ATTACK OF THE MUTANT RICE

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The organic milk price war


America's rice farmers didn't want to grow a genetically engineered crop. Their customers in Europe did not want to buy it. So how did it end up in our food? Fortune's Marc Gunther reports.

(Fortune Magazine) -- Back in the spring of 2001, a 64-year-old Texas rice farmer named Jacko Garrett watched a fleet of 18-wheelers haul away truckloads of rice that he had grown with great care. "It just bothers me so bad" Garrett said. "I'm sitting here trying to find food to feed people, and I've got to bury five million pounds of rice". No one likes to waste food, but for Garrett, who runs a charity that collects rice for the needy, the pain was especially acute.

Garrett's rice was genetically modified, part of an experiment that was brought to an abrupt halt by its sponsor, a North Carolina-based biotechnology company called Aventis Crop Science. The company had contracted with a handful of farmers to grow the rice, which was known as Liberty Link because its genes had been altered to resist a weed killer called Liberty, also made by Aventis.

But by 2001, Aventis Crop Science was living a biotech nightmare. Another one of its creations, a variety of genetically modified corn known as StarLink, had been discovered in taco shells made by Kraft. Because the StarLink corn
had been approved as animal feed
- and not for human consumption - all hell broke loose.

Hundreds of corn products were recalled. Consumers and farmers sued. Greenpeace dumped bags of corn in front of federal regulatory agencies, and an Environmental Protection Agency official accused Aventis Crop Science of breaking the law. So shell-shocked was Aventis SA, the French pharmaceutical giant that owned Aventis Crop Science, that it decided to sell the U.S. biotech unit and abandon the very emotional business of reengineering the foods we eat.

So dumping the Texas rice was a no-brainer. "We didn't want to take any chances" says a former Aventis executive. "We burned and buried enough rice to feed 20 million people".

Eventually Aventis paid about $120 million to settle the StarLink lawsuits. It sold its crop science unit to Bayer, the German drug giant that makes aspirin, Aleve and Alka-Seltzer. Bayer Crop Science dropped plans to bring Liberty Link rice to market, largely because rice grown in the U.S. is exported to Europe and other places that don't want genetically modified foods. And everyone forgot about Jacko Garrett's rice.

Can you guess where this is going? Yep. In January 2006, small amounts of genetically engineered rice turned up in a shipment that was tested - we don't know why - by a French customer of Riceland Foods, a big rice mill based in Stuttgart, Ark. Because no transgenic rice is grown commercially in the U.S., the people at Riceland were stunned. At first they figured that the test was a mistake or that tiny bits of genetically modified corn or soybeans had somehow gotten mixed up with rice during shipping. They said nothing.

Then came another shock. Testing revealed that the genetically modified rice contained a strain of Liberty Link that had not been approved for human consumption. What's more, trace amounts of the Liberty Link had mysteriously made their way into the commercial rice supply in all five of the Southern states where long-grain rice is grown: Arkansas, Texas, Louisiana, Mississippi and Missouri. Bayer and Riceland then informed the U.S. Department of Agriculture, which announced the contamination last August.

By then the tainted rice was everywhere. If in the past year or so you or your family ate Uncle Ben's, Rice Krispies, Gerber's or sushi, or drank a Budweiser - Anheuser-Busch is America's biggest buyer of rice - you probably ingested a little bit of Liberty Link, with the unapproved gene. (A very little bit - perhaps ten to 15 grains of transgenic rice in a one-pound bag of rice, which contains about 29,000 grains.)

Last November, over the howls of anti-GMO (that's genetically modified organisms) activists, the USDA retroactively approved the Liberty Link rice, known as LL601. The department said the genes that it approved are similar to those inserted for years into canola and corn, with no apparent ill effects. The experts at the USDA, the EPA and the Food and Drug Administration, all of which bear some responsibility for regulating transgenic food, say the contamination is nothing to worry about.
Then again, the experts also have dismissed repeated warnings that genetically modified crops can't be managed or controlled. When organic farmers worried that their fields could be invaded by genetically modified plants grown nearby, regulators told them there was nothing to fear. The biotech industry promised that experimental, gene-altered plants could be grown in open fields and never, ever end up in the neighborhood Safeway.

Oops.

In any event, after last year's contamination became public, and after rice prices took a tumble, and after Europe said it no longer wanted any American rice, and after several other countries, including Japan and Iraq (!), demanded rigorous testing of U.S. rice, the industry moved to contain the damage.

Rice growers were told not to plant Cheniere, a popular seed variety that had been tainted by Liberty Link genes. Regulators set up a comprehensive testing program to keep future harvests clean. Last December, Bruce Knight, a USDA official, assured worried rice farmers, "The good news is that the only foundation seed to test positive for Liberty Link was of a single variety - 2003 Cheniere".

And then ... the tests that had been put in place uncovered a second contamination, and then a third, involving new, unapproved strains of Liberty Link, which turned up in another popular variety of rice seed, called Clearfield 131 (CL131). This seed variety is made by the German chemical giant BASF Corp. So the CL131 seed had to be banned as well.

