earlier decree in 2020 that aimed to ban all imports of GMO corn into Mexico by 2024. However, Lopez Obrador's government softened their stance under pressure from the U.S. to allow imports of GMO yellow corn for feed to continue.

But the U.S. still isn't satisfied and opposes Mexico's prohibition of GMO corn for food use, saying the country's stance violates the United States-Mexico-Canada Agreement on trade. As a result, the U.S. and Canada have requested trade dispute settlement consultations, claiming that Mexico's policies are not science



based. If the disagreement is not resolved within 75 days of the request, a full dispute panel of arbiters from each side would decide the ultimate outcome.

Despite the U.S.'s imperialistic stand, some U.S. farmers and grain suppliers have said they could supply Mexico with all the non-GMO white corn they would need.

CONTINUED ON PAGE 28

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Matt Rush, president of the Illinois Corn Growers Association, recently said that his state's corn farmers will grow non-GMO corn for export if that's what Mexico wants.

"We can grow that, but it is just going to take us some pre-planning and a timeline that just doesn't get sprung on us," he said.

Lopez Obrador said the controversy over GMO corn is a matter of "public health" and has expressed concerns about the safety of GMO corn. The head of Mexico's Federal Executive has called for a joint study with the U.S. to determine the damage derived from the ingestion of GMO corn. Lopez Obrador has also said GMO seeds can contaminate Mexico's age-old native varieties.

Lopez Obrador recently expressed anger that traces of GMO corn were detected in relatively small white corn imports from South Africa, one of the few alternative global white corn producers. He told reporters he has proof of the GMO traces.

The U.S. government and agribusiness claims that GMO corn is safe to consume but Timothy Wise, senior advisor for the Institute for Agriculture and Trade Policy, writes: "While the U.S. government demands that Mexico produce scientific proof of health impacts from specific GM corn varieties, Mexico rightly demands scientific evidence of the safety of long-term consumption of high levels of minimally processed corn. No such evidence exists because U.S. regulators do not require it and the biotech industry is hellbent on defending the flawed regulatory notion that GM crop varieties are 'substantially equivalent' to non-GM varieties." (SOURCES: Reuters, infobae, Institute for Agriculture and Trade Policy, World Grain, Nation World News)

National Family Farm Coalition blasts U.S. policy toward Mexico as "blatant demonstration of U.S. arrogance"

he National Family Farm Coalition recently issued a statement condemning the U.S.'s heavy-handed policy toward Mexico's decision to use only non-GMO corn for food production.

The statement reads: "This is a blatant demonstration of U.S. arrogance, after more than three decades of US-led trade policies, including the original North American Free Trade Agreement (NAFTA), marginalizing millions of Mexican farmers and peasants. As a coalition of grassroots, rural organizations, NFFC stands in solidarity with Mexican farmers, peasants, and indigenous communities opposing the USDA, the U.S. Trade Representative and other federal agencies seeking to force trade partners to accept agricultural products that would undermine their economic, physical, or environmental health and right to self-determination."

The statement continues: "[Mexico's] nutrition, glyphosate and GM policies are supported by science and fully within the scope of Mexico's authority to regulate to 'protect legitimate public welfare objectives, such as health, safety, environmental protection, conservation of living or non-living exhaustible natural resources.' These policies advance important objectives ... [and] encourage more sustainable agricultural policies that support small-scale and family farms, food security, ecological biodiversity, and the continued cultivation of heritage crops."

FEATURE



Organic corn, soybean markets face supply risks

BY ALEXANDER SCHULTZ, ECONOMIST, MERCARIS

.S. markets for organic corn and soybeans face several potential sources of supply risk in the 2023/24 marketing year, which could create significant price volatility according to the most recent Mercaris Commodity Outlook.

Organic corn acreage to reach record levels

In the report, Mercaris estimates the United States will end the 2023/24 marketing year with the second largest volume of organic corn carryover stocks on record. While building ending stocks are expected to put further pressure on prices over 2023/24, there is significant risk to United States organic corn production. Mercaris forecasts organic corn acreage to reach record levels for the 2023/24 marketing year after a slight dip during 2022/23. High soybean prices in recent years have sharply pushed up soybean acres, but farmers are now facing both lower organic soybean prices as well as agronomic pressures from several consecutive seasons of soybeans.

