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The Way of the



Future

A focus on sustainability is reshaping how
we produce, consume and discard our food



As scenes straight from doomsday movies — crop-killing droughts, devastating storms and floods, food shortages and empty shelves — are paired with widespread political unrest, it's difficult not to ponder the future of food. Around the world, centuries-old grape varieties are nearly extinct due to climate change; produce is being farmed indoors, vertically, horizontally and underwater as farmlands shrink; and companies are exploring protein alternatives such as plant-based seafood while overfishing decimates the commercial catch.

For some, sustainability is viewed as a buzz word. For others, it's an issue that guides their personal and professional ethos. For everyone, it's one of the most layered, intricate and important issues that has left no part of the delicate food and beverage ecosystem untouched.

In relation to food, sustainability means producing in a way that protects and enhances the environment, using natural resources wisely and efficiently, establishing and maintaining a system that preserves the economic viability of farm operations, all while improving the quality of life for everyone from growers to livestock and consumers.

From a company that hopes to shift the view of indoor farming to a local burger shop led by a group of metalheads preaching sustainability and a duo leading a caffeinated revolution, throughout the region sustainable principles and practices are being embraced at all stages in the production and consumption of food. >



"There are zero conversations where we don't talk about sustainability and climate change. Our entire universe is front-line agriculture. With tequila, agave are 10-year plants, and one bad year can ruin 10 years of work. The wine industry as a whole is constantly on their toes responding to climate change and temperatures. As temps increase, pests migrate, so regions are dealing with pests they've never seen before. Big farms are looking to small farms for ideas to complement their vineyards to make them more sustainable. We're also seeing this talk on the post-production side. Is the glass bottle the best way to distribute and sell wine? I believe in my lifetime, or just afterwards, we'll see a major shift in the way wine is packaged and sold."

—Erin Scala, sommelier, beverage director of Common House and owner of In Vino Veritas wine shop in Keswick, Virginia

Futuristic Farming

Just west of Short Pump in Goochland County, an earth-toned building resembling a farmhouse is home to Greenswell Growers, one of the most technologically advanced greenhouses in the mid-Atlantic region. The farming facility blends traditional and controlled agriculture, and it's expected to produce 750,000 pounds of lettuce a year.

"This is the solution, this is the wave of the future," says company President Carl Gupton, pointing to a warehouse lined with symmetrical rows of red leaf lettuce and arugula as far as the eye can see.

Greenswell Growers' President Carl Gupton in a warehouse where greens are grown in a controlled environment

From seedlings to crisp heads of lettuce, Greenswell grows and monitors the produce in mini microclimates. The business uses a Green Automation system from Finland, in addition to 13 white boxes spread throughout the facility that hover above the plants, assessing light levels, temperature, humidity and airflow for more than 12,750 channels inside the greenhouse at any given moment. The boxes report back to a main computer, and if clouds roll in, the lights get brighter; if temperatures inside rise, the system cools down the greenhouse.

"It gives the plant the ideal growing environment," Gupton says. "It's a very similar environment to what would be best-case scenario in the traditional field."

Founded in 2021 by Gupton and partners Chuck Metzger, John May and Doug Pick, longtime CEO of hunger-relief nonprofit Feed More, Greenswell is the first controlled-environment agriculture project of its kind in the area. A few years ago, Pick had a conversation with his friend Metzger about the lack of fresh produce Feed More could provide to people in need. While canned and boxed food were abundant, fresh produce was scarce.

During a trip to Virginia's Northern Neck, an agriculture-heavy area of the state, Metzger stumbled across a small hydroponic greenhouse that was yielding



fresh, pest-free food year-round. A light-bulb went off: Grow produce on a large scale and get it into the hands of nearby consumers and chefs.

"All of our lettuce [in grocery stores] comes out of the West Coast; 95% of what we consume comes out of Salinas, California, or Yuma, Arizona, and has to ship all cross-country," says Gupton, who has a background in food packaging.

