VALENT BIOSCIENCES®

Sustainability Report 2021

Contents

About us

OUR MISSION

To reimagine agriculture and public health through the power of fermentation and microbiology.

WE ARE

The global leader in the research, development, and commercialization of highly effective low-risk, environmentally compatible technologies and products for the agriculture, public health, and forestry markets.

OUR BUSINESS

We develop biorational products that create value and solve problems for customers. Our portfolio includes environmentally compatible bioinsecticides, biofungicides, bionematicides, plant growth regulators, mycorrhizal fungi, and soil health solutions that are used in sustainable systems.

INHERENTLY SUSTAINABLE

Derived from natural or biological origins, our biorationals are used to improve agriculture, protect public health, and keep our forests beautiful—all in a sustainable manner.

TOGETHER

We help make the world a better place as a member of the Valent group of companies, part of Sumitomo Chemical Co., Ltd.—a global leader in creative solutions for health and crop science.

UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS: OUR IMPACT

Valent BioSciences has a positive direct impact on more than half of the United Nations' Sustainable Development Goals, including:

A message from our CEO

Ted Melnik

COVID-19 accelerated the urgency of major global challenges, including climate change, energy, food supplies, and the control of infectious diseases. As a member of Sumitomo Chemical, we are working to address these challenges every day to further our contributions to society.

Our commitment to the Sumitomo Spirit of Harmony between individuals, society, and nature has been a key guiding principle since Valent BioSciences' founding. We operate with a shared "Jiri-Rita" mindset, which means to benefit both self and others and that private and public interests are one and the same. It's about contributing to society, as well as making a profit.

To help mitigate the effects of climate change, Sumitomo Chemical has committed to an aggressive goal of being carbon neutral by 2050 and has revised its 2030 goal for reducing greenhouse gas emissions from 30% to 50%. They're counting on all of us at Valent BioSciences to help reach that goal, both in how we operate as a company and through the solutions we provide.

From improving crop quality to feeding a growing population, from protecting our forests to safeguarding public health, and from our actions as individuals to how we support our communities, Valent BioSciences is committed to a better tomorrow and shaping a more sustainable future.

