

Sustainability Perspectives

Industry experts discuss how sustainability is changing their jobs, their companies and the broader F&F industry.

“Supply risk is at the heart of interest in sustainability,” a recent Euromonitor (www.euromonitor.com) sustainability report notes. These risk factors include geopolitics, accessibility, weather/natural disasters, supply bottlenecks and economic risks. Meanwhile, the report says, focusing on sustainability allows companies to shore up their reputations, avoid supply disruptions, address increasing regulation and adapt to changing consumer realities.

In the flavor and fragrance industry, which is uniquely dependent upon sustainability to ensure stability and growth, many of the largest companies have released detailed sustainability statements.

Givaudan’s latest report noted that the company had audited 100 suppliers, while 248 suppliers are now on the Supplier Ethical Data Exchange (Sedex). In addition, Givaudan has undertaken a sustainable patchouli plantation in Malaysia, formed a dedicated origination team, increased the sales of health and wellness products, and had its trademarked KeratinoSens assay validated by the E.U. Reference Laboratory for Alternatives to Animal Testing.

Firmenich has boosted its safety performance, complied with five additional third-party management system certifications, improved seven of its tracked environmental factors, indexed its top 101 ingredients for sustainability, and built a school for about 500 students in Haiti, where the company has an interest in vetiver farming.

IFF, meanwhile, has adopted the 12 Principles of Green Chemistry “as a comprehensive framework for our R&D, product design and manufacturing processes.” The company’s chemists have applied green chemistry principles (“design for degradation” and “design benign chemicals”) to an assessment of its top 100 ingredients. IFF, which doubled the participation of its suppliers in Sedex, has also ensured that it will source vanilla only from those growers who follow defined sustainability guidelines.

In order to secure the basis for one of its natural key raw materials in fragrance creation, Symrise is sourcing CENSO-certified lavandin oil and is supporting CRIEPPAM, a French fragrant plants research organization. Symrise has announced that it fulfills the international requirements of the Global Conformance Program, as determined by the assessment of independent DQS auditors who have assessed the internal processes in research, development, manufacturing and sales.

Symrise joined the Sustainable Spices Initiative (SSI) in 2013, which aims to ensure the sustainability of the entire supply chain. The company, which sources from more than 100 companies worldwide, won the German Sustainability Award in 2012 for its work in innovating the vanilla value chain, and



is seeking to establish a collaboration between its sustainable vanilla program and SSI.

Vanilla Sustainability

“When we went to Madagascar the idea was to bring more from the whole value chain back to where it belongs,” says Symrise CEO Heinz-Jürgen Bertram. “That is the origin where the vanilla beans have been grown and farmed.”

Symrise currently processes about 200 tons of vanilla per year, or about 10% of Madagascar’s annual vanilla harvest. Several hundred people are employed by Symrise during the peak season, with as many as 200 employees working on vanilla bean fermentation via traditional methods at the company’s new fermentation and storage complex in Antalaha. The company works directly with roughly 7,000 farmers in about 90 villages in Madagascar; 2,400 have been certified with the Rainforest

Smart Sustainability

On Wednesday, June 11, the World Perfumery Congress (wpc.perfumerflavorist.com) will present a discussion on the implications of sustainability on companies, brands and products. Participants will include:

- Saori Dubourg, President, Nutrition & Health Division, BASF
- Jonathan Warr, Senior Vice President Research & Development, Takasago International Corp.



Alliance, 400 with Ecocert and 252 with Fairtrade. About 30,000 people benefit from the vanilla value chain through income, interest-free micro loans, health care insurance, education and training. In addition, Symrise has distributed 50,000 clove seedlings and 87,000 cocoa plants to farmers in need of crop diversification. Farmers are also exploring the cultivation of coffee and vetiver, ensuring they are less dependent upon a single crop.

The company is also constructing a modern extraction site in Benavony, which will open later in 2014. Bertram characterizes these moves as signs of the company's long-term commitment to the vanilla-growing region.

