

SEEDS OF HOPE

Can the croton nut
fuel Kenya and stem
deforestation?

*By Bill Ibelle
Photographs by AP / Riccardo Gangale
except where noted*



In addition to providing a source of alternative fuel, the croton nut can help solve a host of issues in Kenya, including deforestation, depleted soil, and employment, says Myles Lutheran, DMSB'10 (left).

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SOCIAL ENTERPRISE, according to Myles Lutheran, DMSB'10, is about more than just doing good deeds—it's about doing good business. In the absence of a solid business plan, he says, all the good intentions in the world don't amount to a hill of beans—or in Lutheran's case, a hill of croton nuts.

Each year, researchers estimate, 25,000 tons of croton nuts drop like acorns to the ground in Kenya, unused because they have no nutritional value for humans.

Lutheran is managing director of EcoFuels Kenya, which has found a way to use these nuts to produce biofuel that can run the large diesel engines that power much of sub-Saharan Africa. But that's not all. The company uses other parts of the nut to produce organic fertilizer, chicken feed, and briquettes for cooking fires.

"It's a no-waste manufacturing process," says Lutheran. "We use everything in our products."

But the benefits go beyond these products. By making the croton trees a cash crop for subsistence farmers—and decreasing the need to cut those trees for cooking fuel—EcoFuels can reduce the rampant deforestation that has plagued the region.

It's an ingenious solution. But, like many other social enterprises, EcoFuels spent its first three years hanging by a shoestring. Lutheran aims to make the company financially self-sustaining. He believes that too many social enterprises—organizations that fall on the continuum between for-profit businesses and philanthropic operations—rely too heavily on donors.

ECONOMIC SUSTAINABILITY

Not long ago, Lutheran published an article with the paradoxical title: “How Avoiding Multi-million Dollar Investments Saved Our Startup.” In it, he described how the month-to-month struggle for survival forced EcoFuels to be more responsive to market forces.

For example, the company’s early business plan relied heavily on the profits from organic fertilizer made from croton nuts. It seemed like a surefire success. Farmers in Kenya are struggling because the soil has been severely depleted by centuries of subsistence agriculture. Although chemical fertilizers work quickly, they contribute to soil depletion because they contain no organic matter.

“Chemical fertilizers are like multivitamins,” says Lutheran. “Both are good supplements, but you can’t live on them.”

So EcoFuels developed a way to produce organic fertilizer that would enrich the soil over the long term. The company’s plan was to use the fertilizer profits to subsidize the biofuel startup. The concept quickly drew small investors.

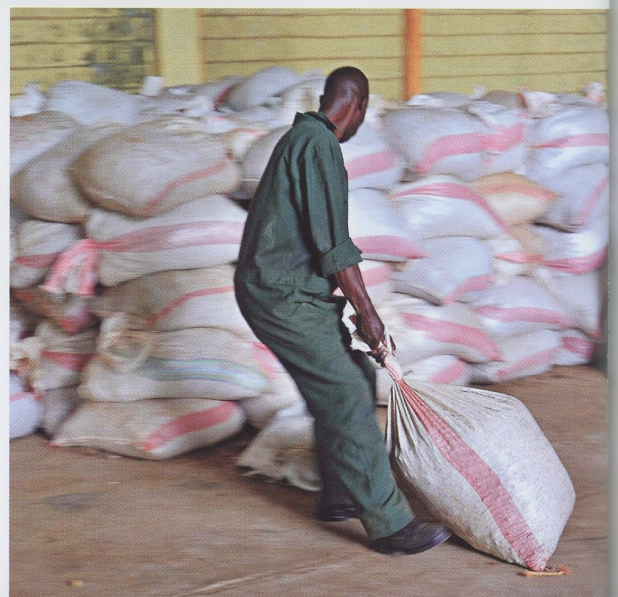
But there was one problem: The locals didn’t buy enough of the fertilizer. Chemical fertilizers work faster and are cheaper in the short run. People didn’t have enough to eat, and taking the long view was a hard sell.