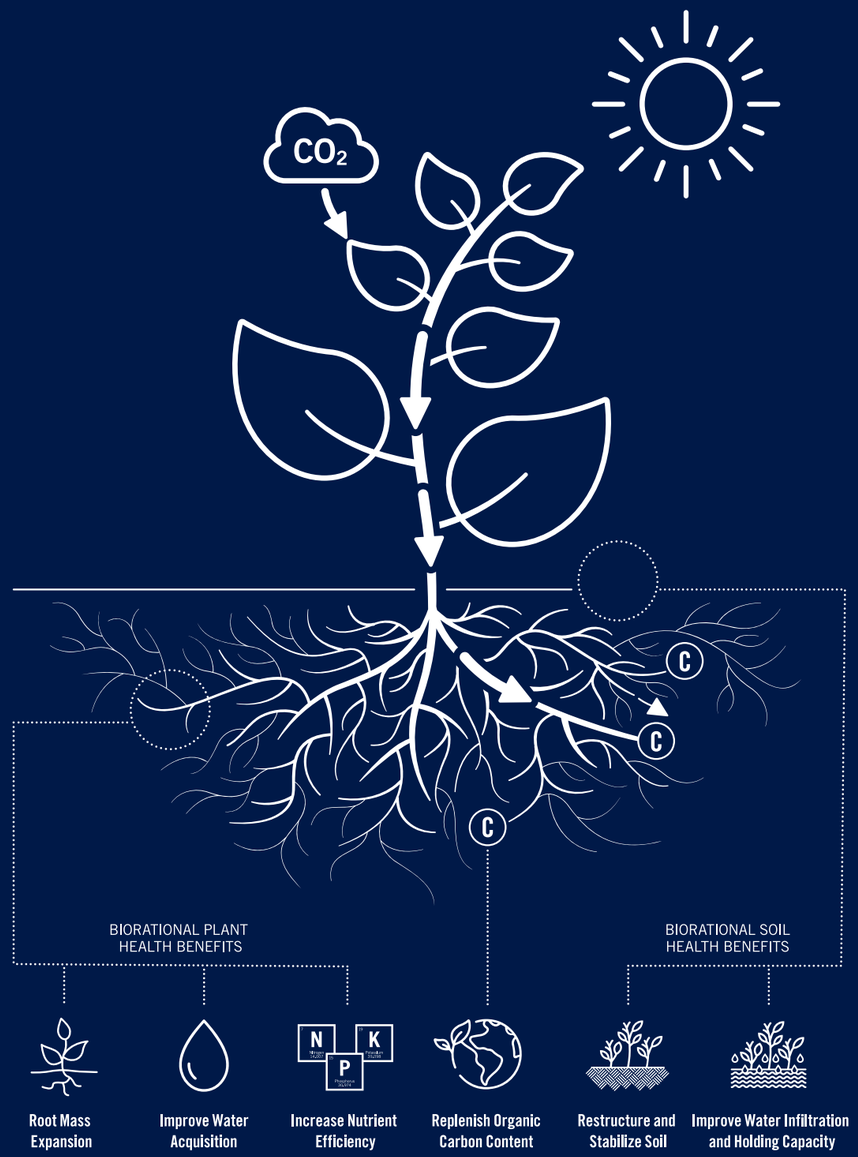
Ted Melnik

Solutions

Valent BioSciences is the biorational industry's ultimate innovator, with an extensive global portfolio of products.

AGRICULTURE

Sustainably feeding an increasing global population is a significant challenge for growers. Not only are growers called on to produce more food per acre, but they're also expected to minimize their impact on the environment and climate change. We are committed to helping growers operate more sustainably through research and development of the industry's most innovative biorational solutions.



The soil microbiome is a living ecosystem composed of microorganisms that are crucial to agricultural production. Agricultural management practices that include microbial rhizosphere technologies can help improve grower profitability, preserve natural resources, and contribute to carbon neutrality.

NEW BIOSTIMULANT UNIT

With our newly established biostimulant operating unit, we're working closely with Sumitomo Chemical to advance carbon neutrality for society as a whole. This business unit will help meet industry demands for carbon-smart technologies with a focus on helping growers sequester carbon with new and enhanced arbuscular mycorrhizal fungi (AMF) products.

AMF are beneficial soil organisms that form a mutually beneficial relationship with most plants involved in agriculture. They provide many benefits, including carbon sequestration and improved plant health, through better water acquisition and nutrient efficiency, as well as improved soil health.

RHIZOSPHERE

Our rhizosphere portfolio provides growers with biorational seed- and soil-applied products that optimize crop production and promote soil health. These products contain scientifically selected beneficial microorganisms that associate naturally with most agricultural crops to provide specific ecosystem services.

MycoApply® technology enhances plant productivity and long-term soil health by forming root acquisition networks and stable soil aggregates. Together, these improve nutrient and water efficiency, optimize crop production, and contribute to carbon sequestration.

Aveo® EZ is a low-use-rate seed treatment nematicide that colonizes across all root zones as the plant grows, shielding the roots from a broad spectrum of yield-limiting nematodes.

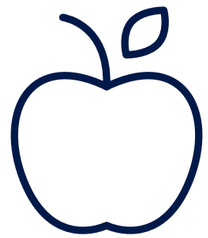
MYCORRHIZAL APPLICATIONS

Our Mycorrhizal Applications (MA) subsidiary is the world's leading manufacturer and supplier of mycorrhizal fungi soil solutions. An industry pioneer, MA researches, produces, and promotes sustainable biological soil inoculants that reduce the need for non-renewable resources while also building living soils that are better able to sequester carbon and support plant health and vigor.

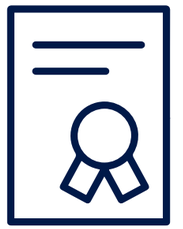
CROP ENHANCEMENT

Our industry-leading portfolio of plant growth regulators (PGRs) helps growers worldwide increase their ability to harvest more fruits, vegetables, and grains, reduce crop waste, increase crop yield, and ultimately reduce food waste, all of which also help optimize labor needs and reduce energy use, fuel consumption, and CO_2 emissions.