"The new [fermentation] site follows the traditional approach," he explains. "Our plant manager says it is art ... like winemaking. Aside from doing everything in a very clean, new, modern facility, we did not change the traditional way of producing vanilla beans, which relies on traditional knowledge."

In addition to modernized and hygienic infrastructure, the new facility provides additional space for processing the beans.

Bertram says, "Our goal was not to drive efficiencies and automation, but to drive cleanliness and hygiene in the process."

In bringing fermentation and extraction back to source, the company delivered education and systems development for local workers, who were trained to work on more sophisticated equipment and processes.

"It's a big challenge," says Bertram. "You start from scratch."

At the same time, he adds, "It really feels good. You have the feeling you've done something right."

Integrating Sustainability into Corporate DNA

"BASF is in a great position to meet the needs of society: Our broad technology portfolio, market access, resources and expertise contribute to a sustainable future," says Kristina Gräper, director SET—applied sustainability, BASF Nutrition & Health.^a "Innovations from chemistry can therefore make a real difference in ensuring that." She adds, "One way BASF contributes is

^aSET—applied sustainability is a trade name of BASF

by providing innovative solutions that help our customers create products with a positive impact for sustainable development. At the same time, as a reliable partner in society, BASF acts responsibly by minimizing our environmental footprint through using the best technologies and operational excellence as well as by creating value for employees, shareholders and society. Furthermore, we regard an open dialog with stakeholders as necessary to understand their viewpoints and establish partnerships to ensure that sustainability is an integral part of our daily business." The company operates in many areas, including packaging and ingredient production. "Thus," says Gräper, "customers in the flavor and fragrance industry can benefit from close collaboration among BASF's experts and comprehensive view on sustainability challenges along the entire value chain. Well-integrated in its different stages, BASF can activate the value chain for sustainable development. This widespread network also enables BASF to maintain a deep understanding of what drives the market and how to collaboratively address these challenges." BASF was the top-ranked chemical company and ingredient supplier in the Corporate Knight's annual list of the "Global 100 Most Sustainable Corporations in the World." BASF is one of just 1,300 companies to disclose all 15 categories of Scope 3 value chain emissions; as a result, it has received the "ET Scope 3 Disclosure Leader Award." The GHG Protocol Corporate Standard classifies a company's GHG emissions into three "scopes." Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions (www.ghgprotocol.org). "With our customer-specific SET—applied sustainability approach, we apply holistic sustainability analysis and strategies at specific customer products and make sustainability tangible and measurable," says Gräper. "From resource use up to the final consumption and disposal, SET identifies optimization potential along the entire value chain. Following the journey of continuous improvement, it will become possible to communicate quantifiable results and to offer credible and tangible arguments for improved sustainability. We consider SET—applied sustainability as one of our ingredients beyond products that help to create more sustainable solutions."

The Importance of Renewables

"We've used materials that derive from natural renewable sources for over 100 years," says Michael Klamm, VP and chief sustainability officer for Pinova Holdings, the parent company of Renessenz LLC and Pinova Inc. The company uses natural renewable feedstock such as menthol, crude sulfate turpentine and D-limonene, and byproducts from the Kraft pulping process and orange juice production, and converts them into fragrance and sensory ingredients. In recent years, says Klamm, Pinova Holdings extended the dialog with its stakeholders to determine what their sustainability priorities were and how the company could address these priorities to create value. "Sustainability is at the core of our vision and, in 2012, the company committed to greater accountability and for the first time articulated clearly defined five-year sustainability goals," Klamm says. "These goals, combined with the plan to achieve all American Chemistry Council Responsible Care

Ingredients for a Sustainable Future

On Thursday, June 12, the *World Perfumery Congress* (wpc.perfumerflavorist.com) will present a panel discussion comprising expert insights into the ways in which sustainability needs will continue to impact the perfumer's palette.

