



# floral management's SUSTAINABILITY SPOTLIGHT

The floral industry is going green  
for a better future



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# DREAM FARMS

Dream Farms is a Rainforest Alliance Certified company with a philosophy to practice environmentally favorable and sustainable agriculture.

## Our production practices include:

- Maintaining a strong practice for reducing, reusing, and recycling plastic, paper, and cardboard.
- Not causing environmental impacts to the surrounding communities or their natural resources.
- Maintaining extensive conservation and reforestation areas.
- Ongoing training program for our staff members to create and maintain awareness of protecting the environment.
- Zero-tolerance policy for child labor, forced labor, discrimination, violence, and workplace harassment.
- Protection of wildlife on our farm.
- Planting trees to contribute to the transit of fauna.
- Using a water recirculation treatment program.
- Not using toxic agrochemicals.

## We do our part for the planet!

From our farm to your door in 3 days.



305.479.2520



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# Committing to a Better Future

As an industry that works closely with the land and its bounty, we have many opportunities to be good stewards of the environment while at the same time responding to increasing consumer demand for sustainably grown products.

The floral industry has taken up that cause in meaningful ways. In doing so, many businesses are finding that they have the power to not only have a positive impact on the environment, but also on their workers and their economic stability.

This special sustainability supplement produced by the Society of American Florists' *Floral Management* magazine is designed to be a resource for you, your employees, your customers and even your legislators. We've included a glossary of sustainability terms; an overview on sustainability in the floriculture industry; a guide to certifying organizations and their labels; and a profile of the Floriculture Sustainability Initiative, the international nonprofit organization leading the way on standards for certification.

Beyond those resources, we also invited floral businesses to tell the stories of how they are changing their practices to be environmentally, socially, and economically sustainable.

In these pages you'll learn how flower farms are earning certifications for conserving water, reducing carbon emissions, adopting integrated pest management, using energy efficiency equipment and even for how they care for workers.

You'll also read about manufacturers that are thinking sustainably when it comes how their goods are produced. Some are using recycled inputs while others have eliminated harmful chemicals from their products. Manufacturers are also trying new production methods that reduce carbon emissions and create less waste.

There's also movement underway among florists and farmers to promote the use of blooms and greens that are local, seasonal, and sustainably grown.

This collection of stories and information displays the breadth of sustainable practices throughout the floral supply chain and demonstrates how the industry is committing to a better future.

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# Raising the Bar

## How the Floral Sustainability Initiative is Empowering Global Change

BY BRUCE WRIGHT

**S**ustainability is all about the big picture. Achieving meaningful goals, communicating the floral industry's successes to the buying public — these require many individual actors in a complex supply chain to become informed and committed.

And yet, in the end, they are tasks that no one business can fully accomplish on its own. One organization that is taking the lead to integrate all the pieces of this puzzle on a global scale is the Floriculture Sustainability Initiative (FSI).

The independent, international nonprofit was founded in 2013. Its first step was to define what sustainability means for the floriculture industry and to get as many stakeholders as possible on board.

FSI has come a long way. Among its achievements is the establishment of a continually evolving "basket of standards." The FSI basket includes 16

standards that serve as benchmarks for standards set by others — including government regulators and certification labels.

The basket of standards encourages a consensus that makes achieving high sustainability standards more practical. Costly third-party audits can be reduced when they are aimed at one, agreed-upon set of metrics. The task is not easy, because sustainability standards must also be context specific to a degree. But today, the FSI Basket serves as the industry's indispensable, transparent and progressive international reference.

Over the years, a variety of other projects undertaken by FSI — some of which are ongoing — have focused on developing methodologies toward specific goals, from the empowerment of women workers to the advancement of integrated pest management (IPM), a strategy that

uses biologic controls to reduce the use of pesticides.

FSI membership has grown from the 25 founding members to 75, ranging from growers and breeders to retailers, hardgoods suppliers, floral associations, environmental organizations, and certification labels. "FSI is as strong as this network," says executive officer Jeroen Oudheusden in an online seminar hosted by the International Association of Horticultural Producers.

FSI's members say that without the organization, the industry's efforts toward sustainability would be fragmented.

"Collaboration is one of the cornerstones of sustainability," says Mark Allen, global products manager for Floralife, an FSI member and supporter. "The core of FSI is about bringing key players in the industry together in order to build and bridge collaboration. Without that, at the

PHOTOS COURTESY OF FSI



**BIO-CONTROL** FSI, with Dudutech, trained 300 small-scale Kenyan farm workers in modern sustainable farming methods. The project saw farms harvest more than 500 kilos in sustainably grown products per week.



**WASTE WATER MANAGEMENT** FSI, in partnership with the Ethiopian Horticulture Producer Exporters Association, is helping 15 Ethiopian farms build wetland systems. The project is also training 60 farm workers how to manage wetland systems.



**INTEGRATED PEST MANAGEMENT** FSI and Afriflora are undertaking a project to increase integrated pest management practices and training in Ethiopia.



**CHAIN TRANSPARENCY** FSI and More Profitable Sustainability's Chain Transparency project is trying to unite the industry in creating transparency and traceability in the supply chain.

end of the day, you've got all these people doing separate projects that can move in different directions."

Ball Horticultural Company is also an FSI member and values the opportunity the organization provides to work alongside other companies to address a common goal. "Sustainability can be a complicated subject to tackle," says Susannah Ball, who is the company's sustainability co-lead. "Being part of an international group provides insight into the varied landscape of sustainability around the globe. FSI is working hard to move our industry forward on a variety of social and environmental issues, and we are proud to participate."

Much has changed around sustainability since FSI started. "Over the last eight or nine years, sustainability has matured as a topic," Oudheusden says. "New people enter the sector with sustainability backgrounds from other industries. That has helped the discussion to speed up. Organizations are investing in good sustainable practices. It's no longer something that's done on the side; it becomes an integral part of the operation."

For growers, certification, he insists, is now a basic requirement. Using the FSI basket of standards as a measure, Oudheusden estimates that the global industry has already achieved about 70 percent

compliance for flowers and 80 percent compliance for plants. That is approaching FSI's target to reach 90 percent compliance by 2025.

Those achievements don't, however, represent the end goal, Oudheusden says. Rather, they bring the industry to a tipping point. As high as the standards are, there is much more to be done, "not only in raising the percentage," he says, "but in raising the bar."

Responsible production and trade is the first of three pillars in FSI's agenda. The second is responsible conduct, which relates to the goals of reducing carbon footprints and the living-wage gap. The third pillar is responsible reporting, which refers to an intensified focus on data and transparency.

Reliable record keeping is the key factor in taking standards to the next level, Oudheusden says. Just as important, it's a way for the industry to collectively demonstrate good practices and communicate its achievements to consumers.