In Brazil, our biorational business unit will help growers achieve higher yields on soybeans, cotton, and sugarcane.



In summer 2021, we announced U.S. Environmental Protection Agency registration of a new PGR for stone fruit and apple thinning. Accede® is the first PGR based on a naturally occurring compound developed specifically for thinning of stone fruit, including peaches and nectarines. It also gives apple growers an effective tool to use in the late-thinning window. Accede will revolutionize the way tree fruit growers manage their crop loads, reducing the need for hand thinning labor and improving fruit quality.



Accede's registration is the culmination of more than a decade of research and development by Valent BioSciences in collaboration with Valent U.S.A. and Sumitomo Chemical and demonstrates how we're developing innovative solutions to address critical existing and emerging needs.

CROP PROTECTION

Using state-of-the-art fermentation and microbiology techniques, we grow and maintain selected *Bacillus thuringiensis* (Bt) strains, ensuring their identity and quality.

Applied to crops, our products control insects with little to no impact on animals, people, or the environment. Farmers, large and small, use our naturally based products in rotational programs within their crop production strategies in order to avoid resistance development in caterpillar pests and increase the longevity of available tools for crop protection.

DiPel® and XenTari® are keystones of sustainable agricultural practices around the world and align with the goals of the Green Deal and Farm to Fork initiatives in Europe. In Asia, Valent BioSciences has partnered with non-governmental organizations to support smallholder farmers in their fight against the growing threat of fall armyworm.

For more than 50 years, farmers have employed our Bt-based products on hundreds of millions of hectares, producing safe, dependable, high-quality fresh food for billions of people.

PACE INTERNATIONAL

Our Pace International subsidiary works with growers, packers, shippers, and agricultural organizations to help meet the growing demand for food while reducing waste and conserving natural resources. Pace's innovative solutions improve, protect, and preserve fruit and vegetable freshness and quality.

Pace's ecoFOG® technology, a clean and sustainable alternative to fruit drenching, helps growers save millions of gallons of water a year with no CO_2 emissions or soil contamination. In addition, Pace's decay control and edible coating products reduce spoilage and maintain freshness and quality, protecting hundreds of thousands of tons of produce annually.

The 2021 introduction of Pace's stone fruit coating PrimaFresh® 60 Organic is the latest advancement for Pace's organic premium line of edible plant-based coatings and another example of how Pace meets the needs of customers by providing a diversified portfolio of innovative, organic, and sustainable solutions.

88 million

acres have been treated with our larvicides since 2017.

1.2 billion

peoples' lives have been protected from mosquito nuisance and disease since 2017.

PUBLIC HEALTH

We are a world leader in developing and providing the most comprehensive range of biorational solutions that protect the public from vector-borne disease and illness and nuisance insects. Global, federal, and local authorities use our proprietary formulations to provide sustainable biological control for a broad range of mosquito species and habitats while minimizing the potential impact on humans, the environment, and other non-target organisms.

In early 2022, the U.S. Environmental Protection Agency granted us an Experimental Use Permit to perform field studies of a new mosquito space spray targeting pyrethroid-resistant adult mosquitoes. Pyrethroid resistance is a worldwide public health threat, as resistant mosquitoes spread deadly and debilitating diseases such as malaria, West Nile virus, dengue, yellow fever, Zika, and others. Our novel adulticide is formulated to achieve a high level of mortality against these resistant populations across multiple species, as well as against pyrethroid-susceptible mosquitoes.

44%

reduction in greenhouse gas emissions was achieved by shipping additional rail cars in place of tanker trucks during the 2021 forestry season.

14.55 million

acres of forest lands in North America have been treated with our biorationals since 2017.