Participants include:

- Boet Brinkgreve, President, Ingredient Division, Firmenich
- Jason Kelly, Founder, Ginkgo Bioworks
- Torsten Kulke, VP Global Innovation, Fragrances & Oral Care, Symrise AG
- Bernard Toulemonde, General Manager, IFF-LMR Naturals, International Flavors & Fragrances Inc./LMR



requirements in 2014, represent major steps toward enhanced measurement of external and internal impacts.” He adds, “Sustainability is really important for our customers. They look at us through a lens of sustainability and corporate social responsibility and ask us about our environmental footprint, about safety results, supplier responsibility and community.” For instance, the company’s patented L-carvone process technology eliminates chlorides and compounds containing nitrogen and is free from solvents and toxic reagents. According to Renessenz, the process eliminates 8 million liters of waste water per 1 million kilograms of L-carvone produced compared to traditional processes. “In today’s world customers want to know that they are working with responsible suppliers,” says Klamm. Providing sustainable solutions creates a more intimate connection with customers, he notes. Pinova Holdings has published sustainability reports since 2011 and, in 2012, achieved a GRI level check B certification. “The philosophical shift to embed a higher level of corporate responsibility and sustainability into our core values benefits our business and all our stakeholders,” says Klamm. “The concepts are being woven into our corporate mindset—how we think, listen, talk and act—because they have a significant impact on our long-term success.” Customers, whether F&F compounders or CPGs, are increasingly pursuing lifecycle analyses of products and are increasingly concerned with responsible sourcing of their ingredients. “We’re working hand in hand with our customers to provide them with that data,” says Klamm. “This is critical all the way back to the feedstock.”

Sustainability as Innovation Driver

The matrix for sustainability, as it relates to Sucroal S.A., which operates in the fertile Valle del Cauca in Colombia, revolves around innovation and comprises social responsibility, the environment and competitiveness.

“It’s those three areas that create innovation for us,” says Curtis Poulos, commercial executive, Sucroal S.A.

For instance, the company is able to provide some of the calcium citrate it produces to local impoverished communities as a calcium supplement. In supporting the health of local communities, productivity is increased.

Because the company is situated at the equator, its operations benefit from long hours of sunshine and year-round growing seasons. Sugarcane, a core feedstock for the creation of Sucroal’s products, can be produced and harvested constantly. This feedstock is applied to the production of fermentation products, alcohol and alcohol byproducts, including ethyl acetate (FEMA# 2414; CAS# 141-78-6), isoamyl acetate (FEMA# 2055, CAS# 123-92-2) and citric acid (FEMA# 2306; CAS# 77-92-9). Those, says Poulos, are produced with a minimal carbon footprint, particularly as all waste products are converted into methane and fed back into its boilers. This efficiency has an economic impact.

“Competitiveness is crucial to sustainability, not only from an environmental concept,” says Poulos. “There is a population



Several hundred people are employed by Symrise during the peak season, with as many as 200 employees working on vanilla bean fermentation via traditional methods at the company’s new fermentation and storage complex in Antalaha.

that will pay more for sustainable goods, but that population is pretty small. About 75% of the population will actually buy sustainable goods over non-sustainable goods at the same price. Our group looks at sustainability as an ability to go forward in a marketplace, the ability to provide value to stockholders, to provide goods and services that are high-value and economical.”

Customer-driven Sustainability

“This is very customer driven,” says Henry Todd, vice president, international, at Virginia Dare Extract Co. “This is something that our customers are almost making a requirement—greater traceability at source. A lot of larger [customer] companies want to make sure their suppliers are good corporate citizens. Everyone’s concerns come back to respect for the environment and fairness to producers. Our customers are asking for increasing amounts of documentation relative to things we [Virginia Dare] do. This is a trend I don’t see stalling in coming years.”

Todd adds, “Doing the right thing is simply good business ... I don’t think the long-term sustainability of vanilla in Madagascar is guaranteed if we can’t find a way of getting consistently good quality out of that country. At the same time, I don’t think high quality can be easily had without having certain sustainability initiatives in place. This is very circular. If [vanilla crop] quality in Madagascar were to continually decrease, growers would get a lower and lower price for it, and of course then they’d be less interested in the commodity. We have to do something on the sustainability side to disintermediate at source to directly work with these [grower] groups in partnership to make sure they get a large share of the price offered by the international market so we can give them an economic incentive to produce a higher quality.”

