The Art of Environmentally Conscious Cocoa, Chocolate and Pastry

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Company

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We are all surrounded by the impacts of climate change. As pastry chefs, confectioners, bakers, makers and in general, celebrators of agricultural products, we feel the impacts even more greatly. We lean on and into our resources for creativity and sustenance. In so doing, we see the impacts of climate change in real time, its effects on the quality of ingredients, the supply and the people and communities that grow them. While there is an upwelling of efforts across the board to make strides in reducing our carbon footprints and preserve precious resources like water, we realize there is still a long way to go. One way of finding a path forward is to capture where we've been, what we've done and where we need to go.

We recently published our 2022 Annual Cultivate Better Progress Report; the report outlines our latest global and local efforts in protecting flavor, supporting people and communities, sourcing honorably and preserving the environment. Yet, in writing it, we realize that, as the name implies, there are always more ways to cultivate better – to push ourselves, and each other, to rethink how we grow and source and make in ways that reduce the impact on our environment.

But what does that mean for cocoa, chocolate and pastry chefs? It means knowing where your ingredients come from, what goes into making them and more explicitly the relative carbon footprint of our ingredients and our actions as best as we can – one tool that can help in taking steps toward a more sustainable food system.

Last year, with help from an expert environmental consultant, we completed our first carbon footprint assessment with pre-pandemic 2019 as our baseline. We calculated our "Scope 1, 2 & 3" emissions, which was a significant undertaking that looked at every aspect of our business through this new lens. Scope 1 covers direct emissions from owned or controlled sources; Scope 2 covers indirect emissions from the generation of purchased electricity, steam, heating and cooling, etc.; and Scope 3 includes all other indirect emissions that occur in a company's supply chains, distribution and product use.

Scope 3 is where the majority of emissions are for chocolate manufacturers. In many ways, we are a processor of agricultural materials – (delicious ones, thankfully), combining and processing cocoa beans, dairy, sugar and vanilla. Each one of these ingredients has a carbon footprint or associated emissions related to how and where they are grown, with each ingredient being impacted by different variables.

In the case of cocoa beans, the principal driver of carbon emission is land use change from the expansion of cacao plantings. Through our Cultivate Better Cocoa program and the Cocoa & Forests Initiative, we are ramping up a number of programs in our cocoa supply chain to address carbon emissions through a number of initiatives:

- In the Ivory Coast, Ghana and Ecuador, we are planting in and around cocoa farms endemic hard woods and faster growing soft woods for much needed shade as well as fruit trees, all of which provide medium and long-term income for farmers while increasing biomass for carbon sequestration. This type of diverse agroforestry also helps cocoa farmers become more resilient to the impacts of climate change.
- In the Ivory Coast, we are piloting an improved cook stove program that uses 59 percent less charcoal or 43 percent less wood. This reduction in the cutting of trees or collection of wood from the forest helps maintain biomass.
- Through Good Agricultural Practices training in our programs, particularly pruning and composting, farmers can increase their yields and reduce the carbon emissions per kilo of cocoa produced. Increased pruning also increases biomass and soil carbon content.

We are fortunate to be located in Northern California, where are dairy cows are mainly grass fed, which produces less methane than grain. We are working with our dairy partners to better understand and support their methane reduction and regenerative agricultural practices.

While measuring and reducing Scope 3 supply chain emissions is critically important, reducing our Scope 1 & 2 emissions locally is also important. Here are some of the projects we have ongoing at Guittard:

Energy

- 1MW of solar energy completed at our Fairfield facility, providing 50 percent of our electricity needs. The new rooftop solar system includes 2,992 solar panels, generating 1.7 million kWh of power per year, significantly reducing the company's environmental footprint. The solar energy captured saves 1,217 metric tons of CO2 emissions per year, equivalent to removing 263 cars from the road. The balance of our energy needs in Fairfield come provided by MCE from 60 percent renewable sources and is 90 percent Greenhouse Gas (GHG) free.
- On December 31st, 2021, we went live with the first 750kw of a 1.4MW Bloom Energy fuel cell in the Burlingame facility. This state-of-the-art technology provides resilient, predictable, sustainable energy to support the baseload electricity to power our facility.
- The balance of our Burlingame electrical needs come from Peninsula Clean Energy, providing carbon-free energy from 50 percent renewable sources and is 100 percent GHG free.
- We now have charging stations available at no cost to our Burlingame and Fairfield employees with electric or plug-in vehicles. We will continue to add charging stations as an incentive for employees to "go electric" and reduce carbon emissions associated with commuting.

Waste

Reducing waste to landfill is important for many reasons, including reducing greenhouse gas emissions. Our cocoa beans come from around the world in burlap bags. Last year, we partnered with local manufacturers that can use these bags to protect their products during shipment, reducing our waste to landfills by up to 30 percent.

