

The Better World Project

Advancing Discoveries for a Better World®

Featured Story from

Nelson Mandela Metropolitan University (South Africa)

Preserved Flowers Grow Jobs and Market Opportunities

For purists and romantics, there is no substitute for a bouquet of roses. For the more practical-minded consumer, artificial flowers are the way to go.

The new Iluba rose falls directly between the two categories: It is a real flower that has been preserved to last — without water — for up to six months.

“We believe we are positioned in an extremely large market between the fresh flower market and the artificial floral industry,” says J. J. Viljoen, founder and director of [African Floralush](#) in Muldersdrift, South Africa, which produces the long-lasting Iluba roses and foliage. “Our market research found that people are buying artificial flowers because they can’t afford fresh-cut, but they still want flowers.”

The Pursuit of the Everlasting Flower

Flower preservation is a centuries-old practice that has produced mixed results for many people — including South African entrepreneur Tinie Maske, who turned to scientists at the [Nelson Mandela Metropolitan University](#) (NMMU) for help with developing a preservation process. The Iluba technique evolved at the university in Port Elizabeth, South Africa, where chemists spent years experimenting with various ways of improving consistency and throughput.

“We started fiddling with the process to improve upon what others were doing,” says Professor Ben Zeelie, Ph.D., director of [InnoVenton](#), the NMMU’s Institute for Chemical Technology. “The old way of submerging flowers in glycerin was a long drawn-out affair that didn’t work well.”

Zeelie and fellow scientist Shawn Gouws, Ph.D., together with Maske, developed a chemical process in which some of the water in the cells and tissue of the flower are replaced with natural preservatives. Once infused with the preservatives, the flowers and foliage are able to absorb moisture from the air for an extended period of time — often for as long as two years.



“Our preservatives are eco-friendly and similar to those used in the cosmetics and food processing industries,” says Viljoen.

Introducing Technology Transfer in South Africa

The chemists’ innovation happened to coincide with the hiring of the NMMU’s first technology transfer specialist, Jaci Barnett, who established the [technology transfer office](#) (TTO) at NMMU in 2007. In addition to helping the university’s chemists patent their unique flower preservation technique, Barnett worked with them to find a commercial partner.

“University technology transfer offices often license a technology, or step out of the picture when a venture capitalist comes on board,” says Barnett, director of Innovation Support and Technology Transfer. “However, because tech transfer is new in South Africa, we help manage the whole commercialization process including playing a mentoring role in the creation of a new business.”

NMMU approached Viljoen, an experienced entrepreneur and consultant in the technology space, for help in writing a business plan, which was submitted to the [Industrial Development Corp.](#) (IDC), a South African government agency. With the help of a first funding tranche of \$1 million in venture capital from the IDC and funding from the NMMU, Viljoen eventually established a flower processing plant just north of Johannesburg in 2009.

“Over the years, we have been very hands on in starting the business with J. J.,” says Barnett, noting that the university is a shareholder in both the patent-holding company and the African Floralush manufacturing company, which licenses the technology.

“We’re really just coming to grips with the concept of intellectual property and tech transfer now,” she says. “Our faculty is beginning to understand that if they come up with something, we’ll help them get it out there. It won’t just sit on a shelf.”

For Zeelie, having his work commercialized has been an especially rewarding change of pace.

A Quick Return on Investment: Jobs and More Jobs

“Academics are typically focused on their personal careers, working to publish articles in high-impact journals,” he says. “It’s nice to have something that makes a difference and that physically has a great deal of meaning to a lot of people.”

While a return on the university’s investment — in terms of dollars — may take years, Barnett says university officials appreciate that the technology developed at NMMU is already making an impact on the local economy.

“The return for the university is that we’re producing a product that has revolutionized the floral industry, in addition to creating jobs,” she says.

Job creation is vitally important in South Africa, where unemployment hovers at nearly 25 percent [according to government statistics](#). African Floralush employees represent the broad spectrum of cultures that exist in South Africa — a country with 11 official languages — including refugees from war-torn Zimbabwe to the north.