"In the past, our industry has often been caught in a defensive position," Oudheusden says, referring to critiques — especially at Valentine's or Mother's Day — that expose the failings of the supply chain in terms of both social and environmental responsibility.

How can we go from reactive to proactive? High standards must be backed up and continually refined with robust data — FSI's latest frontier. It's not just the data, Oudheusden believes, but how it is used, that will provide the key to "futureproofing" the industry.

In the past, market pressures — including negative publicity — have often provided the push that moves sustainability efforts forward, Oudheusden says. Pilot programs by individual businesses also move the needle. Government action is often the last step, but it's one that most in the industry would rather avoid.

"The government can play a role," Oudheusden says. "But so can consumers, or businesses. Anyone can be a change agent."

Taking coordinated initiative, he believes, is how the floral industry can turn sustainability from an obligation into an opportunity. "How can you get involved?" he asks, pondering the question. "I always feel like 'involved' sounds passive. The real question is, are you committed to this journey? If you are, we have some really good moments ahead."

Learn more about FSI at [www.fsi2025.com](http://www.fsi2025.com). ■

**Bruce Wright** is a contributing writer to *Floral Management*.

# Ball Reuses Materials for Cajicá Site Expansion

**Expansion of plugs operation in Cajicá, Colombia, mostly done with recyclable materials.**



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[ballsb.com](http://ballsb.com)

**B**all's sustainability guidelines are important throughout the company, from managers to greenhouse workers. Sustainability education and participation from all employees creates a culture within the company that encourages and motivates employees to find ways to be sustainable in their own projects. This year Fabio Pardo, Ball Colombia propagation farm manager, provided a great example

of how this mindset helped a big project that reduced waste in the construction of a new farm.

The 2021 sales growth led Ball SB to expand its plugs propagation site to a bigger location in Cajicá, Colombia, to meet increasing demand. COVID-19 supply chain shortages presented a challenge. Construction materials could not be acquired easily or timely.

The new site already had a greenhouse with six bays and nearly 100





*Ball SB, as part of the Ball Horticultural group, distributes seeds, plugs, cuttings, and TC plants in Central and South America as well as Kenya and Ethiopia, offering our own genetics and representing third parties in the region.*

metal benches that were not ideal for propagation. This is when Pardo had the idea to repurpose the existing materials that were not adequate for the plugs operation.

"We found ourselves needing to study what we should do with this type of existing materials, and we concluded that the best way was to reuse the material by reconditioning it and rebuilding the benches within the greenhouse," Pardo says.

The idea to reuse the metal materials saved Ball 50 to 60 percent compared to the cost of buying new materials and building from scratch. Most importantly, the idea took into consideration the environmental impacts and minimized waste.

"We managed to reuse the existing materials into a new and different process and it's perfectly functional," Pardo says.

The new site is now able to produce more plugs of higher quality, delivering them on time to growers and thus meeting the increasing demand for cut flowers. Under Pardo's initiative, not only were there improvements in time and costs, but most importantly, it helped minimize environmental waste while supporting Ball's sustainability objectives with the participation of their employees. ■



# Chrysal Cares

## Let's Go Green!



# CHRY SAL

Phone: 800.247.9725  
[chrysal.com](http://chrysal.com)

In the past 10 years, humankind has produced more plastic than in the entire 20th century. Almost all the plastic that has been produced still exists in the same or different form because it is not broken down. The growing challenge of plastic in the environment means it is more urgent than ever to find solutions to reduce, reuse and recycle. Chrysal wants to be a sustainable partner in the flower industry: reducing flower wastage, water use and packaging materials, thus integrating sustainability in our strategy. We contribute to a circular economy in which we not only use less plastic but the plastic we do use can either be reused, recycled, or composted.

Reducing the use of plastic and promoting a circular environment is a key pillar in our Chrysal Cares program. This year Chrysal Americas will be introducing Chrysal Paper Flower Food packets and Arrive Alive Eco by Chrysal.

### Arrive Alive Eco

Arrive Alive® Eco is an eco-friendly flower wrap that hydrates flowers during transport and delivery up to 5 days. It is a sustainable wrap-

ping for flowers to keep flowers hydrated during transport without a vase or bucket.

- The wrap and bag are made from renewable biological resources and are 100 percent compostable.
- Introduced at the IFTF Trade Fair in the Netherlands in November 2021
- Nominated for a Greenovation Award by Flora Holland

### Paper Flower Food

Chrysal offers our new recyclable paper powder sachet for flower food. After using the contents of the sachet, the packaging can be thrown away in the paper recycling bin. The paper can be recycled and can be used to make other (paper) products. In this way we are getting closer to a circular loop, and paper can be used over and over again.

Our new paper sachet is water resistant and splashproof. The sachet needs to be attached higher on the bunch or sleeve and avoid being submerged.

**This sachet is fully recyclable. The “recyclable” logos on the front & back will support that message to the floral customer.**



- Packaging can be put in the recycling bin
- Water resistant, splashproof
- Reduces the use of plastics, which is better for the environment.

Sustainability is an integral part of who we are and how we work. We create a caring workplace for our employees and bring added value to the sustainability ambitions of our customers. Together we strive to set the standard for sustainability in our industry. We have a strong focus to reduce waste and water usage for every stage in the horticultural chain, through our products, advice, and

protocols. With our global operations we aim to match business needs right where they are needed, close to our partners to reduce the carbon footprint. In 2019, we have calculated the footprints of all our products to gain insights on where we need to improve.

Our sustainability program, Chrysal Cares, focuses on four different pillars:

- Fighting Climate Change
- Contributing to Sustainable Economy
- Caring for Employees and People
- Toward a Positive Environmental Impact ■

*"Through these pillars we run projects and activities to reduce our impact on the environment, motivate people to live a healthy and sustainable life, and support local communities in the countries in which we operate," says Andro Mandakovic, General Manager of Chrysal North America.*



# We Care About Fostering a Sustainable World

**And that's why we breed sustainable varieties.**

**DELFOR**

LATIN AMERICA

Phone: +57 4 444 87 94  
[deliflor.com](http://deliflor.com)

**D**eliflor Latin America is sustainable by conviction. For this reason, we promote the growth of the floriculture sector, framed in sustainability, where the creation of economic resources is in accordance with environmental respect. We are aware that our production demands multiple resources, which inevitably affects the environment. Therefore, by transforming and promoting our production strategies, as well as cultivating an environmental culture within the company, we investigate, implement and promote sustainable and responsible technologies compatible with the use and demand of environmental resources such as water and soil. All these processes and others — when followed by conviction — lead us to have sustainable varieties.

In September 2021, we achieved Icontec's carbon neutral certification, through an analysis of our

corporate carbon footprint. We have a Greenhouse Gas (GHG) Reduction Plan, in which we analyze the company's annual GHG emissions and propose improvement strategies. The carbon neutral certificate guarantees that, in all processes and activities in which greenhouse gases are generated, opportunities for improvement are identified that lead the company to control, reduce and/or compensate for greenhouse gases.