Water

We have set a goal to reduce our water consumption by 30 percent by 2025. This commitment saves energy as well as water, as almost all of the water we use at Guittard is either heated or cooled. Last year, we took a significant first step toward this goal, initiating the installation of a new water chiller system that will reduce both our water consumption and the energy needed to heat and cool that water, further reducing our Scope 2 carbon emissions.

Packaging

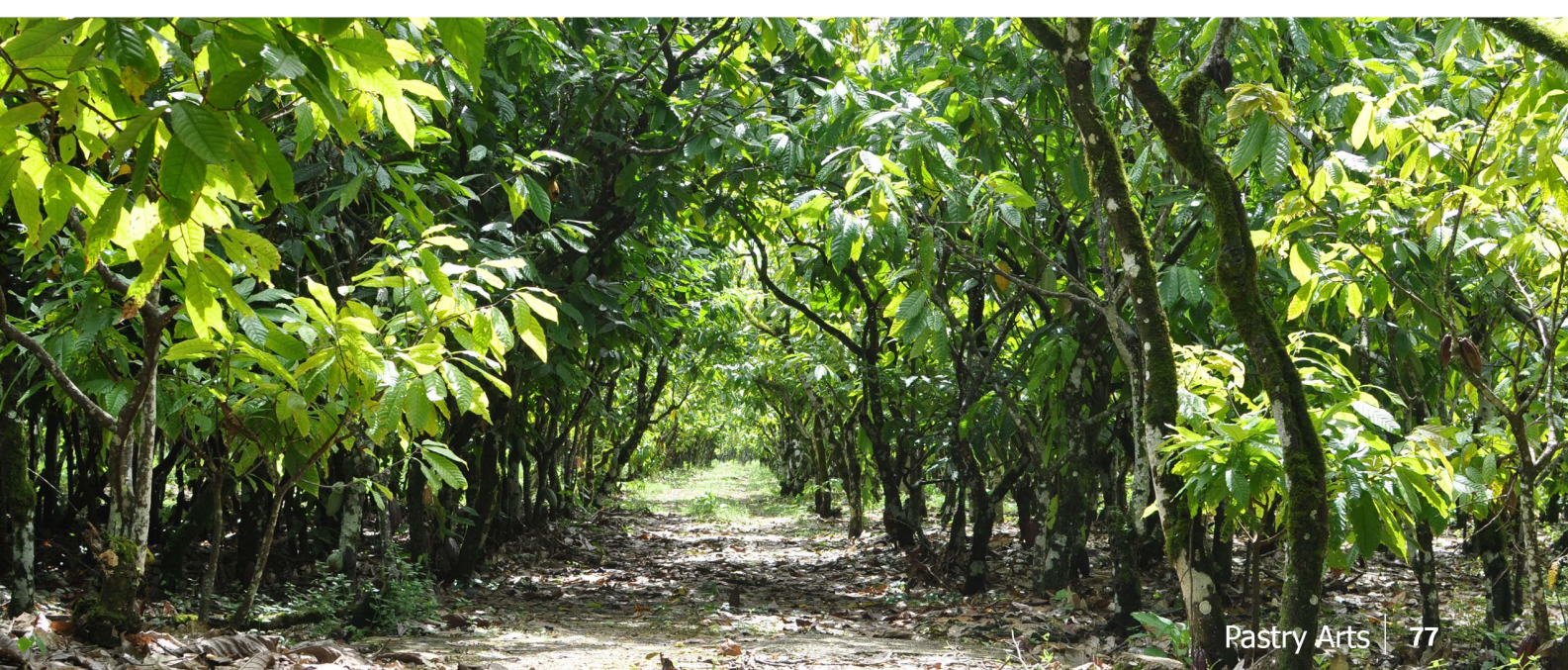
All of the paper used for our corrugated materials come from "Sustainable Forest Initiative (SFI) Allocated Paper", meaning that it is made at mills that are Sustainable Forestry Initiative certified and, most importantly, come from SFI certified tree farms.

We have transitioned our flexible film to 24 percent post-consumer recycled materials. The addition of the PCR not only maintains the integrity of the bag and the product's shelf life, but also significantly reduces the use of virgin plastic. According to a third-party analysis, the use of PCR saves around 16,000 kg of virgin plastic, equal to the plastic from nearly 270,000 one-gallon milk bottles.

While this work is early stage, we appreciate how important it is and are excited to continue to work with our cocoa farmers, suppliers and our customers to innovate products and devise recipes that reduce carbon or GHG emissions as well as become more resilient to the impacts of climate change through more mindful and regenerative practices.

If you're interested in learning more about our sustainability efforts, or how you can undergo your own carbon footprint assessment, reach out to us. Share how you're cultivating better on social by tagging us and using the hashtag #CultivateBetter.