FOREST HEALTH

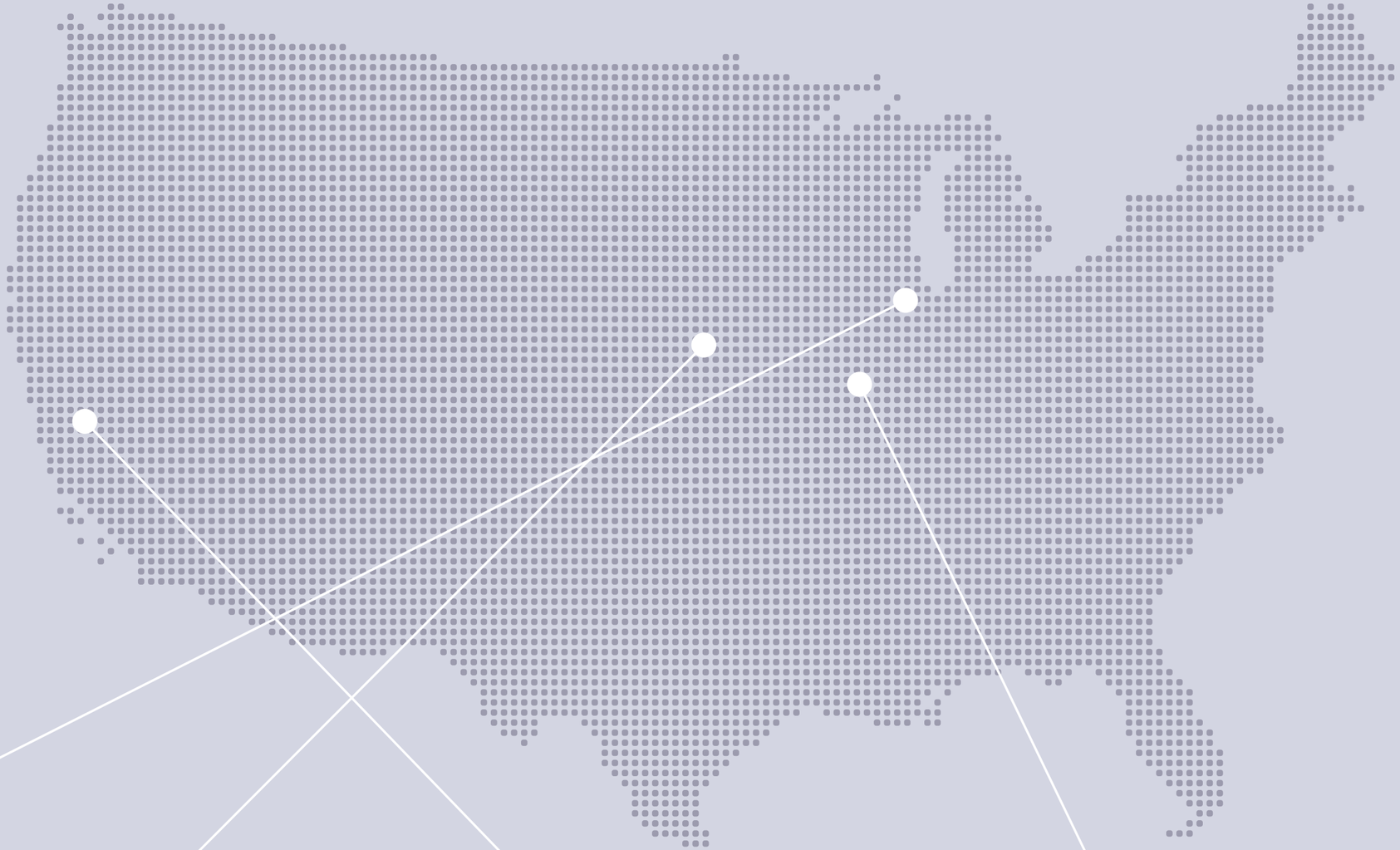
The world's forests play a key role in the global carbon cycle, yet nationally, insects and diseases have decreased carbon sequestration from live forest trees by nearly 13 teragrams of carbon per year. That's according to Frontiers in Forests and Global Change, and it's equal to the amount of CO_2 emissions generated by more than 10 million passenger vehicles driven for one year.

Biorationals play a critical role in managing forest health and helping defend the ability of forests to serve as valuable carbon sinks that absorb CO_2 from the atmosphere. We offer two unique products, Foray® and Mimic®, to sustainably protect forests from harmful defoliators while minimizing risk to other beneficial insects and the environment.