With a 10-day shelf life, and about half that time spent in transit, lettuce is one of the most frequently purchased items at the grocery store — and the most frequently thrown away. The U.S. Department of Agriculture estimates that about 30%-40% of food is wasted. Greenswell



Growers aims to change that.

"Today we harvested something that made it on a truck that will be in a chef's kitchen tonight or tomorrow at the latest," Gupton says, noting that Greenswell's greens can stay fresh for about 21 days. "It can be as fast as 12 hours. This business makes a lot of sense right now. Bring consistent fresh produce locally to people, eliminate all the transportation, the whole carbon footprint."

When the lettuce is ready to harvest, growing channels swing 90 degrees, and the greens pass through circular blades that cut them at the base. After traveling down a chute into the processing room, they are washed, weighed and packaged

into 5-ounce trays, then boxed and placed on a pallet for delivery to area stores. The facility recycles the water, which is then fed back to the feed tanks and allows Greenswell to use 85% less H₂O than the average commercial farm.

Adding to the region's developing hub for controlled-environment agriculture, in September, California-based company Plenty Unlimited announced plans to build a \$300 million vertical farming campus in Meadowville Technology Park in Chesterfield County that will grow Driscoll's strawberries, the company behind one-third of the \$6 billion U.S. berry market.

Controlled farming, a blend of both

science and nature, poses the question about the fate of local purveyors. Is it a threat? Gupton says the approach is not about eliminating small-scale growers or farmers markets, it's about establishing a model with longevity.

"I'm not trying to take business from mom-and-pop farmers. The farming practices of large corporate farming is very different from what we're doing," he says. "It's the way of the future; it's how we're going to feed our populations."

Getting Back to Local

While Greenswell Growers may offer a more sustainable way to purchase food than from a grocery store, local food jus- >



Above: A tasting at CommuniTea; The plants in the greenhouse are Roselle plants which go in their hibiscus spice tea. Left: Co-owner Crystal Stokes pouring puerh tea

tice advocate Duron Chavis encourages consumers to be more self-reliant and get back to the earth.

“I feel like the next stage of this is getting people a clear understanding in terms of what food systems look like, because we are so tied to the grocery store and the idea of, ‘That’s where food comes from,’” Chavis says. “The grocery store is a 60-year-old institution — it did not always exist.”

What did exist were milkmen, fishmongers and butchers, not one-stop shops. But the mass production of food, the sheer availability of it on grocery

shelves and online at the click of a button, along with the romanticization of what’s on our plate thanks to social media, has transformed the way we think about what we eat. Chavis preaches the re-localization of food.

“Food is the one thing we all can agree we need, and there’s ways for people to plug into that, and we can strengthen our community’s food security,” he says. “It shouldn’t require a disaster for us to recognize how important this is, but if that’s what it takes for people to recognize how unstable our food system is, then so be it.”

Since 2008, Chavis has built a network of community gardens and urban farms and offered “Dirt Therapy” courses on growing food. He oversees eight properties with different purposes. McDonough and Broad Rock community gardens are neighborhood spaces; the Brook Road Youth Farm is designed to cater to young people; Trinity Family Life Community Garden and Greenhouse focuses on the production of seedlings; Fifth and Eighth

District mini farms serve as training spaces for those who are learning to grow food intensively; and Sankofa Community Orchard, the largest of the green spaces, offers all of the above. The recently acquired Petersburg Oasis Community Farm will serve as an incubator farm for those who have completed Chavis’ training program.

“Each one of the spaces is a stand-alone entity, but they’re all connected,” Chavis says.

And while pandemic-era food shortages perhaps helped people realize how important and fragile local food and its distribution systems are, Chavis believes that our role is greater than simply understanding.

“If we want to take that to the next level, it requires citizens to be engaged with their elected officials,” he says. “Connecting people to the growing part helps them value the food we eat much more.”