Yes, it's the attack of the mutant rice, and it's spreading.

The industry takes a hit

"This is a new kind of pollution" says Andrew Kimbrell, director of a Washington advocacy group called the Center for Food Safety, which opposes transgenic food. "You don't see it. It disseminates. It reproduces. It mutates. It's living pollution".

And here's the thing that really bugs many of America's 8,000 rice farmers: They didn't want to grow transgenic rice. It's not that they object to genetic engineering per se; many of them grow transgenic corn or soybeans alongside their conventional rice. Over the past decade, in fact, biotech crops have become staples of the American diet; about 60 to 70 percent of the processed foods in U.S. grocery stores contains oils or ingredients derived from biotech corn and soybeans, according to BIO, an industry group.

Nevertheless, an acrimonious debate about whether biotech food is safe for the environment and human health rages on amid considerable scientific uncertainty. Absent firm proof of danger, regulators in the U.S. have chosen to permit widespread bioengineering. But rice farmers know their market. About half of the U.S. rice crop, which was worth about $1.9 billion last year, is exported, and Europeans and Asian consumers simply don't want genetically engineered food.

"If I can't sell it, I don't want to grow it" says Jennifer James, who grows rice, wheat and soybeans, some of them transgenic, on a 7,500-acre farm near Newport, Ark.
And so the farmers are hiring lawyers and calling their congressmen and trying to decide whom to blame: Bayer Crop Science, which owns Liberty Link and is the target of dozens of lawsuits, or the U.S. government, which regulates agricultural biotechnology, or the Europeans, for their opposition to genetically modified crops, which many farmers suspect is a form of protectionism. (Funny, isn't it - European consumers won't buy genetically modified food, but French, Swiss and German drug companies sell biotechnology to U.S. farmers.)

Some farmers point the finger at environmental groups like Greenpeace for scaring people with their talk of Frankenfoods. Says James, who has decided not to sue: ".Somebody screwed up somewhere".

Collectively, farmers and seed companies have lost hundreds of millions of dollars as a result of the contamination. Its origins remain a mystery. ".This is the most traumatic thing I've seen in the rice industry in 30 years" says Darryl Little, the widely respected director of the Arkansas State Plant Board, who has tried to clean up the mess. ".It's been devastating".

And not just to the farmers. Consider the plight of Scott Deeter, the chief executive of a Sacramento biotech firm called Ventria Bioscience. Ventria wants to grow rice that has been genetically engineered to produce proteins that can then be extracted and turned into low-cost treatments for diarrhea. Making the drugs by growing transgenic rice is cheaper than producing them in a lab.

".The rice plant is just the factory" Deeter says.

Ventria's medicine would save lives, Deeter says. About 1.8 million children in poor countries die annually from diarrhea. The disease raises national security issues as well, Deeter told a congressional subcommittee. ".During Operation Iraqi Freedom, 70 percent of deployed troops suffered a diarrheal attack" he testified. ".This is a silent enemy attacking American troops".

Even before the Liberty Link brouhaha, Ventria struggled to find a home for its ".pharma rice". California told the company not to grow it in the state after farmers objected. So did Missouri, after Anheuser-Busch threatened to stop buying Missouri rice if Ventria was allowed to grow there. (AB did not want diarrhea-fighting proteins to turn up in a Bud.) Last year Deeter took his plans for rice fields and a production plant to Junction City, a small Kansas town more than 200 miles away from the nearest rice farm.

That's not far enough to satisfy critics. The USA Rice Federation, an industry group, opposed Ventria's plans. Citing Liberty Link, the group said it does not believe that the USDA can protect ".the environment and the public's food and feed supply from unwanted intrusions of genetically engineered materials".

".We're not anti-biotech, and we're not anti-Ventria" says Bob Cummings, the federation's senior vice president. ".Our job is to protect our industry".

Farmers fight back

".HAVE A RICE DAY". So says the USA Rice Federation, which wants people to eat more rice. Check out the recipes on its Web site for
Senegalese peanut soup with spicy rice timbales; walnut rice with cream cheese, mushrooms and spinach; and chocolate-chip banana nut rice pudding. Yum.

Alas, these items are not on the menu at the Little Chef restaurant in Stuttgart, Ark., where Fortune and a group of rice growers recently discussed the industry's woes over a lunch of chicken-fried steak, vegetables and you-know-what. Arkansas grows about 45 percent of the nation's rice crop, and America's two biggest rice mills, Riceland Foods and Producer's Rice Mill, are headquartered in Stuttgart, a town of 10,000 people that bills itself as the Rice and Duck Capital of the World. Rice plants and ducks both like water.

Although they can't prove it, the farmers believe that rice prices are lower than they would be because of the Liberty Link problems. After the contamination was made public by the USDA on Aug. 18, 2006, the price of rice futures fell by about 10 percent. Prices have recovered since then, but farmers say they should be higher given the rising prices for other farm commodities.

Currently, rough (meaning unrefined) rice sells for about $10.70 per hundredweight, or 100 pounds. "Rice could have been $1 a hundredweight more, and every farmer needs that" says Ray Vester, who farms about 1,300 acres in Stuttgart and sits on the state plant board. Rice farmers have been hard hit by rising energy and fertilizer costs, so they are feeling squeezed.