However, organic corn prices have trended weaker as well, which could push some acreage into alternative crops such as sunflower. Mercaris' Commodity Outlook also forecasts yield to return closer to historical trends. However, the early months of the 2023 growing season have been dry in several major producing areas. This creates the risk of another year of below trend yields, which would counteract the expected acreage increase and limit the build of ending stocks over 2023/24.

The continued war in Ukraine also poses threats, especially on the import front. A deal to allow grain exports out of Ukraine has been extended through mid-July 2023. Ukraine and Russia are major sources of organic corn for mills in Turkey which exports

CONTINUED ON PAGE 30



 Image: Constraint of the constraint

organic cracked corn to the United States. A shutoff of this supply would further limit organic cracked corn imports by the United States, which are already forecast to fall 20% year-over-year in 2023/24.

Organic soybean market risks

Mercaris has also identified supply risk within the organic soybean market in 2023/24. The organic soybean market is forecast to enter the 2023/24 marketing year with record carryover stocks, likely providing a partial offset to declining production and imports over the marketing year. However, a significant decline in imports and production could quickly reverse the market into a bullish tone if they fall farther than expected. Mercaris currently forecasts 2023/24 organic soybean production will decline after the record 2022 harvest to a level closer to 2021/22. As discussed above, some organic soybean acreage is expected to rotate back into organic corn in 2023/24 as prices have dipped into the low \$20 per bushel range after exceeding \$40 per bushel a year prior, while yields improve to historic trend levels. However, if acres do not shift out of organic soybeans at the level expected, it could push the market to end 2023/24 with another year of significant carryover stocks.

There is significant supply risk for imports too, which account for about 70% of United States organic soybean supplies. Argentinean traders have indicated that the harsh drought and freeze that struck many of the organic soybean growing regions has already led to at least a 50% drop in production, but

the full impact of these adverse conditions will not be known until the harvest is complete. Mercaris currently expects whole organic soybean imports from Argentina to fall by 33% over 2023/24. Any additional losses in Argentine supplies would be significant considering the country accounted for over 40% of United States organic whole organic soybean imports through April of the 2022/23 marketing year. Mercaris already expects a further drop in Black Sea soybean imports during 2023/24, but any further exacerbation of these tensions could further decrease volumes.

The 2022/23 marketing year is also expected to end with record levels of organic soybean carry-over stocks. This significant supply surplus carries bearish price risk for 2023/24, which could have significant implications for imports. Through the first half of 2023, United States domestic prices for whole organic soybeans and organic soybean meal have remained above international levels. However, as domestic pricing continues to fall it could affect the willingness of countries to send organic soybeans to the United States. African exporters have indicated a willingness to shift organic soybeans otherwise destined for the United States to Asian markets as non-GMO beans where they face lower grain inspection standards. Organic soybean prices have remained somewhat resilient, which will put a floor on the non-GMO price even if organic prices continue to fall. United States Organic soybean imports will have to fall in order for the market move out of the current long supply position, but if they fall too quickly the market could suddenly be left tight.

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MARKET NEWS

Argus acquires U.S. sustainable agriculture pricing provider Mercaris

nergy and commodity price reporting agency Argus has acquired Mercaris, the leading provider of sustainable agriculture prices and analytics in the U.S.

 Mercaris' price assessments, analytics and forecasts for organic and non-GMO agriculture cover organic corn, soybeans, soybean meal, wheat and other small grains, plus non-GMO corn and soybeans, as well as organic dairy markets. Its price assessments for cash crops of organic soybeans and corn adhere to the IOSCO Principles for Price Reporting Agencies and are used as



The addition of the Mercaris team will accelerate the development of Argus agriculture pricing and analytics in the Americas, and open up opportunities in biofuels and other agricultural inputs.

Kellee James, founder and chief executive of Mercaris, added: "We are excited to become part of Argus which presents a great opportu-

argusmedia.com

the basis for physical and over-the-counter options contracts.