Sustainable practices can have dramatic impacts, particularly related to slash-and-burn farming, which many Malagasy growers have employed in the past to clear space for rice crop plantings in low-yield hillsides. Such poor practices are necessitated by economic deficits created when fair vanilla pricing isn’t instituted.

“If you put more money in [local growers’] pockets such that they can do other things with that income, like buy better food, it decreases the need to practice slash-and-burn,” Todd says.

Read “New Approaches to a Sustainable Vanilla Chain,” Page 28-30, March 2014 issue of *P&F*; <http://www.perfumerflavorist.com/magazine/pastissues/>.



He adds, “Consumers and investor groups alike are looking for more ‘meat’ in some of these projects ... We’re going to have to come up with models that sustain themselves. It’s got to be tied into a larger developmental goal. Most companies are not development groups—they’re businesses. That’s why it’s important to partner with NGOs who have a longer-term understanding of development goals. They help your efforts align with the development goals of the country.”

The Evolution of Sustainability Efforts

“Everyone in the company wants to contribute to sustainability,” says Mickael Blais, sustainability program leader for Givaudan. The company expanded its environmental health and safety programs into a broader sustainability initiative in 2008. Since then, employees have been key in helping revise processes to make them more sustainable, and suggesting outreach partnerships with suppliers and local communities. The company structures its sustainability activities across a framework of five pillars that cover every aspect of its business, including creation, production, customer partnerships and employee welfare. “The environmental impact is of course one of the key areas,” says Blais. “Operations constantly looks at ways to further reduce energy consumption, CO₂ emissions and waste generation. We are delighted at the progress we have made against the targets we set ourselves” As Givaudan’s program has progressed, it has been accompanied by significant investments in activities, especially those that directly impact ingredients and formulation. The company has conducted thorough assessments of its own suppliers’ social and environmental responsibility policies through an audit that improves supply chain transparency for Givaudan’s customers and provides a benchmark for selecting business partners. At the same time, the company has worked to develop direct relationships with producers at-source, establishing a core expertise in-house to liaise with growers and understand agronomy for fragrance and flavor ingredients, among other activities. “These initiatives allow our customers to touch the origin of the raw materials,” says Blais. “They build a direct connection from farm to finished product that people can relate to and which enhances quality. That’s where you translate sustainability as value.” Perfumers and flavorists at Givaudan have also assessed the traditional ways in which products are formulated, “challenging the present to create the future” as Blais puts it, and responding to market trends. In flavors, investment has boosted efforts in the health and

wellness sector to reduce sugar and fat in formulations. In fragrance, perfumers have responded to the growth in concentrated product formats in the detergents category, and the appearance of compact deodorant technologies with honed-down formulations that deliver fragrance impact from revised formulation methods. “We are reaching a point where sustainability is fully integrated into the way we manage our business,” says Blais. “The future of the flavor and fragrance industry, in fact, is not possible without sustainable business [practices] and considering the impact of our products over a lifecycle.” Looking ahead, Blais says that responsible sourcing is something that will impact the entire value chain, from ingredient supplier to retailer. “The formulation of our products requires thousands of raw materials,” he says.

“Our suppliers range from large companies to small farmers, making the management of relationships a challenge. It is a challenge that Givaudan embraces as a means to support brands worldwide through the promotion of well-being and a commitment to our industry. It’s a very important thing to ensure that practices are responsible all along your supply chain. We work with suppliers to ensure that they are true partners in terms of social and environmental aspects, for if we are to ensure the sustainability of our own business we need to bring everyone with us on the journey.”

The Consumer Product Angle

Seventh Generation articulates its sustainability priorities through 2020 as: “responsible sourcing; using materials from plants, not petroleum; ensuring the health of our planet and the people on it; having an engaged, motivated workforce; and caring for our communities.”