Since June 2021, we have offset our corporate carbon footprint by purchasing carbon credits for the removal of 99,321 tCO<sub>2</sub>e (tons of carbon dioxide equivalent) from the CO<sub>2</sub> Zero central Cordillera forestry project. The project encompasses 39 small producers of rubber crops, cypress, and pine located in Colombia. This certification is a voluntary project, not a legal requirement. In addition, we have been part of BanCO<sub>2</sub> since January 2020. We





voluntarily make a financial contribution to projects aimed at reducing CO2 emissions. We sponsor a farming family in the Sonsón mountain area of Colombia, which will help conserve this strategic ecosystem.

We promote initiatives that push greater environmental responsibility. For this reason, we have replaced conventional nets with biodegradable low-density polyethylene nets. Likewise, we replaced conventional polyethylene sleeves with sleeves made with Kraft paper and low-density polyethylene. These replacement nets and sleeves have a greater recycling capacity through both mechanical and chemical processes.

All of the water consumed in the production processes in Deliflor comes from a reservoir of rainwater.



We have replaced all light bulbs with LED lights in order to reduce energy consumption.

We set ourselves the objective of minimizing waste byproducts and maximizing its use; therefore, we carry out and implement recycle, reuse and reduce campaigns for single-use plastics.

We are certified for Plant Propagation Material (PPM) by GLOBALG.A.P. (Good Agronomical Practices) and the voluntary add-on of GLOBALG.A.P.'s GRASP (GLOBALG.A.P. Risk Assessment on Social Practice), which evaluates companies' social practices

as related to the health, safety and well-being of workers. The GLOBALG.A.P. standard guarantees the safety and traceability of our processes; environmental responsibility (including biodiversity); the health, safety and well-being of workers; animal welfare; Integrated Crop Management (IMC); Integrated Pest Management (IPM); Quality Management Systems (QMS); Hazard Analysis and Critical Control Points (HACCP).

We are audited by SMETA, the Sedex Affiliate Ethical Trading Audit, one of the most widely used ethics audit formats in the world. ■



# Rethinking Green

## The Future of Floral Foam

**FLORACRAFT®**

Phone: 800.253.0409  
FloraCraft.com



Florists have long been using their talents to bring joy to clients by working with an abundance of fresh flowers and permanent botanicals to create inspiring arrangements. These masters of floral design have an innate talent for choosing the perfect color and floral variety to convey messages of celebration, commemoration and recognition.

Green has always been a signature color of the floral industry, but in recent years it has taken on an additional meaning.

Sustainable floristry is no longer just a trendy topic, it is becoming a driving factor in arrangements. The floral industry has expressed its desire to be more environmentally conscious in order to be a truly green profession. Florists and wholesalers alike continue to make more socially

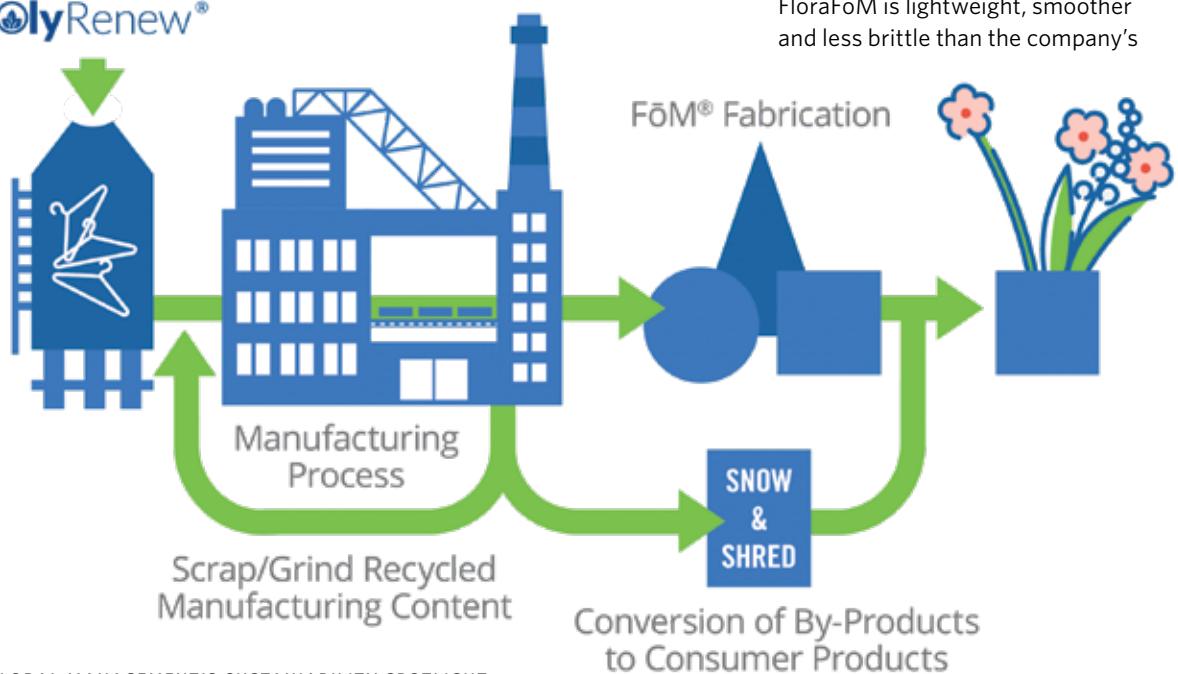
mindful decisions about the products they buy and packaging they use.

FloraCraft®, the world's leading manufacturer of foam products for the floral industry, recognized this aspiration and took action. The result was FloraFōM® with PolyRenew®, a floral foam line made with post-consumer recycled plastic.

FloraFōM represents the first true innovation in the foam category in more than 70 years and is the first product of its kind on the market to feature recycled post-consumer material. In September 2020, the Ludington, Michigan-based manufacturer rolled out FloraFōM, which uses a blend of plastic from recycled garment hangers from retailers across the country along with new extruded polystyrene, or XPS, previously known as STYROFOAM™ Brand Foam.

Floral designers love that FloraFōM is lightweight, smoother and less brittle than the company's

**PolyRenew®**





*FloraCraft is the world's leading manufacturer of foam products for the craft and floral industries. Based in Ludington, Michigan, FloraCraft provides innovative, American-made products to wholesale florists nationwide. For more than 75 years, FloraCraft has made it easy for creators everywhere through its innovative craft and floral foam products.*

legacy foam, making picking, painting and cutting easier while producing less dust, so cuts can be made with minimal cleanup. They also enjoy FloraFōM's sturdier design, which reduces the possibility of the material denting during use, making it the most obvious choice for holding stems in place.