Besides price assessments, Mercaris provides acreage estimates, supply/demand analysis, and facilities density mapping to customers across the agriculture supply chain in the U.S. These include farmers, processors and retailers alongside government entities, financial and agricultural inputs companies.

nity to leverage their trusted brand, global reach, and scale with our best-in-class sustainable agriculture offering. Together, we will be able to broaden Argus agriculture insights both within the US and internationally and enhance our existing product portfolio, better serve our customers, and accelerate product development into related markets."

Unconventional Ag conference will focus on sustainable sourcing in the oilseed and grain sector

he Unconventional Ag conference will showcase its ninth-year offerings at the Hyatt Regency Dallas on December 12-13, 2023. The conference will convene top stakeholders and industry experts from across the ag value chain to bring awareness to the developments and value-added opportunities affecting the oilseed and grain sector.

With a focus on sustainable sourcing, buyers, suppliers, and producers will hear discussions on sustainable production methods and procurement systems for grains and oilseeds, vegetable oils, and plant-based proteins-and regenerative and organic crop inputs.

Highlighted agenda topics include:

- Ingredient Buyer Outlook - Leading sourcing professionals will discuss today's priorities from CPG, food service, and feed vantage points.
- **Regenerative & Carbon Capture Systems –** Soils restoration, GHG protocol scopes and emissions categories, and arbon sequestration are factors buyers, suppliers, and producers must consider.
- **The Skinny on Alternative Proteins –** Have cellular and plant-based proteins peaked, or are there even more opportunities there?
- Procurement Best Practices - How have improvements to commodity sourcing and risk management practices kept the sector in motion post-COVID-19? What key points are essential to providing smooth and profitable operations for end user organizations?

To view the full agenda, visit https://ua.highquestevents.com/website/54486/home/#AGENDA



Majestic Milling expands soybean processing capacity

ajestic Milling Co. has recently expanded its organic soybean operations in Aurora, Missouri with three 150,000bushel bins, six extruders, and three presses. The three-year l old facility produces organic soybean meal and oil. A rebuilt BNSF track and rail pit will feed the new bins.

Soybean meal production is projected at 35,000 to 50,000 tons annually. With this expansion, the company anticipates processing 1.28 million bushels of organic soybeans and 2 million bushels of organic, non-GMO, and conventional corn.

Majestic Milling also produces organic, non-GMO, and antibiotic-free feeds with wholesale distribution to farms. (SOURCE: World Grain)

GMO NEWS

European proposal to deregulate new GMO techniques "would be the end of organic farming"

The European Commission recently proposed relaxing laws on GMOs, exempting certain GMO plants from the EU's strict GMO regulations. Gene-edited plants, for instance, would not be labeled as GMOs and wouldn't require a risk assessment for health and environment nor traceability.

Nina Holland, researcher at Corporate Europe Observatory (CEO), says: "The assumption the Commission makes that new GMOs would lead to more sustainability are based on industry's claims, instead of real evidence. In reality, this is a give-away to the biotech seed firms like Bayer, Corteva, and BASF."

Biotech seed corporations have aggressively lobbied to exempt new genetic techniques from the regulations. These tools such as CRISPR/Cas9 gene editing fall under Category 1 of the proposal, allowing for up to 20 genetic modifications such as deletions or



insertions that the Commission says "could also occur naturally or be produced by conventional breeding." The modifications go far beyond conventional breeding, said Karl Bär, a Green Party member in Germany. The only exception in Category 1 is herbicidetolerant GM crops which would still need authorization.

"The proposal would be the end of organic farming," Bär said. "The European Commission seems to have completely caved in to the GMO corporations."

Without labeling, consumers won't know if they're eating GMOs, and farmers would have no way to protect against contamination and keep their crops GMO-free. Biotech companies would further increase control over the seed market in Europe.

The proposal needs approval from the European Parliament and EU governments and may be revised. (SOURCE: *WorldStage News*)



Gene editing found to cause chaos in the genome of tomatoes

Chromothripsis-like effects are found for the first time in gene-edited plants

Recent scientific findings have revealed chromothripsis-like effects after the application of CRISPR/Cas gene editing in the genome of tomatoes, reports Testbiotech in an article commenting on a just-published preprint study by scientists based in Israel and the U.S. Chromothripsis refers to a phenomenon in which often several hundred genetic changes occur simultaneously in a catastrophic event. Many sections of the genetic material can be swapped, recombined, or even lost if this occurs. As Testbiotech explains, it has been known for some time that "CRISPRthripsis" (a term coined by Testbiotech for the abovedescribed phenomenon), occurs in mammalian (including human) cells. But now this effect has also been demonstrated in plants after gene editing applications. The findings show that gene editing applications cause unintended genetic alterations much more frequently than previously thought, affecting large parts of the genome.