Homegrown

At a small backyard farm in Henrico, fifth-generation farmer Crystal Stokes and fellow Project CommuniTea founder



"We raise pork in a manner that utilizes large spaces, incorporates the plantings of diverse cover crops and utilizes trees so that we are land healing. By that we mean that we can in fact raise protein, while at the same time creating biomass, carbon sequestration and building organic matter while battling invasive plants. The current industrial model for raising food is creating a health catastrophe in the short run and is going to kill us all in the long run, as a result of depleted topsoil and nutrients, [and] introduced toxins in the soil and all of our bodies."

—Clay Tranium, owner of Autumn Olive Farms

Adam Weatherford operate a mini compound dedicated to yaupon, a holly bush so inconspicuous you've probably passed it by. Bountiful in the wild and incredibly resilient, it is one of the only indigenous caffeinated plants in North America. It happens to thrive in Virginia.

"I hope coffee never runs out, but if it runs out, you have something caffeinated to drink," Stokes says, noting that researchers are predicting that coffee production will not be sustainable within the next decade.

Stokes and Weatherford have about 200 yaupon trees on their farm from which they harvest, in addition to foraging in the Pungo area of Virginia Beach and northeastern North Carolina.

"The metrics for how sustainable local food is going to look in the next couple years due to climate change looks really good," Stokes says. "Yaupon can be a million-dollar industry if we get the word out there and get people to like it."

Yaupon (pronounced yo-pon) has waxy, green, ovular leaves that people have steeped into tea for centuries. Native Americans were the first to discover the beverage and referred to it as the "purifier" or the "beloved tree."

Packed with five times more antioxi-

dants than blueberries and with 30% less caffeine than coffee, yaupon produces a smooth energetic burst. With a sweet and mellow flavor, it's a perfect canvas for the bounty of herbs blended with it in teas.

"Yaupon is abundant in the wild and doesn't require any fertilizers, extra inputs or extra water to grow," Stokes says. "It's truly sustainable."

In 2018, Project CommuniTea joined the American Yaupon Association. Along with six other companies across the country, its goal is to educate people about yaupon. Stokes says the botanical is growing in popularity, and they have been contacted by beverage companies across the world.

"People are recognizing that climate change is real, and we have to be self-sufficient," Stokes says. "I believe we should be consuming more local foods and beverages when we can to reduce our carbon footprint."

Super-sized Efforts

Cobra Burger, a Church Hill restaurant run by a crew of former butchers, takes sustainability seriously. On average, the eatery produces just one bag of trash per week, and inside the shop, customers will find two waste bins: one for recycling, one

for composting.

Open since 2020, Cobra Burger uses the private waste management services Recycling Is Magic and Compost RVA, which can process cooked food in addition to animal bones, making it ideal for a business that breaks down whole animals and grinds meat in-house.

Co-owner Adam Musselman says that by enforcing a strict code of sustainability, customers don't have to make the choice — it's already made for them.

"Sticking to doing this is a pain in the ass," he says. "It's way more expensive but has a direct effect."

Another part of Cobra Burger's ethos is serving pasture-raised beef from Virginia. They source 600 pounds of beef a week from Heritage Farms, a small cattle purveyor in Chatham that practices regenerative farming, methods that work to reverse climate change by rebuilding organic matter and promoting healthy soil. And instead of freezing beef, or letting anything spoil, Cobra Burger forecasts the amount of inventory they >

“Connecting people to the growing part helps them value the food we eat much more.”

Duron Chavis, local food justice advocate



"We felt like we needed a starting point for the restaurant and sustainability felt like a good place to move forward from. It kind of gave us a guide to follow; if we are concerned first about sustainability, then we can make confident decisions with the menu. I mean the Alewife itself isn't endangered or anything, but it's listed as a "Species of Concern," and when stuff at the top or bottom of an ecosystem goes out, it destabilizes everything. We try to only use things from the mid-Atlantic which helps mitigate some of our impact. I feel like a lot of restaurants are going to have to sell fish that have been less coming on menus before now just because so many things are being overfished or pressured. Hopefully with a little creativity we move the focus, and don't ever get to the point where we lose certain things."