With wet foam supply chain challenges, many florists have turned to FloraFōM as a solution. Fresh flowers can be used with this XPS foam by placing water picks directly into the foam, creating a useful alternative for floral arrangements. The lightweight yet sturdy foam easily can fit in any

container while safely holding stems or water picks in place.

Since its launch, FloraFōM has not only been a hit with floral designers but with the business world, too. FloraFōM and FloraCraft have earned national and international recognition for sustainability and product innovation by the National Association of Manufacturers, American Business and Beyond Plastics organizations.

By mixing in recycled material, the company can still make the same amount of product it normally does, but takes out the equivalent of nearly 1,000 miles of plastic per year, or the distance between New

York and St. Louis, that would otherwise end up in a landfill.

"We listened to our customers, who told us they really want to use products that have been responsibly made," said FloraCraft CEO Eric Erwin. "They want to know the foam used in their floral projects is created with environmentally conscious materials, it doesn't pollute the water supply and is made right here in the United States."

"Not only has FloraFōM changed the floral foam manufacturing industry, but it has allowed us to rethink how we produce all our products moving forward. We're taking plastic that would normally end up in a landfill and making it into a high-quality foam product — a win for the designer and the environment."

FloraCraft wants floral designers to feel great about the products they use while representing their desire for sustainable floristry. FloraCraft is driven by social responsibility, dedicated to building a sustainable company that employs best practices for the environment, people and the communities it operates in. The manufacturer is committed to reducing its environmental impact by recycling more than 98 percent of its foam fabrication scrap, which is collected and reused in other FloraCraft products or sold to companies that utilize recycled materials.

FloraFōM is now available to florists everywhere through your local wholesaler. ■



# Groflowers Uses Biological Fungicides at Colombia Flower Farm



[www.groflowers.net](http://www.groflowers.net)

Sustainable floriculture embraces environmentally friendly methods of flower farming without damaging human or natural systems. One of our goals is to minimize the use of pesticides by using beneficial fungus as biological fungicides to improve the health of the garden roses and hydrangea at Arvi Farms in La Ceja, Colombia. Biological fungicides are beneficial microbes that protect plants from pathogens such as botrytis. We reproduce beneficial fungus, such as Trichoderma (which is normally present in our soils), in our lab to levels that control and limit botrytis growth in our greenhouses. Many

species of Trichoderma are opportunistic organisms living in symbiosis with plants.

Along with Trichoderma we also reproduce Bacillus subtilis. *Bacillus subtilis* is an aerobic, Gram-positive soil bacterium present in the soil that has an antagonistic relationship with botrytis because of a protein, Subtilin, which it secretes.

Our farm lab Beneficial Fungus and Bacterias are cultured by spreading a small portion of it on various agar media in a process called inoculation. The media are then incubated in a warm, moist environment and examined regularly to detect the growth of any organisms. The isolated fungus is



Trichoderma contains the development of Botrytis



*Bacillus Subtilis* restricting Botrytis development in the lab

identified primarily by its colony morphology and microscopic structures.

Beneficial fungus and bacteria enhance our soils and help plants get nutrients that are hard to absorb. That's because beneficial fungus seeks out phosphate and other nutrients and brings them to the plants. Beneficial fungus and bacteria also allow for nutrient exchange between plants and protect plants from fungal diseases and other root-feeding microorganisms.

It takes time to reproduce beneficial fungus and bacteria to levels that are helpful. After one year of the first application, our farm started to see concise results in the reduction of botrytis. Biological fungicides supplement — rather than harm — biological life in the soil. In addition, biological pesticides have helped reduce the cost of pesticides at the farm.

Biological pesticides are just one part of our farming approach at Groflowers. Other sustainable practices at our farm include rain-water collection and use, zero-waste water discharge to soils, composting, and more. ■



Arvi Farms-Groflowers production of Trichoderma

*After one year of the first application our farm started to see concise results in the reduction of botrytis. Biological fungicides supplement — rather than harm — biological life in the soil.*

# Sustainable Farming

## A Family Stewardship



Phone: 760.433.9550  
[mellano.com](http://mellano.com)

**M**ellano and Company has been a steward of this land for over 60 years. Generations of Mellano family members have grown up on the same soil where foliage and flowers are grown today. As such, maintaining the health of this farm and the environment around it is of utmost priority.

Mellano and Company is proudly BloomCheck certified. BloomCheck is the gold standard in the certification of fresh cut flowers and foliage. It verifies that farms with the certification have met rigorous sustainability standards including pest management, water conservation, soil health, energy efficiency, and employee safety.

### Pest Management

Mellano and Company takes a stacked effort in addressing pests. Combined with the traditional pesticides, they apply biocontrol methods; for instance, using beneficial insects such as lady beetles, predatory mites, and predatory nematodes to kill bad insects. This practice reduces pesticide usage overall.

Though Mellano flowers are not grown for human consumption purposes, they take environmental stewardship very seriously. They have dedicated sustainability and research programs that strive to find new ways to reduce pesticide usage while maintaining the highest product quality standards.





## Water conservation

On California farms, being waterwise is a way of life. Sprinkler irrigation, though commonly used elsewhere, is an inefficient use of water as it sprays over the entire planting area, even in areas where there are no roots. Water also evaporates from the soil surface more easily with sprinklers. Instead Mellano and Company uses a drip tape irrigation system where a line of drip tape is placed under the soil next to the roots, which reduces evaporation and wasted water by giving each plant only as much water as it needs,

right where it needs it. To keep even closer track of water usage, they use electronic sensors to make sure only the exact amount of water that is needed is used for each plant.

## Soil health

The family company also composts all its green waste from harvesting. Composting improves soil health, helps keep water in the soil, releases nutrients gradually and naturally, and stores carbon in the soil long term — instead of in the atmosphere — helping maintain soil richness and health for years to come.

## Energy efficiency

All of Mellano's refrigeration and lighting is periodically monitored for areas in need of improvement, such as improved insulation and energy efficient light fixtures.

## Team safety and wellness

Mellano team members are integral to its farming operation. As such they provide wellness services such as training, flu shots and food donations, as well as employee appreciation events to recognize their team for their efforts. ■



# Slow Flowers

## Growing a Seasonal, Local & Sustainable Floral Marketplace



hello@slowflowers.com  
slowflowerssociety.com



Since journalist Debra Prinzing authored *Slow Flowers* (St. Lynn's Press, 2013), a lot has happened with the book's title: **Slow. Flowers.** Together these two words now symbolize an entire movement embraced by hundreds of thousands of florists, flower farmers, retailers and designers who use "Slow Flowers" as a shorthand way to express their commitment to local, seasonal and sustainably grown botanicals. After the book's publication, and as an opportunity to encourage new sustainability standards in the floral industry, Prinzing founded the Slow Flowers Society as a multimedia content and branding hub and a floral networking community.