Read our 2022 Cultivate Better Annual Progress Report on guittard.com



Moving Towards Sustainability

	OUR APPROACH	IN THE KITCHEN
Water 	• We have set a goal to reduce our water consumption by 30% by 2025. This commitment saves energy, as well as water as almost all of the water we use at Guittard is either heated or cooled. Last year, we took a significant first step toward this goal, initiating the installation of a new water chiller system that will reduce both our water consumption and the energy needed to heat and cool that water, further reducing our Scope 2 carbon emissions	• Proper filling and changing of 3 compartment sinks • Maintain all faucets to control leaks • Reuse ice baths when appropriate (4) Set up a pre soak tub to keep dishwater clean • Only run dishwasher when full
Energy 	• 1MW of solar energy completed at our Fairfield facility providing 50% of our electricity needs. The new rooftop solar system includes 2,992 solar panels, generating 1.7 million kWh of power per year. Significantly reducing the company's environmental footprint, the solar energy captured saves 1,217 metric tons of CO2 emissions per year, equivalent to removing 263 cars from the road. • On December 31st 2021 we went live with the first 750kw of a 1.4MW Bloom Energy fuel cell in the Burlingame facility. This state-of-the-art technology provides resilient, predictable, sustainable energy to support the baseload electricity to power our facility. • The balance of our Burlingame electrical needs come from Peninsula Clean Energy providing carbon-free energy from 50% renewable sources. • We now have charging stations available at no cost to our Burlingame and Fairfield employees with electric or plug-in vehicles. We will continue to add charging stations as an incentive to employees to "go electric" and reduce carbon emissions associated with commuting.	• Turn off appliances when not in use • Use Energy efficient appliances • Consolidate baking products to fill ovens to capacity • Keep freezers fully stocked to maintain temperature • Have service company regularly check equipment for optimal performance • Develop and oven schedule to avoid continuous oven temp changes. Shut down oven as soon as possible • Use motion detector lights in areas that aren't used that often, like bathrooms, and storer rooms
Waste 	• Reducing waste to landfill is important for many reasons including reducing greenhouse gas emissions. Our cocoa beans come from around the world in burlap bags. Last year, we partnered with local manufacturers that can use these bags to protect their products during shipment reducing our waste to landfills by up to 30%. • All of the paper used for our corrugated materials come from "Sustainable Forest Initiative (SFI) Allocated Paper", meaning that is made at mills that are Sustainable Forestry Initiative certified and most importantly, come from SFI certified tree farms.	• Reuse and recycle plastic delis and containers • Reuse parchment paper for baking • Use compostable Togo containers • Find a local farm to deliver food scraps to

Cacao Nib Panna Cotta

Recipe by **Josh Johnson**, Pastry Chef, Guittard Chocolate Company

This Cacao Nib Panna Cotta is a unique take on a classic dessert. Made with ingredients that not only taste delicious but also have lower carbon footprints than their alternatives, we end up with a recipe that delivers bright, seasonal flavors in a rich and creamy base. The cacao nibs add a dash of toasted chocolate notes that round out the overall tasting experience.

Yield: **6 servings**

CACAO NIB PANNA COTTA

- 4.75 g gelatin sheets
- 24 g water
- 248 g oat milk
- 117 g heavy cream
- 55 g cacao nibs
- 67 g beet sugar
- 9.5 g cornstarch

1. Bloom the gelatin in the water; set aside.
2. Combine the oat milk, heavy cream and cacao nibs and bring just to a simmer. Remove from the heat, cover, and let steep for 5 minutes.
3. Strain cacao nibs out and reserve, if you want, for the Caramelized Hazelnut Garnish.*
4. Return the oat milk mixture to a medium heat. Combine the beet sugar with the cornstarch and stir well. Whisk the sugar mixture into the hot milk and bring to a full boil while mixing for about 1 minute, or until the starch is cooked completely. Remove from heat, add the bloomed gelatin, then blend with immersion blender. Cast approximately 50 g into 6 dishes and allow to fully set overnight.

*__Note:__ *if you want to use the nibs in the garnish, spread them out onto a sheet tray and dry in a 300°F (149°C) oven.*

RASPBERRY GELÉE

- 2.5 g gelatin sheets
- 12 g water
- 144 g pureed and strained raspberries
- 8 g lemon juice
- 15 g beet sugar

1. Bloom the gelatin in the water; set aside.
2. Combine the raspberries, lemon juice and sugar in a saucepan. Warm up to approximately 185°F (85°C). Add the bloomed gelatin and stir until dissolved. Let cool to room temperature and then cast a thin coat onto each dish of panna cotta. Allow to set fully before serving.

CARAMELIZED HAZELNUTS

- 45 g water
- 60 g beet sugar
- 200 g hazelnuts
- 30 g reserved cacao nibs (optional)
- 10 g unsalted butter

1. Combine water, sugar, and cook to 239°F (115°C).
2. Add the hazelnuts and stir until sugar crystalizes around the hazelnuts. Continue to stir on medium heat until hazelnuts caramelize evenly. Remove from heat stir in the optional dried nibs. Empty onto a silicone baking mat to cool, and separate before it cools.

FINAL GARNISH

- Diced fresh strawberries

1. Top panna cotta with fresh raspberries and caramelized hazelnuts.