—Bobo Catoe Jr., chef de cuisine at Alewife and Odyssey Fish

need for a week. When they sell out, that's a wrap.

If they allowed their meat to go to waste, it would be a matter of, "We killed an animal to have this, and now it's just going to rot," Musselman says. "But at the end of the day, the conversation is so much bigger than us trying to run a sustainable butcher shop or sustainable burger place, or us trying to do our recycling. The only way changes and life can be sustainable again is from the top down."

Assuming Responsibility

And there lies the Catch-22 and dilemma: While individuals may do their part to act



sustainably, the need for drastic, immediate policy intervention and changes at local, state and federal levels persists.

"Sustainability policy and strategy as an institution— that's where you can make a lot of big moves and big changes," says Sarah Barton, senior manager of sustainability programs and policy at Virginia Commonwealth University.

Barton's colleague, VCU urban food systems professor John Jones, who describes his job as the intersection between food system and cities, says, "I prefer policy intervention on the consumer side and not on the producer side to try and fix this problem, and that's why I like the idea of large public institutions with cafeterias, such as VCU for instance, to be making buying commitments."

In September, Jones introduced plans for a pilot project in Chesterfield County that uses more than 20 variables to identify potential parcels of land to grow food. The mapped 500-by-500-square-foot areas, about 4 1/2 acres each, have the potential to be used as community gardens or urban farms.

"From a local perspective, this idea of, 'Hey, maybe we should try to find the absolute best places to grow food in our communities and make sure that they

are preserved somehow and not put an apartment building on top of them,' " Jones says, "as opposed to the traditional strategy of, 'Oh, there's a vacant lot over there, it's heavily polluted and covered in concrete and no water access — big surprise [a community garden] didn't work.'"

The project is still in its early phases, but Jones says they hope to begin growing next year. If successful, it would expand to Richmond, followed by Henrico County.

In September, a \$90,000 USDA-funded compost initiative was introduced in Richmond. More than 20 drop-off locations have been installed where residents can recycle their organic waste that will eventually be turned into high-quality soil for the community.

Leading the project are site manager Mark Davis, founder of RealRoots Food Systems, and Kate Rivara, community garden coordinator with the Richmond Department of Parks, Recreation & Community Facilities.

"I think we are at a unique time where some of the more negative realities of how we have been consuming are starting to catch up with us," Davis says. "At the same time, we are at a point where our awareness of that problem is



Above: Cobra Burger co-owner Adam Musselman in the kitchen of the restaurant, which produces just one bag of trash per week, on average.

increasing rapidly. Something like [the compost initiative] where anyone can participate free of charge can potentially make a huge impact on household food waste.”

Composting closes the loop of production and consumption and reiterates the cyclical nature of food. Each drop-off site features eye-catching purple and green bins. The free program eliminates the barrier to entry, and having locations spread throughout the city including Chimborazo Playground Community Garden, Studio Two Three, VCU Learning Garden, Ginter Park Branch Library and Stratford Hills Shopping Center, promotes accessibility.

Although there has been progress in

addressing sustainability locally, in order to preserve our food system, we must continue to move forward with intention and thoughtful policy enactment.

“It’s an easy and convenient thing for those in power to say individual people also need to be sorting their forks to go into a compostable pile, or climate change will destroy the world, and we should be doing it from a civic duty perspective, but it’s not entirely up to the individual,” Jones says. “To suggest that individuals should be the ones primarily addressing this is a cop-out. School districts, corporate organizations have a responsibility to try and do this, and they’re not, and I think that’s a cop-out.”



INDUSTRY INSIGHTS

“We saw material like styrofoam out there and thought there could be a better way to build a more sustainable way of keeping things cold. We started pitching this idea of plant-based natural fiber insulation for meal kits. Styrofoam was invented 70 years ago and hasn’t changed, and I can’t think of anything else that hasn’t changed in our daily lives in 70 years. One-third of all the trash a city generates in a given week is packaging material.”

—James McGoff, co-founder of TemperPack