According to Testbiotech, the new findings shed new light on the alleged precision of gene editing. Although the new technology can be used to target and cut precise locations in the genome, the consequences of cutting the genome are to some extent unpredictable and uncontrollable. Plants obtained from new genetic engineering techniques cannot, therefore, be regarded as safe per se, and need to be thoroughly investigated for risks.

Commenting on the new study, molecular geneticist Dr. Michael Antoniou said, "Yet again we see a phenomenon that has already been observed in a human cell context—major DNA damage from gene editing—now appearing in plants. Due to the inadequate analysis that is generally done in gene-edited plants, GMO developers will often miss this. So we will end up with marketed products with major genetic rearrangements affecting the function of many genes, even disturbing the balanced expression of multiple gene families, with unknown downstream consequences to the biochemical composition of the plant. Those consequences could include the production of new toxins and allergens. Yet gene editing is claimed to be more precise than natural breeding. Clearly this is not the case."

(SOURCE: GM Watch)

Syn-bio animal-free dairy brands go under, stop production, get bad reviews

It's been a rough year for some synthetic biology animal-free dairy companies:

- In 2021 General Mills partnered with syn-bio company Perfect Day to create Bold Cultr, a cream cheese spread that featured the latter company's animal-free whey protein. But at the beginning of 2023, General Mills unexpectedly pulled funding for Bold Cultr. A report by food industry website Food Dive said that the abrupt closure of the Bold Cultr brand "may signal bad news for animal-free dairy."
- Betterland Foods launched its Betterland Milk at Natural Products Expo West last year with much fanfare. The product is also made with Perfect Day's GMO-derived animal-free dairy proteins. Betterland set the price for its syn-bio milk at \$6.89 per quart and planned to sell the product on Amazon. The company also launched several chocolate bars made with Perfect Day's proteins. However, earlier this year, Betterland stopped production of all the products and announced that the company's CEO Lizanne Falsetto, was seeking a buyer for the brand.



• Non-dairy ice cream brand Brave Robot, which also contains Perfect Day's syn-bio proteins, recently made the list of "The 5 nondairy ice creams with the lowest quality ingredients" on the Eat This, Not That website. Brave Robot accounted for 2 of the 5 products on the list.

(SOURCES: Non-GMO Project, Eat This, Not That)

Study: Lab-grown meat worse for the environment than retail beef

niversity of California, Davis (UC Davis) researchers have found that the carbon footprint of cultured meat is potentially 25 times greater ("orders of magnitude higher") than that of beef, using current production methods.

A major factor is the amount of energy needed and greenhouse gases emitted throughout production. Lab-grown meat uses highly refined or purified growth media, the ingredients helping animal cells to multiply—a process similar to making pharmaceuticals.

"If this product continues to be produced using the 'pharma' approach, it's going to be worse for the environment and more expensive than conventional beef production," said Derrick Risner of UC Davis' Food Science and Technology department.

The challenge in going from "pharma to food" is trying to create lab-grown meat from food-grade ingredients or cultures without using expensive and energy-inten-



sive pharmaceutical grade ingredients and processes. A potential 80% lower global warming impact than that of beef could result.

Edward Spang, associate professor, said "[Reducing] its environmental impact... will require significant technical advancement to simultaneously increase the performance and decrease the cost of the cell culture media."

It might be wiser to invest in climatefriendly beef production. (SOURCE: University of California,

Davis)

PESTICIDE NEWS

Ancient Organics launches glyphosate bioremediation product

A ncient Organics Bioscience, Inc., developer of proprietary soil and plant probiotics, recently announced the commercial launch of PaleoPower[™]. Ancient Organics claims that PaleoPower is the only known product that organically breaks down glyphosate in soil.

