

MarketWatch

It pays to keep moving forward



Dow Jones Reprints: This copy is for your personal, non-commercial use only. To order presentation-ready copies for distribution to your colleagues, clients or customers, use the Order Reprints tool at the bottom of any article or visit www.djreprints.com

See a sample reprint in PDF format.

Order a reprint of this article now

THE WALL STREET JOURNAL.

WSJ.com

OPINION EUROPE | MARCH 29, 2009, 4:24 P.M. ET

Activism in the Time of Cholera

Anti-GMO groups keep the poor from getting help.

By HENRY I. MILLER | From today's Wall Street Journal Europe.

The cholera epidemic in Zimbabwe has sickened more than 100,000 and killed at least 4,500, with more cases reported daily. The disease remains all too lethal elsewhere, too, having killed about 120,000 people in 2007, according to the World Health Organization. But thanks to a simple innovation, those kinds of statistics could soon be a relic of the past, like deaths from smallpox and polio -- if not for the interference of a few influential politicians and activist groups.

Cholera is a diarrheal disease caused by contamination of food and water by feces. For those of us who live in industrialized countries, diarrhea is little more than a nuisance, most often involving some discomfort and bloating. But in sub-Saharan Africa and parts of Latin America and Asia with poor access to health care, clean water and other resources, diarrhea is the No. 2 infectious killer of children under the age of five, accounting for two million deaths a year.

Since the 1960s, the standard of care for childhood diarrhea in the developing world has been a glucose-based, high-sodium liquid that is administered orally and is known as a "rehydration solution." This low-tech product was revolutionary. It has saved millions of lives and reduced the need for costly -- and often unavailable -- hospital stays and sterile intravenous fluids. However, this product has done nothing to lessen the severity or duration of the condition, which over time leads to malnutrition, anemia and other chronic health risks.

The answer may be an affordable innovation that combines high and low technology. It consists of adding two human proteins, lactoferrin and lysozyme, which are produced inexpensively in genetically modified (GM) rice plants, to rice-based oral rehydration solution. Studies performed in Peru show that when this is done, the duration of children's illness is cut from more than five days to three and two-thirds. The rate of recurrence also falls. This advance could save many of those who are dying in Zimbabwe and elsewhere.

What made this approach feasible was a private company's invention of a method to produce human lactoferrin and lysozyme in gene-spliced rice, a process dubbed "biopharming." This is an inexpensive way to create the proteins necessary to fortify millions of liters of rehydration solution.

Sounds like a great success, right? Not yet; maybe not ever. The company has been trying for more than six years to get the product approved by the U.S. Food and Drug Administration, which has raised no real safety concerns but has dithered over the appropriate regulatory route for approving the product. Because a panel of experts has already

deemed the proteins safe, the best guess is that internal FDA politics and lobbying by NGOs and the company's competitors are causing the delays.

Virtually every biotech breakthrough brings the antitechnology, antibusiness fabulists out of the woodwork, and this one is no exception. One radical biotech opponent, Hope Shand, remonstrated, "The chance this will contaminate traditionally grown crops is great. This is a very risky business."

Nonsense. Rice is self-pollinating, so interbreeding with other rice varieties is virtually impossible. But even in the worst case, "contaminate traditionally grown crops" with what? With two human proteins normally present in tears, breast milk and saliva? The only contamination here is of public discourse, from the lies and misrepresentations of antibiotech activists.

Another miraculous product made with gene-splicing techniques, and which has also had to endure the slings and arrows of wrong-headed activists and regulators, is "Golden Rice." This collection of new rice varieties is enriched by the introduction of genes that produce beta-carotene, which the body can convert into vitamin A.

Vitamin A deficiency is epidemic among poor people in the tropics whose diet is dominated by rice (which contains neither beta-carotene nor vitamin A) or similar foods. World-wide, 200 million to 300 million children of preschool age are at risk of vitamin A deficiency, which increases susceptibility to infections such as measles and diarrheal diseases and is the leading cause of childhood blindness in developing countries. About 500,000 children become blind due to vitamin A deficiency each year, and 70% of them die within a year.

The concept is simple: Although beta-carotene is not normally found in the seeds of rice plants because of the absence of two enzymes needed to make the substance, rice plants do make it in the green portions of the plant. When GM techniques are used to introduce the two missing genes, the rice grains become capable of producing and accumulating large amounts of beta-carotene.

Like the protein additives to the rehydration solution, Golden Rice is being blocked from the market by regulatory delays -- both by unscientific, draconian requirements concocted by United Nations agencies and by regulators in several Asian countries.

Despite their vast potential to benefit humanity, and negligible likelihood of harm to human health or the environment, the gene-spliced rice varieties remain in regulatory limbo with no end in sight. Activists have spread wild tales of gene-spliced crops causing illness and baldness, and of giving rise to antibiotic-resistant bacteria. There is absolutely no evidence for such claims.

In contrast to GM plants, those constructed with older, less precise techniques for genetic improvement are subject to no government scrutiny or requirements -- or opposition from activists. As a result, companies are systematically discouraged from adopting the best technologies, and when feasible prefer to use older, inferior techniques to achieve the desired result.

In an April 2008 editorial in the journal *Science*, Nina Fedoroff, a plant geneticist who serves as senior scientific adviser to the U.S. secretary of state, wrote: "A new green revolution demands a global commitment to creating a modern agricultural infrastructure everywhere, adequate investment in training and modern laboratory facilities, and progress toward simplified regulatory approaches that are responsive to accumulating evidence of safety." The story of GM rice makes it clear that we do not yet have the will and the wisdom to make that happen.

Dr. Miller, a physician and fellow at Stanford University's Hoover Institution and the Competitive Enterprise Institute, headed the FDA's Office of Biotechnology from 1989 to 1993.