To further minimize environmental impact and reduce emissions, we continue to increase our use of rail cars and rely less on tanker trucks to ship products during the forestry season.

BIORATIONAL RESEARCH CENTER AND
GLOBAL PARTNERSHIPS

Our team of world-class experts in microbiology, metabolic engineering, fermentation, chemistry, plant physiology, soil health, entomology, plant pathology, and formulation technology drive our innovation in sustainable biorational solutions. Over the years, our research team has earned 370 U.S. patents for their groundbreaking discoveries and delivered significant contributions in technical know-how and trade secret innovations to the organization, especially in the areas of fermentation technology and formulation chemistry. These esteemed professionals work together at our Biorational Research Center in Libertyville, Illinois, within our global Biorational Headquarters.



BIORATIONAL RESEARCH CENTER
LIBERTYVILLE, ILLINOIS

This state-of-the-art center serves as our global hub for product, research, and development activity. We also have a dedicated Biorational Research Unit at Sumitomo Chemical's Health & Crop Sciences Research Laboratory in Takarazuka, Japan.

Whether we're partnering with Sumitomo Chemical, colleagues around the world, academic organizations, or forming industry alliances, we are part of a robust and intertwined global research network with a shared commitment to fostering innovation and sustainability.

KANSAS STATE UNIVERSITY
MANHATTAN, KANSAS

In 2021, we announced a formal long-term agreement with Kansas State University (KSU) to advance critical research in soil health and carbon smart farming. Dr. Charles W. Rice, University Distinguished Professor of Soil Microbiology and a world-renowned researcher in carbon cycling and climate change, will lead a KSU team in working with Valent BioSciences (and other Valent BioSciences collaborators) to evaluate how the use of MycoApply, together with soil conservation management practices, can influence soil health.

VALENT U.S.A.
SAN RAMON, CALIFORNIA

In collaboration with Valent U.S.A., we launched our first venture with Halo (**halo.science**) to use its partnering technology platform to help us connect with leading universities, researchers, and start-ups worldwide. We've used the platform to identify research partners and established our set of projects to address soil carbon sequestration, to study ecosystem benefits of mycorrhizal fungi colonization, and to identify novel compounds that can bolster our crop protection and crop enhancement portfolios.

DONALD DANFORTH PLANT SCIENCE CENTER
ST. LOUIS, MISSOURI

Through these and other relationships, including our ongoing collaboration with the Donald Danforth Plant Science Center and Washington University, both located in St. Louis, Missouri, we reach beyond our corporate boundaries to partner with like-minded organizations and apply innovative technologies to help our customers and the planet thrive.

Company

We are responsible caretakers of our plants, employees, and the environment.

95%

of days were without first aid incidents, injuries, or motor vehicle accidents at the Valent group of companies in 2021.

SAFETY

Our employees are at the heart of our safety-first culture. We actively engage and educate them in all aspects of our safety program. Since 2019, we've utilized a software platform that encourages and allows employees to report safety concerns, near misses, and incidents, as well as opportunities for improvement through inspections and "Stop" observations.

A corrective action can be assigned for all entries. The Environmental Health and Safety team assists with assigning these corrective actions to the proper professional responsible for completing that action. We have logged 348 corrective actions to date within the system. Logging these actions is important so that our workplace continuously improves, and employees continue to utilize the system knowing that we are committed to making improvements.

Across the entire Valent group of companies, we track the number of days without incidents, including first aid incidents, injuries, and motor vehicle accidents. From our 2019 baseline, we have continued to increase the percentage of days without incident, reaching 95% in 2021.

We are both methodical and vigilant in our efforts to go above and beyond in providing a safe and healthy workplace where our employees protect themselves and each other.

OSAGE SAFETY PERFORMANCE METRICS SINCE 2019

Corrective actions, inspections, and observations are proactive metrics that are intended to help us drive toward zero incidents.

