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Famine Relief
**In Battling Hunger, A New
Advance: Peanut-Butter Paste**

**Plumpy'nut Doesn't Use Water
And Is Easily Distributed;
Big Deployment in Darfur
Balancing Profits With Aid**

By **ROGER THUROW**
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EL GENEINA, Sudan -- Four-year-old Sadia Mohamed Yousif walked 25 miles with her family to the Krinding refugee camp here. Violence ravaging the surrounding Darfur province had driven them from their farm and Sadia was near starvation when aid workers began feeding her a new product made of sweet, enriched peanut-butter paste.

Its name is Plumpy'nut, and as its use becomes more widespread, this whimsical-sounding product is helping transform the treatment of malnutrition in children. Each packet, the size of a small juice pouch, weighs less than 100 grams but packs 500 calories. After several weeks on a diet of Plumpy'nut -- brought to the camp by **Save the Children**, a U.S. aid organization -- Sadia was able to stand and walk again. When she spied the silver-and-red packet in her mother's hand, she said "Plumpy," stepping forward on wobbly legs and reaching out her hands.



Roger Thurow

A malnourished baby holds a silver-and-red packet of Plumpy'nut while sitting on her mother's lap in a refugee camp in Darfur, Sudan.

"Plumpy saved her," said her mother, Fatma, with a broad smile.

Plumpy'nut is the serendipitous result of one man's breakfast-time revelation, which came after years of research by nutritionists. Made by a French company in the Normandy countryside, Plumpy'nut has been fed to some 30,000 children in Sudan's Darfur region and aid officials there say it has helped cut malnutrition rates in half.

Unlike powdered-milk formulas, which have been the standard treatment for severe malnutrition, Plumpy'nut doesn't need to be mixed with clean water, a rare commodity in famine-stricken regions. Medical officers aren't needed to be on hand to mix ingredients. A mother simply snips a corner of the packet and squeezes the paste into her child's mouth. As a result, nutritionists for the first time can take treatment beyond crowded emergency feeding centers and hospital settings, where disease can spread rapidly, and into the communities where malnourished children live.

The shift from emergency treatment to more-routine community care, "has long been a Holy Grail of humanitarianism," says Steve Collins, a director of Valid International, a United Kingdom organization specializing in famine relief. "It's an amazing breakthrough when it comes to therapeutic feeding."

A delicate mix of capitalism and humanitarianism, Plumpy'nut is made by Nutriset SAS, a private company specializing in food for humanitarian relief. With 40 employees working from a small blue-and-white factory in Malaunay, France -- a country otherwise known for its haute cuisine -- Nutriset also makes milk-based formulas for treating severe malnourishment as well as other nutrition-boosting products.

While other food companies seek to sell their yogurt and breakfast cereal to the widest possible consumer market, Nutriset focuses only on the world's hunger zones. Its products are household names in places such as Ethiopia, Sudan, Congo and Malawi. Its main customers are aid agencies. In this niche, Nutriset has few rivals. Competing products such as enriched biscuits aren't as versatile as Plumpy'nut -- which costs relief agencies about 35 cents a packet before shipping - many aid workers say.

Of course, neither Plumpy nor other similar products can help overcome the more intractable problems associated with famine, such as lack of clean water.

First Major Deployment

Darfur, a vast region in Western Sudan, has been Plumpy'nut's first major deployment. For two years, marauding militias, composed mostly of Arab nomads and cattle herders, have attacked Darfur's African farmers in a battle over arable



Michel Lescanne

land. United Nations agencies estimate nearly two million people have been driven from their homes and at least 70,000 killed, although other estimates place the death toll much higher. The survivors have sought refuge in squalid camps with minimal sanitation and health facilities in Sudan and neighboring Chad.

The U.S. government has labeled the attacks against Darfur's farmers as "genocide" and a U.N. commission probing the violence concluded in February that government forces and militias committed atrocities on a "widespread and systematic basis." The Sudanese government, accused of supporting the militias, refuted the findings, saying it's waging a campaign against Darfur rebels.

As the turmoil threatens to wipe out a third farming season, Nutriset is anticipating another run of round-the-clock production mixing peanut paste with sugar, fats, minerals and vitamins. For Nutriset, the news of fresh orders always comes attached to reports of children on the edge of starvation. "When we got the first order for Darfur, our initial reaction was, 'It's a pity, it's happening again,' " says Isabelle Sauguet, Nutriset's sales and development manager.

The increasing use of Plumpy'nut -- more than 300 metric tons have been distributed in Darfur alone -- has boosted Nutriset's sales to about \$15.5 million a year from about \$6.5 million in 2001. Nutriset, however, is wary about being seen as profiting from the tragedies it serves. It doesn't offer its products for commercial sale, through creating high-energy athletic bars, for example.

Aid groups would object "if we make money from these products and invest it to make commercial products in order to make more money," says Michel Lescanne, Nutriset's chairman and managing director. He says the company plows back its profits into research and development. The company doesn't disclose salaries it pays.

Plumpy'nut's origin lies in the African hunger crises of the early 1980s, including Ethiopia's epic famine in which nearly one million people died. Back then, Mr. Lescanne was developing an enriched chocolate bar for malnourished children while working at a French dairy company. The product never caught on. "The taste wasn't good, and it was expensive to produce," he remembers, making a sour face. The company dropped Mr. Lescanne's project, he recalls, but he wanted to continue his research. In 1986, he bought some scales and blenders and founded Nutriset in his kitchen.