Seventh Generation uses a palette of about 150 fragrance ingredients in its formulas—a fraction of most consumer product companies of their scale. This is the direct result of its commitment to using only natural fragrance ingredients, including essential oils, extracts and other natural materials. These fragrances are applied to products such as hand and dish soaps, lotions, all-purpose cleaners, facial wipes, laundry detergents, multi-surface wipes and skin serums.

In addition to practices that protect people and the environment, Martin Wolf, director of product sustainability and authenticity for Seventh Generation, says, “We need to produce products that have the right cost performance profile so that consumers will look at them as having value, either at the premium end of the spectrum or the value end of the spectrum—wherever our product is positioned.”

Eight years ago, as Seventh Generation was assessing natural fragrances for its products, the company found that there was often a gap between its natural definitions and those of some of its suppliers. Some formulations contained phthalates, which fell outside what Seventh Generation defined as sustainable due to their petrochemical source and alleged attendant health concerns. As a result, says Wolf, the company built a fragrance standard that called for only those materials comprising botanical oils, extracts or their fractions. It also required full ingredient disclosure for each formula submitted. These are now listed on the outside of all Seventh Generation products alongside all other ingredients—counter to the intellectual property concerns of many fragrance suppliers.

Wolf and Clement Choy, Seventh Generation’s senior director of product development, acknowledge that the fragrance industry has several challenges in providing natural sustainable products. For instance, many scent tonalities cannot be obtained without the use of synthetics. In addition, performance and tenacity issues hinder more widespread application of wholly natural fragrances, not to mention the significant cost differentials between conventional and natural perfumery. Still, Seventh Generation has a well-defined standard and mission, which has evolved its relationships with suppliers.

“Disclosure is important because you need to have an openness on both sides of a relationship to have a sustainable relationship,” says Wolf. “Secrets are not a sound foundation upon which to build a relationship [with consumers].”

This ramping up of disclosure and transparency parallels moves in the retail sector, including giants such as Walmart and Whole Foods, as well as the emergence of Design for the Environment (DfE) certification for products, which has particularly affected the I&I (industrial and institutional) cleaning products category. As ingredient categories have faced disclosure pressure, fragrance has also come under enhanced scrutiny in recent years.

“In disclosure in fragrance, I think the biggest hurdle is the fragrance suppliers,” says Choy. “They’re used to keeping those [formulas] confidential. That is privileged information.”

Once Seventh Generation receives a fragrance formula ingredient list from a supplier, it spends time reviewing each material to ensure it meets the company’s ingredient policy. These fragrances are posted at www.seventhgeneration.com/ingredients. The ingredients also appear on the company’s extensive on-pack ingredient labels.

Meanwhile, Choy and his team look at the formula from a technical angle, ensuring it is stable in application.

“It is much more challenging because we are much more restrictive,” Choy says of the technical hurdles created by a limited ingredient palette.

For instance, he says, perfumers may have to use higher levels of fewer ingredients than they may be accustomed to. In addition, fragrances containing essential oils and other botanical materials may not be readily soluble in natural product bases.

“One issue with working with naturals is that the cost of natural fragrance accounts for a large part of our formula cost,” says Chantal Bergeron, Seventh Generation’s research manager, skin and personal care product development. “Another point that is difficult is substantivity on fabric and skin. If you use naturals, it will not last long, which might be good or not for the consumer. We need to be more creative than people who work with synthetic fragrances. There is a consumer [base] that likes less fragrance. They want something that’s more natural.”

“Naturals have a lot of variations, too,” says Shanna Cullinane, research chemist at Seventh Generation. “We obtain all of our fragrances from natural sources. If they’re going into a clear package, we have to be aware that there could be color differences.”

“Our challenge is to abide by our standards,” says Choy. “As more material becomes available from sustainable farming practices and better knowledge from perfumers ... the more we will get the benefit.”

“The natural product channel is continuing to grow,” says Wolf, “whereas the conventional channel is flattening. There is an increasing awareness among consumers of the benefits of the types of products we offer.”

He adds, “The field is evolving. The challenge is to transform the commerce around us and to keep evolving our game. We see this [natural] segment of the population growing, and we’ll see more companies adopting the practices we pursue.”

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