30

Corrective Actions

0

Inspections

441

Observations

EMPLOYEES

It's well known that diverse teams are more collaborative, creative, and innovative. They also offer employees a better sense of community, leading to improved engagement and employee retention. At Valent BioSciences, we are committed to creating a workplace where every team member feels they belong, is valued and respected for who they are, and is empowered to contribute openly to our spirit of innovation.

In late 2020, we conducted an employee survey across the entire Valent group of companies. The assessment informed key recommendations to help us further diversify our employee and leadership teams and create a more robust culture of diversity, equity, and inclusion (DE&I). Recommendations included:

- Expand our DE&I infrastructure through Employee Resource Groups (ERGs)
- Focus on talent development through a formal mentorship program
- Recognize and reward exemplary work
- Increase DE&I communication and transparency
- Develop inclusive leaders

We took several key actions in 2021 to implement these recommendations. Among them, we expanded our number of ERGs to eight. Our ERGs include groups for employees that identify as Black, LatinX, Pan Asian, and LGBTQ+, along with those that support women, parents, employees with disabilities, and other interests. ERG members not only provide supportive communities for each other, but also serve as advisors to our group of companies, providing valuable feedback and insight into unique needs.

We also introduced new training programs to help ensure we all have the tools and skills needed to manage and work in diverse teams. These include offerings that focus on inclusive leadership and mandatory unconscious bias training.

To further retain and develop our diverse talent, we launched a new mentoring program in which we aim to engage 100% of our senior leadership team and 25% of our managers as mentors in a minimum one-year relationship with mentees. And to broaden our opportunities to meet diverse students and professionals, we formed or expanded our relationships with key educational institutions and organizations, including MANRRS (Minorities in Agriculture, Natural Resources, and Related Sciences) and Women in Agribusiness.

We've established goals to significantly increase diverse representation across gender and ethnicity across the Valent group of companies and Valent BioSciences by 2025. As we journey toward that goal, we intend to conduct another employee survey across the companies in the next fiscal year to help us measure progress and further guide our efforts.

30%*
of all Valent BioSciences employees are women.

28%*
of all of our employees are non-white.

17%*
of our executive and senior-level teams are women.

38%*
of our first- and mid-level managers are women.

21%*
of our first and mid-level managers are non-white.

**Based on 2020 data reported to the U.S. Equal Employment Opportunity Commission.*

ENVIRONMENTAL STEWARDSHIP

At Valent BioSciences, our commitment to sustainability starts with our own actions, including how we operate our sites.

Our 130,000-square-foot biorational manufacturing facility in Osage, Iowa, is the largest of its kind in the world. The Osage facility produces most of our fermented products, which are made using locally grown raw materials such as corn and soybeans. In 2021, we launched two major initiatives at the site that will positively impact the environment and Osage community.

In December 2021, we planted seed for a 34-acre prairie restoration project adjacent to our facility that will be open to the public and include walking paths. When completed, the native wildflowers will help establish and support a diverse native habitat for birds, butterflies, insects, reptiles, and small wildlife.

At maturation, the prairie will sequester between 170 and 500 tons of carbon dioxide annually, helping mitigate the effects of greenhouse gas in the environment. The prairie will need little maintenance and require no fertilizers or pesticides.

In partnership with OneEnergy Renewables and Heartland Power Cooperative, we have started construction on a 12-acre solar field next to the prairie site. The solar field's 3,700 bifacial panels are expected to produce about 3.4 million kilowatt hours of electricity annually by tracking the sun from east to west and producing power from both sides of the panel. We anticipate that will provide approximately 8% of the Osage facility's total annual electricity usage. That's enough electricity to power approximately 425 average-sized homes annually.