Which brings us back to Lutheran’s central point: If EcoFuels had raised enough investment money to run for two years without turning a profit, it would have continued to operate as a fertilizer company, based on a beautiful idea that didn’t work.

“Because we were driven by market forces instead of investor passion, we learned very quickly that this was not the right market,” says Lutheran. “In Silicon Valley, they call it ‘failing fast.’ The idea is not to actually fail but to figure out quickly what doesn’t work and adjust.”

So EcoFuels continues to make fertilizer but shifted its emphasis to biofuel and set out to develop two new products: poultry feed and cooking briquettes. Within two months, biofuel was outselling fertilizer. The adjustment breathed new life into the company while many other social enterprises around the world were struggling for air.

Small farmers supplement their income by gathering croton nuts and selling them to EcoFuels Kenya (top). After the oil is extracted from the nut, the shells are ground into organic fertilizer (middle). The fertilizer is bagged and sold to farmers to replenish the severely depleted Kenyan soil (bottom).



TURNING POINT

Lutheran arrived at EcoFuels in early 2013 and quickly learned that there are few smooth rides in the world of social enterprise.

“After four months, we were almost broke,” he recalls.

By the beginning of 2014, Lutheran was at a crossroads. He had to return to the U.S. for two months to renew his visa and used that time to consider his options. EcoFuels offered him a pay raise and a promotion, but the company had only a month’s worth of cash left in the bank.

In spite of the obvious risk, Lutheran decided to follow his heart.

“I realized that, if I didn’t go back, I could never say that I gave it my all,” he says.

Under Lutheran’s financial direction, the company was able to stay afloat in 2014 almost entirely on sales. But there’s only so long a company can survive month to month.

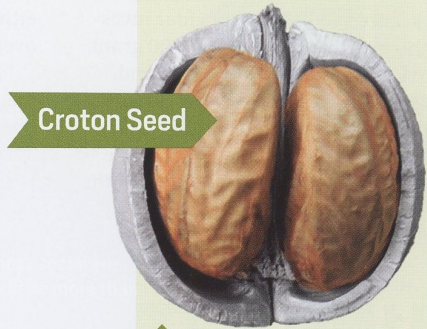
BREAKTHROUGH

While bootstrap finances force a company to be responsive to market demands, Lutheran also understands that the constant struggle for survival can stifle long-term development. At some point, he says, a company needs an infusion of cash to get to the next level.

“We needed more than a three-month runway,” he says.

By early 2015, this had become the biggest challenge facing EcoFuels, according to Michael Jacobson, a forestry professor at Penn State University who was hired by the World Agroforestry Center to study the company’s viability.

A WASTE-FREE CYCLE



Croton Seed



BIOFUEL

Oil pressed from the nut can power the diesel engines that run much of Kenya, including irrigation systems and generators that provide electricity and refrigeration for rural villages.



POULTRY FEED

After oil is removed from the nut, the seed cake is used by subsistence farmers as a high-protein poultry feed.



Croton Shell



BRIQUETTES

The shell is made into briquettes that can replace wood for cooking fires and industrial furnaces, thus decreasing deforestation.



FERTILIZER

The shell is also made into organic fertilizer that can help restore the severely depleted soil that plagues Kenyan farmers.

“The products had a lot of potential, and there was sufficient interest among Kenyan farmers,” Jacobson says. “But they needed to scale up production and sales to bring the cost down and increase profitability.”

So in the spring of 2015, Lutheran returned to the U.S. to embark on a coast-to-coast fundraising tour. It was a smashing success. By September, he had secured \$700,000 from four investors, plus a highly competitive \$800,000 grant from the Africa Enterprise Challenge Fund.

“This was our first big break,” he says, with a combination of pride and relief. “We raised enough money to last two to three years. The days of having to survive with only two months of cash in the bank are over.”

More important, the money will allow the company to build a second factory in Kenya, develop its first commercial orchard, research ways to improve the productivity of croton trees, and hire more farmers to collect the nuts.