PaleoPower, an organic probiotic, restores a healthy soil microbiome, increasing soil productivity. Ancient Organics says the product reduced glyphosate levels in the soil by over 80% within 90 days of application and over 90% within 180 days of application. In addition to its strong link to cancer and other human diseases, glyphosate adversely impacts the soil microbio-

.

Groups sue EPA for failing to protect against toxic Enlist herbicides

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EPA ignored the adverse effects of Enlist on rural communities and the environment in re-approval.

enter for Food Safety (CFS), Pesticide Action Network North America (PANNA), and Alianza Nacional De Campesinas, Inc. (Alianza recently sued the U.S. Environmental Protection Agency (EPA) for its unlawful re-approval of Enlist One and Enlist Duo, highly toxic herbicides sprayed "over the top" of corn, soybeans, and cotton genetically engineered to resist the herbicides.

"EPA unlawfully ignored the environmental and public health risks of Enlist herbicides," said Kristina Sinclair, CFS attorney and counsel for the plaintiffs. "And by failing to address Enlist's



me, lessening the accessibility of essential nutrients. PaleoPower is OMRI certified and has been tested in numer-

ous field and greenhouse studies on over fifteen crop varieties.

adverse effects, EPA is jeopardizing hundreds of endangered species across the country."

Enlist One and Enlist Duo contain the infamous 2,4-D, one of the active ingredients in the chemical weapon Agent Orange. According to the lawsuit, EPA knew that the renewed use of Enlist herbicides would harm rural communities and wildlife by substantially increasing concentrations of 2,4-D and glyphosate in the environment, destroying important habitats for threatened and endangered species, polluting local waterways, and damaging native plants and crops. The plaintiffs allege that EPA's registration decisions violated the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) by failing to properly consider the negative environmental and health effects before approving Enlist herbicides for another seven years. Plaintiffs also allege that EPA violated the Endangered Species Act, endangering threatened and endangered species in rural areas across the United States.

Bayer settles New York claims over Roundup damage for \$6.9 million

aver AG recently agreed to pay \$6.9 million to settle claims by New York Attorney General Letitia James that the company misled consumers in advertising Roundup weedkiller as safe.

Bayer, owner of Monsanto's product, had claimed that Roundup "won't harm anything but weeds" and "[does] not pose a threat to the health of animal wildlife." James says the claims were unsubstantiated and violated state laws against false and misleading advertising.

"Pesticides can cause serious harm to the health of our environment and pose a deadly threat to wildlife," she said, adding that companies must be "honest" about the dangers.

The settlement mandates that Bayer quit advertising glyphosate-based Roundup as safe and non-toxic. The \$6.9 million will be used to reduce pesticide impacts on pollinators and aquatic species.

Bayer settled much of the litigation surrounding Roundup's link to cancer for \$10.9 billion in 2020. (SOURCE: Reuters)



COMPANY NEWS

The Organic & Non-GMO-Report earns Mindful Award for Subscription Service of the Year

be Organic & Non-GMO Report was recently named as winner of the 2023 Mindful Award for Mindful Subscription Service of the Year.

The mission of the Mindful Awards program is to honor conscious companies and products that do what's right for people and the planet.

This year more than 1,825 nominations came all over the world for the Mindful Awards. *The Organic & Non-GMO Report* joined winners from other categories including Amy's Kitchen, Aunt Fannies, Bob's Red Mill, Cymbiotika, Forager, Konscious Foods, Hope Foods, MUSH, Natalie's Juices and other leading companies and products within the CPG industry. This year's winners are the best in transparent, fair, natural, organic, sustainable, healthy, and delicious products world-wide.

"We are honored to receive this Mindful Award," said Ken Roseboro, editor of *The Organic & Non-GMO Report.* "For the past 22 years, we have been supporting the growth of the organic and non-GMO markets, which are producing healthier and more sustainable foods for people and the planet. It's great to be recognized for our efforts, and the positive impact we are having."



This is the second time in the past year, *The Organic & Non-GMO Report* has been honored. In 2022, the *Report* received a Food and Drink Award for Best Online Non-GMO Foods Information Resource from *LUXlife* magazine based in the United Kingdom. ■

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