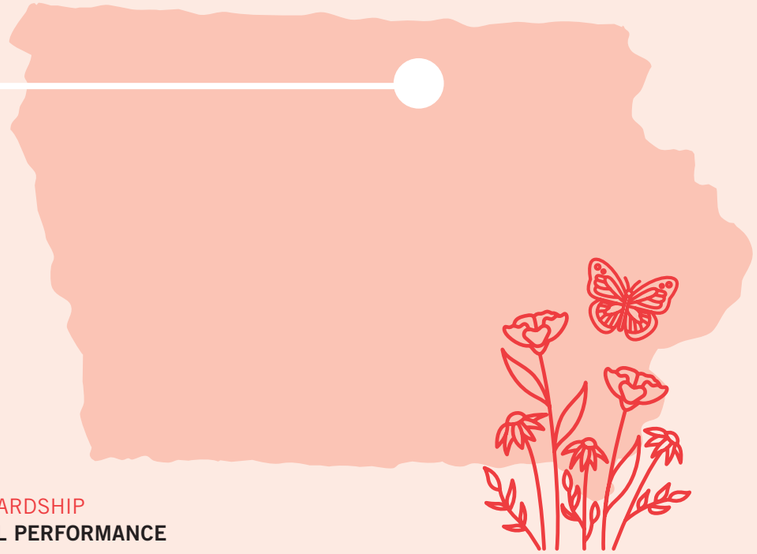
We expect to complete construction of the solar field in late 2022. Once operational, the Osage facility will receive renewable energy credits. Both the prairie restoration and solar field projects are expected to eliminate 24,000 megatons of CO_2, reducing our emissions by 10%.

Aside from these new initiatives, we have made progress on several other key environmental efforts. We continue to reduce energy use through optimizing fermenters, upgrading lighting systems, and employing other best practices.

Regarding water and waste, we continue to staff, manage, and assume the costs of the Mitchell County Wastewater Pretreatment Plant for the City of Osage. This long-term partnership has led to increased efficiencies and substantial water and chemical savings while improving the air quality for the surrounding community.

We also continue to reduce wastewater nitrogen loading by more than 50%. Instead, we pipe this waste directly to sludge tanks and provide the reclaimed waste to local farms. More than 33,000 tons of repurposed sludge has been applied to farm grounds annually as beneficial nutrients instead of being landfilled.

During the past two years, we've planted more than 200 trees around our facility and recently planted 50 trees throughout the city as part of our DiPel 50th anniversary celebration.



ENVIRONMENTAL STEWARDSHIP

OSAGE ENVIRONMENTAL PERFORMANCE

11%

reduction in energy use per batch of product during the last five years.

6,195,654

kilowatts

in annual energy savings achieved from reduced energy usage per batch in 2021 compared to 2017.

4,749

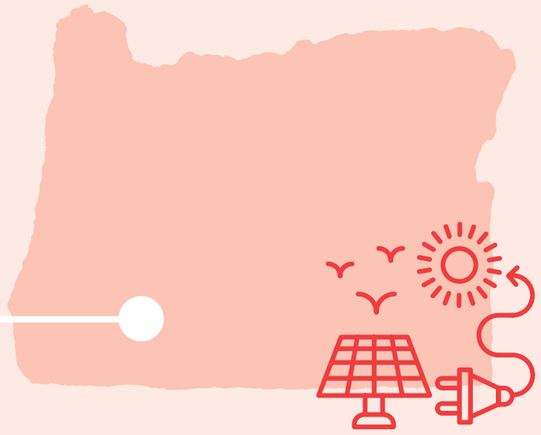
tons

of annual CO_2 emissions eliminated by reducing gas and electric usage per batch in 2021 compared to 2017.

ENVIRONMENTAL STEWARDSHIP

2021 MYCORRHIZAL APPLICATIONS ENVIRONMENTAL PERFORMANCE

In Grants Pass, Oregon, our Mycorrhizal Applications facility completed a Keep It Green and Clean project. Business growth and expanding production and laboratory capabilities led to higher inventory and limited the amount of overall space available. The Keep It Green and Clean project, which included several recycling and refurbishing elements, helped optimize the facility's use of space without requiring an expanded footprint. The facility also employs several environmental best practices to reduce energy and water, including solar power, electric vehicles, a green roof, and drip irrigation.