“We have employees who have gone to great lengths to come here and send money home to family in Zimbabwe,” says Viljoen.

The company hires unskilled workers and spends three to four months training employees in computer skills and its patented three-week preservation process. Viljoen says that in addition to the 90 African Floralush employees — virtually all of whom are involved in flower processing and packaging — 25 spinoff enterprises, each with one or two employees, have been established in South Africa as a result of company’s presence.

New companies have sprung up that are using Iluba roses and foliage to create amazing home décor products and arrangements that they sell,” he says.

From South African Farms to 30 Countries

African Floralush also purchases roses and foliage grown by local farmers, each of whom uses internationally recognized agricultural practices.

“The rose growers in South Africa have become very environmentally conscious, and most of them are moving away from chemicals to totally natural organic control systems that use pests to control plant disease,” says Viljoen. “They actually build bridges out of string so that insects are able to cross rows of roses. If you look carefully, you’ll see string crisscrossing the greenhouses and multitudes of bugs going across them.”

African Floralush currently processes 70,000 roses each month, distributing them throughout South Africa and to a total of 30 other countries, including 16 in Europe as well as Australia, Japan and Saudi Arabia. Sales — primarily to wholesalers and the hospitality industry — are approximately \$120,000 a month.

“We’ve gotten over many hurdles and technical challenges, which were enormous in the first two years, including spending six months waiting for adequate electricity, and seasonal preservation problems that were not picked up during research,” says Barnett. “Now we are getting into the international market and we have the best product in the world.”

Long-Lasting Flowers Reduce Carbon Footprint

Satisfied customers include hotels, ocean liners and Rovos Rail, a luxury train that uses Iluba long-lasting flowers to avoid having to replenish fresh-cut floral arrangements on extended itineraries. Because Iluba roses and foliage do not require a ‘cold chain’ for distribution — fresh-cut flowers must be refrigerated throughout the transportation process — African Floralush is also able to reduce the carbon footprint associated with other floral distributors.

“You can imagine the cost savings for a hotel that replaces Iluba floral arrangements every six months instead of replenishing weekly fresh-cut flowers,” says Viljoen.

The price tag on the Iluba roses — which are available in 20 colors and a variety of stem lengths — is about \$15 to \$20 a stem, versus \$5 to \$10 for the fresh flower.

“It has been easy for the marketplace to accept this product,” says Barnett. “Customers have no aversion to the price.”

Still, Viljoen expects the majority of Iluba sales to come not at the expense of fresh flowers, but rather as a substitute for artificial flowers.

“Our market research showed a decline in the fresh flower industry over the last two years and a steep incline in the artificial market,” says Viljoen. “We offer a natural alternative to artificial flowers.”

The success of African Floralush, which is the most advanced of the NMMU’s technology spinoffs, has helped the university appreciate a strong TTO — and commercial partner.

“The university is beginning to understand that IP [intellectual property] is something that must be protected and that efforts must be made to commercialize it,” says Barnett.

Adds Zeelie, “You have to have the right entrepreneur to make something like this work. Unless you have someone like J. J., it doesn’t matter if you’ve got a brilliant product. You need someone who can make it work.”

Adding Proteas, Hydrangeas and the U.S. Market

Having overcome a host of challenges — all of which Viljoen says are typical when taking a new technology to market — the African Floralush team is nothing but positive about the future.

“We’re seeing the light now,” says Barnett.

Next year, the company plans to take advantage of South Africa’s natural biodiversity — the country is home to some 23,000 plant species — by opening a second manufacturing plant in the Western Cape region to process proteas and hydrangeas.

Viljoen says the company will also slowly expand its direct sales efforts to include North America, a region they have purposely avoided while ramping up production and service capacity.

“Our problem now isn’t marketing, it’s keeping up with demand,” he says.

— *Mary Henderson*