At the same time, nutritionists working for various aid agencies were also hunting for new malnutrition treatments. Earlier feeding regimens involving various levels of protein, fat and nutrients didn't work effectively and in some cases exacerbated problems by putting excessive demands on a malnourished person's already-weakened digestive organs.

In the early 1990s, these nutritionists, in conjunction with agencies such as the

World Health Organization, developed a set of formulas for therapeutic milks that they dubbed F-75 and F-100. Nutriset then developed a way to turn these recipes into a powdered mix for use in the field.

"Just open the package and add some water," says Mr. Lescanne, waving his hands with the flourish of a French chef. The product became the accepted way to treat malnutrition and helped to establish Nutriset's niche.

Some Limitations

But Nutriset and nutritionists working in famine zones knew that powdered milk mix had its limitations. Because it needed to be mixed with clean water, it could only be used in clinical settings, either in established hospitals or in feeding tents set up at the onset of a famine. This meant malnourished children were crowded together, aiding the spread of illnesses such as diarrhea and measles. It also required mothers stay with their sick children during treatment. Nutritionists wondered: Would the health of children left behind deteriorate? What about those who never reached the treatment centers?

"It became a fixation for me to come up with another way," says Andre Briend, a former specialist in pediatric nutrition at the French government's Institute of Development Research and now an official with WHO in Geneva. After many years working in the developing world, he returned to France in the early 1990s and began consulting with Nutriset. He sought an alternative to the powdered mix. He tried pancakes and doughnuts. He tried a chocolate bar, but it melted at high temperatures, making it unsuitable for use in desert famine zones. Adding the necessary minerals also ruined the taste.

One morning in 1997, while eating breakfast, he noticed a jar of Nutella, the chocolate-hazelnut spread popular in Europe. He had seen it on breakfast tables, including his own, for years, but this time he recalls thinking, "Of course!" He called Mr. Lescanne. "Why not a spread?" he said, both men recall.

Since the previous experiment with chocolate didn't work, Mr. Briend tried a peanut paste. When the ingredients from the F-100 milk formula were added, it still tasted like peanut butter, only sweeter.

Picking a Name

Nutriset executives pored through a dictionary trying to come up with a name that would suggest a personality rather than a scientific label. Coming across the "P" section, they combined "plumpy" and "peanut." On its packaging, the apostrophe is represented by a picture of a peanut.

In many African countries, the peanut is a staple food and Nutriset found no cases of peanut allergy. Nutritionists began deploying Plumpy'nut in hunger hot-spots. Children, delighted at the taste, gobbled it up. "The children cried when we took the Plumpy'nut away in order to weigh them," recalls Mr. Briend.

Armed with Plumpy'nut, aid agencies are developing a new treatment method.

During Ethiopia's latest famine, in 2003, which afflicted more than 12 million people, relief organizations erected a network of feeding centers to administer milk-based treatment. Countless lives were saved, but medical workers were overwhelmed by the crush of children filling the centers. Aid workers using Plumpy'nut were able to relieve the pressure by returning children to their homes and treating them there.

In Darfur, aid workers have stepped up their use of these community-based treatments. Nutritionists say a milk-based treatment is vital for severely malnourished children with medical complications, which may comprise up to 20% of the total. But milk-based products can be breeding grounds for bacteria, either when mixed with contaminated water or when left out in the open. For most malnourished children, nutritionists have found that a steady diet of Plumpy'nut at home -- three or four sachets a day for several weeks -- will usually bring recovery.

Some groups want to take the production of Plumpy'nut beyond Nutriset's factory and into the field. Mark Manary, a pediatrician at Washington University School of Medicine in St. Louis established Project Peanut Butter in Malawi, in southern Africa. To reduce costs, it uses local ingredients as well as a mix of vitamins and minerals supplied by Nutriset. Dr. Manary hopes to crank out 150 metric tons a year to treat Malawi's estimated 15,000 severely malnourished children.

Dr. Manary initially used Plumpy'nut he'd received as a donation in 2001. Recovery rates soared to 95% from 25%. "We didn't need a statistician to tell us this was better," he says. "We figured if we wanted to continue, we needed to make it locally."

Valid International's Dr. Collins, is also hoping to spur local production of Plumpy'nut-style products using other commodities, such as corn or wheat, as well as peanuts. "It's such an important technique, it can't be beholden to just one company," he says. "We need the lowest price with high quality to match."

Despite the competition, Nutriset says it is open to local production. The company is hoping to establish a franchise network of local producers; it would supply its nutritional mix for a fee and offer advice on production and quality.

In January, Fatma Adam Hassin emerged from her thatched hut in the Krinding camp cradling a packet of Plumpy'nut. She filled a plastic bottle with water and washed her hands before sprinkling some drops over the face and hands of her 2-year-old daughter, Hasania, who was severely malnourished. The mother sat on the ground outside her hut and fed Plumpy'nut to Hasania, who typically eats three packets a day in nine sittings.

Plumpy'nut allows Ms. Hassin and other mothers to stay with their children rather than move to a feeding center located elsewhere in the camp. "How would I take care of all my children if I'm not at home?" asks Ms. Hassin, who has eight children in total.

Plumpy'nut also puts the mother in charge of feeding and caring for her child. "It's the most beautiful thing with Plumpy'nut," says Hedwig Deconinck, a senior

emergency nutrition specialist for **Save the Children** working in Darfur. "The mother tells us, 'My child is healthy and I have done it.' "

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