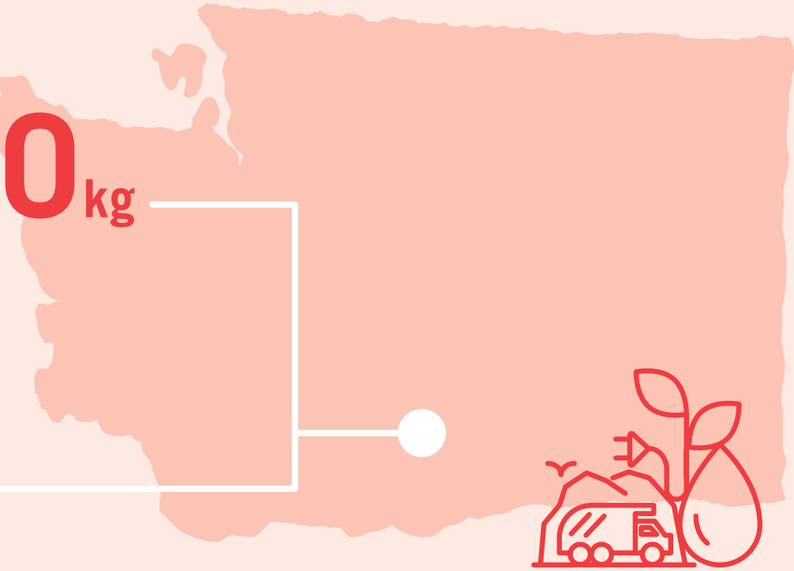


Nearly 29,000 kg

of plastic and metal diverted from waste streams.

Sustainable Sourcing

To help ensure we select suppliers who share our commitment to sustainability and help drive our larger sustainability and business goals, we partner with EcoVadis, a trusted global leader in sustainability assessment.



ENVIRONMENTAL STEWARDSHIP

2021 PACE INTERNATIONAL ENVIRONMENTAL PERFORMANCE

At our Pace International headquarters in Wapato, Washington, we conserve water with a washing system that includes spray balls installed in each packing house. With wet scrubbers, we reduce pesticide residue emissions and the facility's carbon footprint. We also reduce waste and improve employee safety by reconditioning and reusing intermediate bulk containers to transport products.

Since 2019, we've used EcoVadis to evaluate our suppliers' Environment, Labor and Human Rights, Ethics, and Sustainable Procurement practices, helping both us and our suppliers understand current performance, as well as opportunities to improve. In fact, more than 70% of our suppliers have improved their EcoVadis scores since they were first assessed.

New in 2022, our EcoVadis evaluations will include a Carbon Scorecard and a Carbon Calculator. The scorecard will assess how suppliers are managing carbon and emissions, including strengths and improvement areas, and the calculator will offer an easy-to-use tool to measure emissions based on activity, energy sources, and consumption data. We'll also provide an E-Learning Hub to support our suppliers on their journey to decarbonize.

As part of Sumitomo Chemical, we also are evaluated by EcoVadis. In 2022, our parent company received a gold medal assessment from EcoVadis for the third consecutive year and once again earned high ratings in the Environment and Sustainable Procurement categories.

Community

Community engagement has been ingrained in our culture since our founding and remains at the forefront of everything we do.

CORPORATE SOCIAL VALUE

From the nonprofits and causes we support to the volunteer hours our employees provide, our corporate social value activities reflect our passion to positively impact food security, public health, the environment, and our communities, including educational opportunities.

Every year we contribute to and sponsor a variety of local events, charity programs, and fundraisers. To make it easier for employees to support causes important to us as a company and as individuals, we encourage employees to volunteer up to eight hours annually during work day hours and offer matching gift programs.

A group of our employees spent a fall afternoon volunteering at the Lake County Forest Preserves in northern Illinois at a five-acre nursery with rare and hard-to-collect seeds used to restore native habitats. This was the sixth year our colleagues assisted with seed harvesting.

In Iowa, our entomologists and their bugs offered hands-on learning demonstrations at the Osage STEAM Festival. We hosted career day tours for high school seniors showcasing the variety of science and technical opportunities we offer. We also contributed to programming and organizations that support farmers as responsible stewards of land and resources, promote farm safety, and focus on youth agricultural education.

These are just a few of our many corporate social value efforts. And while our main purpose is to benefit our communities, these activities also create opportunities for employee connection and reinforce what matters to us most as a company.

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