Founded in 2014, the Slow Flowers Society welcomes members from

all facets of the floral industry into our dynamic community and strong professional network. Through high-quality editorial content and engaging programming, Slow Flowers shines a light on local and sustainable flower sourcing and seasonal floral design.

At our core, we are storytellers. Slow Flowers provides messaging, branding and marketing tools, helping members differentiate themselves in their communities. Our popular channels include the **Slow Flowers Podcast**, **Slow Flowers Journal**, **American Flowers Week**, the **SlowFlowers.com** online directory, and the **Slow Flowers Summit**, an annual conference. We also publish books by and about Slow Flowers members through **BLOOM Imprint**, our book division.





**The Slow Flowers Movement** inspires floral professionals and consumers to embrace local, seasonal, and sustainably grown flowers. With nearly 900 members across North America, we are inspiring change in flower sourcing practices and building a branding platform that promotes cultivation and sales of domestic flowers, while connecting consumers, farmers and florists.

### Here is what a few of our members have to say:

"I have been a member of Slow Flowers right from the beginning. I would strongly recommend anyone in the farmer-florist movement to join! This membership has been highly beneficial to my business and has really helped me spread my message. Debra Prinzing and the Slow Flowers team have supported and promoted my workshops. I have been published and have had speaking opportunities thanks to this membership, not to mention that the Slow Flowers Society is a great community and business resource! More than any other investment in advertising or PR, the benefits of membership far, far outweigh the relatively small membership fee. Do yourself and your floral business a favor and join today!"

—Tobey Nelson,  
Tobey Nelson Events & Design  
(Clinton, Washington)

"Being a member of Slow Flowers is one absolute way best way to engage with our floral community and I am so proud to be part of this incredible organization! It has allowed me to connect with florists who want to buy our flowers. The Slow Flowers Podcast is a constant source of inspiration and information and being a member has allowed our small farm to be included in national publications alongside other members (something we couldn't have achieved on our own). Joining Slow Flowers is one thing that every single flower farmer needs to do!"

— Niki Irving, Flourish Flower Farm  
(Asheville, North Carolina)

"As a member of Slow Flowers, you're guaranteed a front row seat to weekly fun and inspiring Slow Flowers Podcast interviews, where you can hear how others in the floral industry tackle challenges and create unique business opportunities and solutions. Thanks to our membership in



Slow Flowers, our company has benefited from media coverage in both digital and print publications, which helps us strengthen our brand and connect with our peers and clients in new ways."

— Debbie Bosworth,  
Dandelion House Floral Design  
(Plymouth, Massachusetts)

### Join the Slow Flowers Movement

You don't have to do it alone. We are a progressive society that prioritizes inclusivity, equity and representation in flower farming and floral design. When we speak together with a unified voice, our message is amplified. Our customers and our peers pay attention as we encourage them to support domestic floral agriculture and sustainable design practices in the profession. Let's redefine what is beautiful by embracing seasonality and respecting the environment. ■

# Design a Better World



SMITHERS-OASIS

Phone: 330.945.5100  
[smithersoasis.com/sustainability](http://smithersoasis.com/sustainability)

**F**rom more sustainable products to educational initiatives to manufacturing, we are always looking for big ways to help *Design a Better World* for all of us. At Smithers-Oasis, we recognize that being socially and environmentally responsible requires thoughtful stewardship and accountability to preserve and improve our world for future generations.

Since 2013, when we committed to our Three Pillars of Sustainability: *People, Planet, Prosperity*, we have invested in the

efficiency of our operations, training for employees, and research and development to continue enhancing our products' sustainability profile. Since then, we have strengthened our commitment and defined key areas to impact our world and *Do Good. Every Day*. These impact areas span essential issues affecting our communities, employee experience, and health and safety. Additionally, we continue to focus our efforts on product responsibility and innovation as well as our environmental footprint.





As a global leader in floriculture, we are dedicated to working with our customers and supply chain partners to meet and exceed the increasing market demand for environmentally responsible products. In addition to developing more sustainable products, we are focused on scrap reduction, materials recycling, process emissions reductions, and product life cycle evaluations.

We are proud to be the first in our industry to eliminate chlorofluorocarbons in our floral foam production. We have reduced our volatile organic compound (VOC) emissions by more than 85 percent.

New in 2021, floral design meets the industry's first compostable, patent-pending floral media with OASIS® TerraBrick™ Floral Media. Made with plant-based, renewable, natural coir and a compostable binder, OASIS® TerraBrick™ Floral Media has been certified as both OK compost HOME and OK compost INDUSTRIAL by TÜV Austria, a third-party certifying organization.

We continue to develop innovative products such as our OASIS®

Floral Foam Maxlife which degrades by 75 percent in one year in an anaerobic environment.

Over time, we have been able to develop increasingly sustainable products with compostable and degradable attributes that increase their recyclability. The products, which prioritize recycled content, maintain their quality and reliability while consuming fewer resources. We recognize that sustainability depends on all of us and starts with integrity, the foundation of our Core Values. Our dedication to integrity is apparent throughout our business, from manufacturing processes and business partnerships to corporate responsibility and environmental sustainability efforts.

To learn more about our sustainable efforts, impact areas, and initiatives, check out <https://www.smithers-oasis.com/sustainability>. ■



# Continuously Improving Sustainability in Bloom



800.747.0396  
TSVG.com



**N**estled amongst California's giant redwoods, in the foggy coastal town of Arcata, Sun Valley Floral Farms is growing premium, fresh-cut flowers — sustainably.

Sun Valley Floral Farms is committed to positive stewardship of their local community and environment. By using sustainable and environmentally friendly practices, Sun Valley is able to create a world of color and grow beautiful blooms year-round.

In 2016, Sun Valley took major steps to become the first American flower farm to become certified sustainable by the Rainforest Alliance. With this certification, Sun Valley showed their dedication to meeting rigorous environmental and social standards and toward making a positive impact in their community and within the floral industry.

Rainforest Alliance certification goes beyond crop management. For a flower to be truly eco-friendly, each step in the flower's journey, from field to doorstep, is monitored to ensure it meets the standards of certified sustainability. It's not only flowers that benefit from the certification; team members are protected by fair wages, health care, and positive working conditions. Rainforest Alliance certification also ensures that the farm plays an active role in the community.

Walking around the farm, Sun Valley's commitment to sustainability

is evident nearly everywhere. One of the first things visitors often notice are team members biking around the farm. By encouraging bicycles over vehicles to maneuver about the farm, Sun Valley reduces fuel emissions while providing team members the joy of biking through greenhouses. The farm's sustainability efforts are also evident in the decision to steam the soil rather than using pesticides and other chemicals to clean the soil between crop plantings. The soil itself is also a result of Sun Valley's composting efforts. Comprised of composted flowers and bulbs along with redwood and Douglas fir bark, the soil is not only good for the flowers but also it is good for the earth!