The influx of money has also provided the capital needed to develop new products, such as chicken feed and briquettes that can be used either for cooking fires or to fuel the industrial ovens of brick makers and tea processors.

“I do this because I care,” he says. “The world has lots of problems that need to be solved, and business is the best way to bring about change. The most important thing this field can produce is a successful business.” ■

ABUNDANT BENEFITS

1 million
croton trees grow wild in Kenya.

55
pounds of nuts per tree annually.

15
full-time workers in the company factory.

5,000
part-time nut collectors work for the company. The part-time work is particularly important to subsistence farmers, who make up about half of the Kenyan population.

The nuts have no nutritional value for humans, so using them to produce bio-fuel does not deplete a food source.

Croton oil burns much cleaner than diesel or wood fuel, producing virtually no carbon emissions.

Kenya is plagued by rampant deforestation. The croton nut can help reverse this trend by providing an alternative cooking fuel, fertilizer to revive the soil on farms, and an economic incentive to plant trees.

Because the trees are indigenous to Kenya, there is no disruption to the local ecosystem.



The croton nut falls from a fast-growing tree found throughout Kenya.



THE ROAD LESS TAKEN

LIKE MANY COLLEGE STUDENTS, it took a while for Myles Lutheran to find his calling. But when he did, Lutheran had Northeastern's extensive global network to help him transform his epiphany into a career.

Lutheran's epiphany came in his senior year, shortly after he completed a co-op at a Boston financial firm.

"It was 2008—right in the middle of the economic crash—and I lost a lot of co-workers to the recession," he recalls. "Everything about it scared me. I felt invisible. Everyone was just doing what someone higher up on the food chain told them to do. The experience confirmed what my gut was already telling me."

That semester, Lutheran found his true calling while taking a class with Dennis Shaughnessy, founder of Northeastern's Social Enterprise Institute.

"Professor Shaughnessy truly inspired me," he says. "I took his microfinance class, I signed up for his Dialogue of Civilizations to the Dominican Republic, and I even convinced him keep me on as an unpaid co-op."

Lutheran, DMSB'10, quickly concluded that the path to professional fulfillment lay in the realm of social enterprise—innovative companies that combine the socially conscious elements of philanthropy with the practical business ethos of for-profit ventures.

TESTING THE WATERS

Lutheran's first job after graduation was at a startup that provided employment for single mothers living below the poverty line. The company offered good pay, full health insurance, and free day care. The company received a flood of positive press, including a spot on the *Today* show. But the idea wasn't financially sustainable.

"They had no experience in manufacturing and eventually folded," says Lutheran. "This experience provided a

good lesson in life—that most social enterprises are still driven by little more than good intentions."

Lutheran's next job was a financial bonanza—a high-paying position at a tech startup that made iPhone apps for many of the region's top hospitals.

"It was an amazing opportunity," he says. "I was working with the top people in the sector. But people were overwhelmingly unhappy in their jobs, and I didn't see anyone I wanted to be like. For me, it was a preview of the life I didn't want."

So Lutheran decided to make a change.

THE NORTHEASTERN NETWORK

His first step was to use his vacation to explore social enterprises around the world.

He stayed with a former college roommate in Malaysia to explore microfinance, and a former classmate in Haiti to observe medical NGOs. He arranged to meet with current co-op students who were working in Bangladesh. He even reunited with Professor Shaughnessy, who was leading a Dialogue of Civilizations in South Africa.

Although he learned a great deal, he still didn't have a job in the field. So he left his job and moved to California, where he completed a brief training with Frontier Market Scouts, and began a two-week fellowship at EcoFuels Kenya.

Before the two weeks were up, he was hired to a full-time position and quickly rose to become managing director of the company. Now, just three years later, he's confident that he's found his calling.

"I'm more excited, and motivated, and happy than I've ever been," he says. "The money is small now compared to my previous job, but what I really want is to be involved with something that will have an impact."

Myles Lutheran (right) moved to Kenya to pursue his dream of building a successful social enterprise.