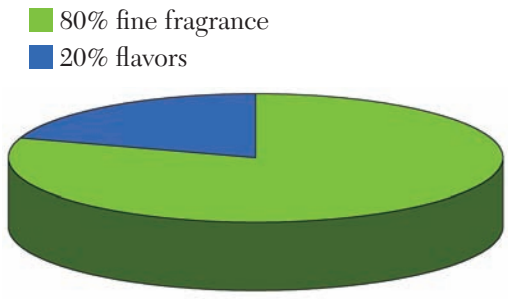
Editing Nature

Finding new, unique naturals and refining traditional extracts for contemporary effects

Breakdown of LMR ingredients by final application



"Naturals are an integral part of our perfumers' creations," says Judith Gross, IFF's global director of fragrance innovation. "The company has seen a notable shift to true luxury. The desire for perfumers to use sought-after raw materials, especially naturals, continues to increase."

One of the key players behind the production of new and refined naturals is Bernard Toulemonde, general manager of IFF's naturals facility Laboratoire Monique Rémy (LMR). "We can take a rose essence or a patchouli essence and remove components to accentuate the other facets of the scent," Toulemonde explains. "Today we are able to produce materials that are pure, fully natural—but not necessarily containing *all* the nature. This is our specialty." The company currently produces materials from such sources as blackcurrant from Burgundy, France; orris from Tuscany, Italy and Provence, France; and rose centifolia and geranium from Grasse, France.

Refining Traditional Naturals

IFF's LMR often fields requests from perfumers seeking custom-modified extracts. "Each demand is different," says Toulemonde, "but is very often associated with a perfumer's vision." At any one time, IFF's LMR could be handling dozens of such requests; for instance, producing colorless extracts via molecular distillation or removing some of the dirtier notes from patchouli. Often, an IFF perfumer will use the resulting modification on just one particular project. In addition, IFF's LMR is able to remove allergens from materials via thermal and molecular distillation. All told, each year IFF's LMR produces eight to 10 new products for IFF perfumers.

Sometimes, however, revisions can begin as early as the plant stage. "There are many materials on which we have spent a lot of time and energy to develop a different quality," says Toulemonde, citing examples such as rose and blackcurrant. Working with iris, IFF's LMR worked in the lab to remove genetic material not native to the plant. Toulemonde calls it "the opposite of a GMO."*

Arriving at a purified iris genome took three years, tracking from an in vitro stage to plantlets in a greenhouse and finally to the field. Now at the cropping stage, the project has a reportedly strong yield and improved quality. The reworked iris lacks some of the off notes associated with traditional varietals. "Now we are able to produce consistently good material," says Toulemonde. "We have a better command of it than ever before."

R&D and Production: the Search for New Naturals

Meanwhile, IFF's LMR conducts a number of global exploratory projects to locate the next captive natural materials that will satisfy industry and market demands for newness, innovation and differentiation. Operating in Southeast Asia (including Vietnam and Laos), West Africa and South America, IFF-sponsored teams comb the earth for new scent sources. These teams, including botanists and chemists, identify about 100 candidate materials per year.

"We can take a rose essence or a patchouli essence and remove components to accentuate the other facets of the scent," explains Bernard Toulemonde, general manager of LMR; photo courtesy of IFF.

While trial and error is built into the system, the exploratory teams at times work with ethnobotanists to learn from the expertise of locals. "Ethnobotany is very interesting," says Toulemonde, "because it can give you access to the right flower without having to smell all of them. We have a partner that visits the villages and talks to the people about what flowers they use during a wedding party, for instance. Then you have a better chance of picking a flower that will have a good scent than just going outside and smelling all of them."

*Genetically modified organism

The process of discovery to market takes about five years, during which time, the sustainability and potential yield of crop production is assessed, field extractions are made on site and then refined in Grasse for evaluation and comment by perfumers, and toxicology issues are addressed. Out of the original 100 materials originally identified by exploratory teams, just two or three will make it onto perfumers' palettes. This program, begun in 2002, is only recently yielding its first captive materials, which Toulemonde is unable to discuss in greater detail due to trade secrets.

"The benefit of new substances and extracts is of course going to IFF perfumers so they can make unique perfumes," says Toulemonde. "They want their customers to benefit from the newness of the extract."

Sustainable Partnerships

"What we certainly do not do is deplete the resources," says Toulemonde, discussing the viability assessment of new IFF naturals. "We are very cautious about that." But sustainability involves more than just plant life.

"The desire for perfumers to use sought-after raw materials, especially naturals, continues to increase," says Judith Gross, IFF's global director of fragrance innovation; photo courtesy of IFF.

Gross notes that being fair to the suppliers and farmers producing the naturals is key to maintaining a healthy supply chain. "A decade ago," she says, "orris root producers were having a difficult time making a living due to the decline of the price of orris. Conscious of the possibility that the growers might have to leave their trade, IFF's LMR made a commitment to orris root growers."

"We try to build partnerships that are sustainable," says Toulemonde. "We make sure that the partner is decently paid so they will continue to work for us."

Gross concludes, "This increases our perfumers' palettes in new ways with little or no adverse impact on the environment."

Greening the Cultivation and Extraction Phases

Toulemonde sees global warming as playing a major role in today's naturals landscape. "Globally," he says, "crops are, at a minimum, one week—if not two weeks—ahead of the normal growing schedules." In addition, adverse flood and drought patterns throughout the world are disrupting yields.

In this context, IFF's LMR is refining its cultivation practices, including the production of iris, rose, blackcurrant and other materials without the use of pesticides or other potentially harmful materials. "We want to have a material free of potentially harmful molecules," says Toulemonde. "If there is no real need to use pesticides, why use it? We are answering to the demand of the market, especially in Europe where we have more and more customers asking for 'clean' materials."

With this in mind, IFF's LMR has conducted evolving and ongoing work with natural biocides, such as the balanced use of insects, which will leave plant life unharmed and untainted. "We use the inherent control of nature by growing flowers in an environment where pests are controlled by pests," Toulemonde explains. "If you maintain the natural environment, you have no dominant pests in the field."

At any one time, LMR could be handling dozens of raw material refinement requests; for instance, producing colorless extracts via molecular distillation or removing some of the dirtier notes from patchouli. Often, an IFF perfumer will use the resulting modification on just one particular project; photo courtesy of IFF.

It should be noted that IFF's LMR's interest at this time is not in making an organic claim on its final extracts. While the growing techniques generally meet organic standards, the company largely employs hexane for extractions. "Hexane is an excellent solvent that is not harmful," says Toulemonde. IFF's LMR, he explains, is interested more in green techniques than strictly organic ones.

The company is, however, developing alternative extraction techniques using different solvents. "We've already put out a blackcurrant product extracted with a hydrofluorinated solvent, an alternative to hexane," says Toulemonde. "We believe chamges at each step of the process will make the difference in the end."

Visit a photo gallery from LMR's fields and facility at perfumerflavorist.com/photos.