One of the most critical components to farming is water, another major focus of Sun Valley's sustainability efforts. Irrigation lines are carefully placed and monitored to ensure the correct amount of water is delivered to the bulbs. Should a leak arise, the team is alerted, and the problem is immediately addressed to prevent undue water waste. Water runoff from the greenhouses is collected and stored in a pond to be reused again, and again. In addition to repairing the occasional water leak, Sun Valley has a team dedicated to repairing and reusing as much as possible. From repairing crates to maintaining the farm infrastructure, Sun Valley's repair and maintenance



*From their remote Northern California headquarters, Sun Valley Floral Farms is creating a world of color with sustainably grown flowers. Sun Valley's fresh-cut flowers can be found at your favorite grocery store, florist, wholesaler, or online at [tsvg.com](http://tsvg.com).*

department is a critical component of the farm's ability to reduce and reuse as many materials as possible.

Less noticeable, but arguably more critical to the farm's sustainability commitment is the internal taskforce that Sun Valley implemented to regularly review and improve sustainability efforts. The team has been crucial in ensuring that the farm and team members remain committed to reducing waste and energy consumption through education, internal programs, and critical self-auditing to ensure the farm is continuously improving and innovating to maximize sustainability. In 2021, the team's initiatives included minimizing waste by reducing packaging materials and packing more efficiently. For 2022, the team has challenged itself to reduce energy consumption, and is already making tremendous strides by reducing refrigeration and air conditioning usage, installing motion sensing lights, and

getting all team members involved and motivated to curb energy waste.

Sustainability at Sun Valley goes beyond environmental. The farm is committed to social sustainability and providing safe, quality jobs for its team. With more than half of all leadership positions on the farm filled by women, many of whom are women of color, Sun Valley is creating an equitable workplace that gives opportunities and empowerment to all. Social sustainability is engrained into the company culture by the farm's guiding principles, which include to treat team members with respect, instill opportunities for all and give thanks always.

By committing to sustainable growing and business practices, Sun Valley Floral Farms shows the importance of giving thanks to the environment, to their community, to their team, and to the people who allow them to create a world of color with fresh-cut flowers. ■



# Products Designed with the Planet's Future (and Yours) in Mind

**Syndicate Sales shares a few of its sustainable solutions.**



Phone: 800.428.0515  
[syndicatesales.com](http://syndicatesales.com)



**S**ince the company's founding in 1946, Syndicate Sales, headquartered in Kokomo, Indiana, has embraced social responsibility as a core value, from promoting health and safety to empowering employees with benefits. Over time, that principle has expanded to include a sharper focus on environmental sustainability, through mindful manufacturing, responsible recycling, and energy-efficient operations.

"There's been a huge push from customers in the past five or 10 years to be more environmentally friendly, and everyone wants to know what you're doing to do your part," says Trent Harshman, director of product development and purchasing, who's been with the company for 32 years. "At Syndicate Sales, that mindset is inbred and practiced from the top down. We're all compliant in our daily personal habits, we've invested in operations to eliminate waste, and we're constantly researching raw materials to create new products that are good for the earth and that benefit our customers."

One of Syndicate's most impactful moves to reduce its carbon footprint was converting its injection mold from a cold runner to hot runner system. "Traditionally, manufacturing produces a lot of scrap materials in the process," Harshman says. "With this

new system, we're left with only the product we want to sell, which eliminates a ton of waste."

Harshman and his colleagues also communicate regularly with raw material suppliers and attend trade shows to discover new ingredients to make greener products. "The goal is to produce things that are made from a percentage of recycled products or that are 100 percent recyclable," Harshman says. Testing prospective products in house, Syndicate employees consider several factors, including functionality, price points, and aesthetics. "Is it something the florists would actually use? That's the ultimate question," he says.

Widespread use hinges on education, Harshman says, as people are creatures of habit. That's why Syndicate Sales turns to influential florists, such as Derek Woodruff, AAF, AIFD, CF, PFCI, to demonstrate how products have helped his business, Floral Underground in Traverse City, Michigan. "There are definitely misconceptions with sustainability," Woodruff says. "For instance, a lot of people balk at anything plastic, but they're not distinguishing between something that's single use and a tool that you use all the time. Or they'll write something off as too expensive without considering how much time it could save them or how often they could reuse it."



Here are a few of Woodruff's favorite Syndicate Sales products that promote sustainability:

### The DIY Floral Grid

"With this, I have eliminated floral tape — a recurring cost that adds up over time," Woodruff says. "Plus, it is infinitely faster than building your own grid. During a busy holiday, that increased productivity pays off immensely."

### The Holly Heider Chapple Pillow® and Egg®

"I have a lot of corporate accounts, for which I use these mechanics. The restaurant and hotel managers always send them back, so I use them over and over," Woodruff says. "Previously, I used foam for this work — another small but recurring expense I've cut out." Furthermore, the Pillow and Egg both maintain a

design's architecture extremely well, making for a beautiful presentation that wows customers. They also make it easy for customers to lift flowers out of a vase to refill with clean water and trim stems. "All these things really boost an arrangement's perceived value — and your business's reputation," Woodruff says.

### Cages

"Gone are the days of creating makeshift mechanics out of baking sheets, cellophane, cardboard, and bricks of floral foam for floral sympathy tributes," Woodruff says. "Syndicate Sales' modular cage systems have a solidly constructed plastic bottom that is equally strong and durable, and they also offer a small reservoir of water to keep foam or moss hydrated longer. They're also easy to transport, making them very popular with delivery drivers and funeral directors."

### Sphagnum Moss

"Sphagnum moss is an excellent alternative water source to flower foam when trying to be sustainable for installation work and beyond," Woodruff says. "It's also reusable so I usually get a few events out of it before composting."

### Recycled Glass

Woodruff's clients simply adore Syndicate Sales' Domestic Clear Glass, which is made in the U.S. from up to 30 percent recycled materials and is 100 percent recyclable, as well as the Recycled Glass, which is made from up to 100 percent recycled material. Together, these collections offer a range of shapes, sizes, and degrees of sustainability. "Clients love the character from the greenish-blue tint and slight imperfections in the 100 percent recycled glass," he says. "With these containers, you can create a totally sustainable terrarium or arrangement." ■



# Westerlay Orchids

## Setting Sustainability Standards



Phone: 805.684.5411  
[westerlayorchids.com](http://westerlayorchids.com)

**W**hile its principal focus is on growing and distributing 4 million vibrant phalaenopsis orchids per year throughout the western United States, as part of its long-term vision, Westerlay Orchids is focused on sustainability through continuous reduction of its carbon footprint. Solar panels, energy curtains, and a robust offset program will combine to reduce Westerlay's carbon footprint by 43 percent in 2022, with a vision of achieving carbon-neutral production by 2026.