Farmers who planned to use either Cheniere or CL131 seed had an additional problem. They had to scramble to find alternatives or plant other crops. About 40 percent of the rice acreage in Arkansas would have been planted with either Cheniere or CL131 until both were banned, according to Chuck Wilson, a rice specialist with the University of Arkansas cooperative extension service in Stuttgart. Wilson expects Arkansas growers to plant 1.2 million acres of rice this year, 13 percent less than last year and the lowest acreage since 1996.

Hardest hit was a small group of farmers who specialize in growing rice for seed and were unable to sell their stocks of Cheniere or CL131 to other farmers. "We had to put seals on the bins. We couldn't ship it. We couldn't plant it" said Troy Hornbeck, an owner of HBK Seed in Dewitt, Ark. He was eventually permitted to sell the transgenic rice for consumption, not for planting, at a loss.

Ten seed dealers from Arkansas, Missouri and Louisiana recently sued Bayer, saying the company's carelessness ruined their seed. Rival BASF, which lost an estimated $15 million because it owns the banned Clearfield 131 variety, hasn't said whether it will sue, but its executives are unhappy. "We can't have an unwanted GM event floating around the seed supply" said one.

Many other lawsuits have been filed. Tilda, a British importer of rice, has sued Bayer Crop Science, Riceland Foods and Producer's Rice Mill, saying it had to destroy or send back Arkansas rice.

A Chicago tort lawyer named Adam Levitt has been named a lead counsel in a federal lawsuit brought on behalf of more than 400 rice growers. Not by coincidence, Levitt represented corn farmers who successfully sued Aventis Crop
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Science, Bayer's predecessor, over StarLink. Says Levitt: ".Bayer knew Liberty Link rice could easily contaminate the rice supply, because Bayer contaminated the U.S. corn supply only a few years ago".

Bayer says the company complied fully with the law. In a legal filing, its lawyers speculated that the alleged damages were caused by an ".act of God".

What went wrong?

So it's God's fault? That's about as good an answer as we've got right now to the question of what went wrong.

The USDA's Animal Plant and Health Inspection Service (APHIS) has been investigating since last summer, but the agency won't say what it has learned. In a sense, APHIS is investigating itself. Its track record, frankly, is a little scary.

In 2005 the USDA's inspector general said that APHIS, which regulates field tests of biotech foods, didn't know the location of some field trials, did no independent testing of nearby crops and did not even require submission of written protocols by some biotech firms, leaving the industry to, in effect, monitor itself.

The audit concluded: ".APHIS' current regulations, policies and procedures do not go far enough to ensure the safe introduction of agricultural biotechnology". APHIS says it has fixed the problems. ".We regulate technology that's constantly changing, and our policies continue to evolve" John Turner, an agency official, told Fortune.

As it turns out, it's unlikely that Jacko Garrett's Texas rice escaped from the landfill to live another day. He grew a different variety of Liberty Link from the one that got into the Cheniere seed. Instead, the source of the contamination is probably a rice research station in Crowley, La., operated by Louisiana State University. The LSU fields appear to be among the very few places - if not the only one - where the Liberty Link rice was grown in proximity to fields where Cheniere and CL131 seeds were also being developed.

The LSU rice-breeding station is run by a man named Steve Linscombe, one of the most admired men in the U.S. rice industry. Linscombe, who is 52, has devoted his entire career to developing rice-seed varieties that improve yields and resist pests or herbicides. ".He has put millions of dollars into the pockets of rice farmers" says Darryl Little, the Arkansas regulator. ".He's a premier breeder".

Because Linscombe understood the risks of mixing transgenic rice seed with conventional varieties, he took extra precautions when working with Liberty Link. To prevent pollen or stray kernels of rice from migrating, USDA rules recommend at least a ten-foot buffer zone around transgenic field tests. LSU's contract with Bayer called for a 30-foot isolation zone. Linscombe created buffer zones of at least 120 feet. Until now, no one thought rice pollen could travel that far.

".I did as much isolation as I possibly could" Linscombe said. So what happened? ".I have been dealing with this for nine months, and I still can't give you a definitive answer" he said. Wilson, the University of Arkansas rice specialist,
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says, "I think we've learned some things about rice, biologically, that we didn't know before".

Whether the USDA has learned is another question. In May the agency granted Ventria's application to grow its pharma rice on up to 3,200 acres in Kansas. The agency had received 20,000 comments (most by e-mail clicks) opposing the plan from citizens, activists, farmers and rice industry groups.

Deeter, Ventria's CEO, says there's no chance that the pharma rice will find its way into the food supply, as Liberty Link did: "We're more strictly regulated, by a factor of ten - not for any good reason, by the way".

In the USDA ruling, Rebecca Bech, an APHIS administrator, wrote, "The combination of isolation distance, production practices, and rice biology make it extremely unlikely that this rice would impact the U.S. commercial rice supply".

In other words, there's nothing - nothing at all - to fear.

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