"We benchmark ourselves against thousands of other horticultural companies worldwide, and this allows us to compare fertilizer, water, fossil fuel, and pesticide use to our peers. In the subset of orchid growers, we are graded at the head of the class for all categories and have achieved an 'A' for every year we have been part of MPS," says Westerlay president Toine Overgaag.



### Three Significant Efforts

Westerlay is undertaking three significant efforts to reduce its carbon footprint:

#### Solar

Westerlay is installing 561 solar voltaic cells forecast to generate 320 kWh per year of electricity at its primary location, and this will provide 100 percent of all electrical needs for this facility. Westerlay is looking to install more solar panels in 2022.

#### Energy Curtains

Westerlay is working with Greenhouse System in replacing and insulating energy curtains in over 650,000 square feet of greenhouses. This is estimated to save 55,000 therms (British Therma Units [Btu]) of natural gas used for heating.

#### Offsetting Emissions

Through Carbon Footprint Ltd., Westerlay is offsetting carbon



emissions by 2,399 tCo2 through direct financial support to construct a wind power facility in Tamil Nadu, India. Since 2019, Westerlay has worked with Carbon Footprint, a third-party verification service, to measure carbon emissions and determine their strategy for reduction.

*Westerlay Orchids is California's largest commercial orchid grower. Westerlay annually distributes nearly 4 million orchids directly to customers, local and national supermarket chains, florists, and designers and is a pioneer in environmental and sustainability practices. The second-generation, family-run company is based in Carpinteria, California.*

These efforts at Westerlay build on past efforts like installing a 300,000-square-foot irrigation water recycling catch system in 2018 that reduced water use by 38 percent. Another payoff beyond the conservation of water has been a reduction in natural gas consumption. Channeling

the water enables a drier environment in the greenhouse and requires less heating to maintain temperature and humidity. Westerlay reduced its natural gas consumption by 11 percent, an amount in terms of carbon footprint equivalent to taking 29 cars off the road. For 2023, Westerlay is looking to add another 300,000 of drain system.

Westerlay has achieved an 'A' rating every year since 2015 from MPS, the internationally recognized independent horticultural rating agency, and the carbon reduction efforts have contributed to this 'A' rating. Eco-friendly changes at Westerlay have quickly put them on the map as an example for others to emulate, positively impacting the climate and the community. ■



# What's in a Label?

Sustainability certifications abound in the floriculture industry. Here's a breakdown of some of the best-known certifications and how they are administered.

## BloomCheck

 BloomCheck certifies sustainability standards for flower growers in the United States. It originated under the California Cut Flower Commission (CCFC) — the grower-funded organization that also launched Certified American Grown, a program that verifies U.S. origin for cut flowers and greens. With the dissolution of the CCFC in 2020, BloomCheck is now administered by the Kee Kitayama Research Foundation. BloomCheck's sustainability standards dovetail with, and in many cases exceed, those set by a variety of U.S. and state regulatory agencies. The standards are set by an independent firm, SureHarvest, that provides sustainability solutions for growers and agri-food companies.  
[www.bloomcheck.com](http://www.bloomcheck.com)

## Certified Naturally Grown

 This certification was created in 2002, the same year as the USDA's National Organic Program took effect. Finding the paperwork requirements of the USDA's program burdensome, a group of small-scale growers founded the Certified Naturally Grown program so they could get credit for growing flowers and produce without synthetic herbicides, pesticides, fertilizers, or genetically modified organisms. Certification relies on peer reviews that also encourage the sharing of grower-to-grower knowledge.  
[www.cngfarming.org](http://www.cngfarming.org)

## Fairtrade International

 Established in 1997, Fairtrade stands out from other certifications as being 50 percent owned by growers and workers, giving them a voice in the organization's decision making. Flowers are among the many agricultural products that can be designated with the Fairtrade Certification Mark, as determined by an independent certifying body. The standards encompass economic as well as environmental and social criteria. Fairtrade International is an umbrella organization that comprises multiple stakeholders including Fairtrade America.  
[www.fairtrade.net](http://www.fairtrade.net), [www.fairtradeamerica.org](http://www.fairtradeamerica.org)

## Fair Trade USA



Not to be confused with Fairtrade International or its U.S. branch, Fairtrade America, Fair Trade USA originated in 1983 as a project to help coffee growers in Nicaragua and was launched as a certification in 1998. With roots on the social and economic side of sustainability, Fair Trade standards today embrace the concept of environmental stewardship along with protections and fair remuneration for growers, workers and fishermen.

[www.fairtradecertified.org](http://www.fairtradecertified.org)

## FlorEcuador



Launched in 2005, FlorEcuador is the sustainability certification program sponsored by Expoflores, the Ecuadorean Association of Flower Growers and Exporters. It relies on third-party auditors and promises not only environmental but also business management benefits to participants. As of January 2022, more than 90 growers were certified, with 14 more in the process of earning certification.  
[www.expflores.com](http://www.expflores.com)

## Florverde Sustainable Flowers (FSF)



More than 20 years old, FSF is the certification sponsored by Asocolflores, the Colombian Association of Flower Exporters. As of January 2022, 28 growers operating more than 100 farms were certified by FSF. In Colombia, FSF has produced measurable environmental and social impact results, including benefits to nearly 37,000 farm workers in 2020. By stem count, 53 percent — or 2.2 billion stems — of Colombia's flower exports were FSF certified in 2020. To become certified, a grower must meet the highest sustainability standards worldwide, benchmarked to GlobalG.A.P. and the Floriculture Sustainability Initiative.  
[www.florverde.org](http://www.florverde.org)

## GlobalG.A.P.



GlobalG.A.P. originated in Europe as an initiative by supermarkets and other retailers that recognized consumers' growing interest in sustainably grown products. The goal was to create a universal, independent certification system for good agricultural practices (G.A.P.). Today GlobalG.A.P. is one of the world's leading

grower assurance programs. Its standards set the bar for environmental responsibility in the Floriculture Sustainability Initiative's benchmarked standards.

[www.globalgap.org](http://www.globalgap.org)

## Kenya Flower Council Flowers and Ornamental Sustainability Standard (FOSS)



The Kenya Flower Council, a private and voluntary association of growers and exporters, has created a two-tiered certification program known as KFC Silver. Producer members are audited annually and awarded either a Gold or Silver certificate based on adherence to principles of sustainability that are benchmarked to the Floriculture Sustainability Initiative's standards.

[www.kenyaflowercouncil.org](http://www.kenyaflowercouncil.org)

## MPS



Founded in 1993 in the Netherlands specifically for the floriculture sector, MPS originally stood for Milieu Programma Sierelt, meaning "Floricultural Environmental Project." The international organization is now known as MPS for "More Profitable Sustainability." MPS develops and manages a number of different certificates with a focus on the production end of the supply chain.

[www.my-mps.com](http://www.my-mps.com)

## Rainforest Alliance



One of the most widely recognized green certifications, the Rainforest Alliance began its work in 1987 fighting unsustainable forestry in Central America. The first flower farm to obtain Rainforest Alliance certification was in 2002 in Costa Rica. The familiar green frog on the label symbolizes environmental health and appears on a variety of products. The organization's vision and mission extend to helping growers and forest communities adapt to the climate crisis.

[www.rainforest-alliance.org](http://www.rainforest-alliance.org)

## Veriflora Sustainably Grown



Veriflora is a certification specifically designed for floriculture and ornamental horticulture. It is administered by SCS Global Services, an international firm that provides certification and validation services to a wide variety of industries, working in some cases with other certification programs including GlobalG.A.P.

[www.scsglobalservices.com/services/veriflora-certified-sustainably-grown](http://www.scsglobalservices.com/services/veriflora-certified-sustainably-grown) ■

# Sustainability: What Does It Mean in Floriculture?

BY BRUCE WRIGHT

**W**hat was once considered solely an environmental initiative to protect the planet, sustainability has evolved into a movement to also ensure social welfare and economic stability.

The Brundtland Report, published by the United Nations in 1987, outlined all of those elements of sustainability. It described sustainable development as that which "meets the needs of the present without compromising the ability of future generations to meet their own needs."

Many floriculture businesses have developed practices to address all aspects of sustainability. Workers are paid fair wages and, in some cases, provided with education and other resources to enrich their lives; natural resources are protected and conserved; and businesses use strategies to support long-term economic growth.

These practices are happening not only out of a desire to care for the environment and people but also thanks to the development of standards by certifying organizations. Those organizations have also evolved to become more and more comprehensive in their evaluation of agricultural practices, encompassing both environmental and social criteria.

Rainforest Alliance, for example, began as a program with an environmental focus, but today, says the alliance's Jacob Davignon, it takes into account social and economic criteria as well. It is designed to support certified farms to "maximize the positive social, environmental, and economic impact of agriculture," he says, "while offering farmers an enhanced framework to improve their livelihoods and protect the landscapes where they live and work."

On the other hand, the certification label Fair Trade USA began as a program emphasizing social welfare and justice, but has since increased its environmental footprint. A healthy local environment, after all, is essential for the workers' well-being.

Taking the concept even further, Rainforest Alliance is evolving its standards to make them context specific. "The farm can be perfect, but then once you leave the farm boundaries, what's that landscape looking like?" Davignon asked. "Is it deforested, lacking in biodiversity and water health and water quality? The landscape impacts the farm workers where they live."

The hope is that sustainability spreads outward from farms of all kinds to communities and countries — and to the Earth itself. ■

# Speaking the Sustainability Language

The subject of sustainability comes with many terms that may be unfamiliar or unclear. This glossary is a guide to common terms as they apply to the floriculture and horticulture industries.

**biodiversity** The variety of living species within an ecosystem, or on the Earth, including plants, animals, bacteria, and fungi. Biodiversity is essential to a healthy environment because each organism plays a role in capturing and storing energy, and producing and decomposing organic matter. Since all types of agriculture tend to reduce biodiversity, a primary objective of sustainable flower farming is to support biodiversity on the farm and in the surrounding environment.

**carbon footprint** The estimated amount of carbon dioxide (CO<sub>2</sub>) and other carbon compounds that is produced and released into the atmosphere by an individual, a group, activity, or industry. Carbon dioxide and other carbon compounds in the atmosphere are primary contributors to global warming and climate change. The standard unit for measuring carbon footprint is the carbon dioxide equivalent (CO<sub>2</sub>e).

**carbon neutral** A state of zero-net emissions achieved by offsetting emissions or eliminating emissions.

**carbon sequestration** The process of capturing, securing, and storing carbon dioxide from the atmosphere. Sequestration can happen through biological, geological, and technological processes to reduce the amount of carbon dioxide in the atmosphere.

**circular economy** An economic model that minimizes resources, waste and emissions during production and consumption. This approach includes reusing, repairing and remanufacturing products.

**greenhouse gas** A gas that absorbs and emits radiant energy causing a greenhouse effect.

**greenwashing** Marketing messages or other communications that falsely convey an image of environmental responsibility for an organization or product.

**integrated pest management (IPM)** A strategy for controlling (rather than eradicating) pests that relies on mechanical and biological controls as a first resort, with minimal, responsible use of synthetic pesticides. This pest-control strategy allows for the use of synthetic pesticides if they are used in a way that is compatible with biologic controls. Biologic controls include introducing beneficial insects to consume and thus reduce the presence of harmful insects. IPM has become an integral aspect of sustainable practices at many flower farms.

**life cycle assessment (LCA)** Analysis and evaluation of all the potential environmental impacts of a given product throughout its journey from producer to consumer to disposal.

**local** This term, as it is used to describe products sold within a given distance of their origin, has no widely agreed-upon definition. A 2008 amendment to the USDA's Consolidated Farm and Rural Development Act defined local as an item that was either produced within 400 miles of the point of origin or within the same state.

**organic** Produced without the use of artificial pesticides or fertilizers. In agriculture, this is the baseline definition; however, USDA standards for using this term as a marketing label are more specific. In broader use, "organic" can refer to standards that may encompass promotion of biodiversity and healthy soil.

**phytosanitary** Relating to, measuring, or controlling the health of internationally traded plants, vegetables, and fruits. Phytosanitary inspection certificates, administered by the USDA's Animal and Plant Health Inspection Service, are used to ensure exports are free of diseases and pests.

**regenerative agriculture** An approach to farming that places preservation and even restoration of the ecosystem above high crop yields. Regenerative agriculture aims to improve soil health, increase biodiversity, and aid in carbon sequestration, among other goals.

**social sustainability** A condition within a workplace or society in which the culture, processes, systems and relationships promote equality and well-being, and meet the basic social needs of present and future members.

**sustainability** The condition in which an economic activity satisfies present needs without jeopardizing resources for the future. Today the term is also understood as a balancing of interconnected interests that include environmental responsibility, social responsibility, and economic viability.

**traceability** The ability of a product to be traced in a verifiable method in its journey along a supply chain.

**transparency** An organization, business, or supply chain's openness and visibility around the conditions and actions that have an impact on quality and sustainability.

**waste management** The collection, transport, treatment, disposal and monitoring of biological, household, commercial and industrial waste with the purpose of reducing the negative effects of waste on the environment and human health. The process includes recycling and reusing.

**water footprint** A calculation of how much water is used, both directly and indirectly, in the production, supply and consumption of goods or services.

**water management** Managing and conserving the use of water to maximize quality and quantity while minimizing damage to the environment. Examples include preventing surface water pollution, collecting and using rainwater, and irrigating to concentrate water distribution.■

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*This glossary was developed using a variety of sources, from the U.S. Environmental Protection Agency and USDA to academic research and dictionaries.*

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