Taking the GM Food Aid Debate to Africa--Are We Going Mad?   
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April 10, 2000

Open Letter to the Editor The Independent newspaper London, UK

Dear Sir,

My name is Norman Borlaug. For the past 56 years I have worked as an agricultural scientist in the low-income, food-deficit nations to raise agricultural production and productivity. During a recent field tour to Nigeria, Malawi, and Mozambique, I came across an article in The Independent, Thursday, March 30, 2000 issue, titled, "America finds ready market for GM food-the hungry," written by Declan Walsh from Nairobi. A ghastly photograph accompanies the article, depicting a man near death from starvation, lying next to food sacks, with the caption, "A Sudanese man collapsing as he waits for food from the UN World Food Programme. Much of the food donated is genetically modified."

Mr. Walsh's article is seriously biased and misguided. It implies a conspiracy between the U.S. government and the World Food Programme (WFP) to dump unsafe, American genetically modified crops into the one remaining "unquestioning market- emergency aid for the world's starving and displaced." This is unfair.

Mr Walsh quotes several critics on the use of genetically modified food in Africa. Elfrieda Pschorn-Strauss, from the South African organization Biowatch, says "The US does not need to grow nor donate GM crops. To donate untested food and seed to Africa is not an act of kindness but an attempt to lure Africa into further dependence on foreign aid," she said. Dr. Tewolde Gebre Egziabher of Ethiopia, states that "Countries in the grip of a crisis are unlikely to have leverage to say, "This crop is contaminated; we're not taking it. They should not be faced with a dilemma between allowing a million people to starve to death and allowing their genetic pool to be polluted." Neither of these individuals offers any credible scientific evidence to back their extreme assertions-which are patently false, in my opinion.

All told, some 400 million tonnes of food are currently traded in world markets. However, only a dozen nations are major food- exporting countries. Among them, the U.S. is by far the largest (80 million tonnes), followed by Argentina, France, Canada, and Australia. The vast majority of this food is sold at market prices around the world, and especially in the industrialized and newly industrializing countries. Still, from a global perspective, without the very large U.S. food surpluses, it is likely that millions would go hungry and even be threatened by starvation.

A relatively small portion of the global food trade goes to emergency food aid organizations like WFP to help feed displaced and hungry people. To my way of thinking, it is fitting that the United States, the world's largest food exporter and wealthiest nation, should be the largest contributor to the WFP, which is responsible for 40-45% of all emergency food aid shipments. Of greater worry to Mr. Walsh should be the fact that international support for emergency food aid has steadily declined in recent years, from about 10 million tonnes in 1994 and 1995, to about 7.7 million tonnes in 1998. Wheat and wheat flour now account for more than half of global food aid. (Incidentally, Mr. Walsh, there are no GM wheats on the market at present).

WFP only accepts food donations that fully meet the safety standards in the donor country. Since in the US, GM foods are judged to be safe by the Department of Agriculture, Food and Drug Administration, and Environmental Protection Agency, they are acceptable to the WFP. That the EU has placed a two-year moratorium on GM imports says little, per se, about food safety, but rather more about consumer concerns, largely the result of unsubstantiated "scare-mongering" done by GM opponents.

Let's consider the underlying thrust of Walsh's article-that genetically modified food is unnatural and unsafe. "Genetically modified organisms" (GMOs) and "genetically modified foods" (GMFs) are imprecise terms that refer to the use of transgenic crops, i.e., those grown from seeds that contain the genes of different species. The facts are that genetic modification started long before humankind started breeding. Mother Nature did it, and often in a big way. For example, the wheat groups we rely on for much of our food supply are the result of unusual (but natural) crosses between different species of grasses. Today's bread wheat is the result of the hybridization of three different plant genomes, each containing a set of seven chromosomes, and thus could easily be classified as "transgenic." Maize is another crop that is the product of transgenic hybridization. Indeed, it is hard to see how the modern maize plant evolved from Teosinte and Tripsacum-reputed to be its putative (ancient) parents.

Neolithic man-or much more likely women-domesticated virtually all of our food and livestock species over a relatively short period, 10,000 to 15,000 years ago. Subsequently, several hundred generations of farmer-descendents were responsible for making enormous genetic modifications in all of our major crop and animal species. To see how far the evolutionary changes have come, one only needed to look at the 5,000-year old fossilized corn cobs found the caves of Tehuacan in Mexico, which are about 1/10 the size of modern maize varieties.

Thanks to the development of science over the past 150 years, we now have the insights into plant genetics and breeding to do purposefully what Mother Nature did herself in the past by chance or design. Genetic modification of crops is not some kind of witchcraft, rather it is the progressive harnessing of the forces of nature to the benefit of feeding the human race. Indeed, genetic engineering-plant breeding at the molecular level-is just another step in humankind's deepening scientific journey into living genomes. It is not a replacement to conventional breeding but rather a complementary "research tool" to identify desirable genes (traits) from remotely related taxonomic groups and transfer them more quickly and precisely into high-yielding, high-quality crop species.

To date, there has been no credible scientific evidence to suggest that eating transgenic agricultural products damages human health, or the environment. Virtually all of the scientific debate has been possible damage and the risk factor society is willing to take. Certainly, "zero risk" is unrealistic, and probably unattainable. Scientific advance always involves some risk that unintended outcomes can occur. So far, the most prestigious national academies of science, and now even the Vatican, have come out in support of genetic engineering to improve the quantity, quality, and availability of food supplies. The more-important matters of concern by civil societies should be equity issues related to genetic ownership, control, and access to transgenic agricultural products.

The closest parallel in my lifetime to the emotional anti-GMO campaign currently under way would be the period, primarily during the time of Stalin, when T.D. Lysenko dominated agriculture in the former Soviet Union. With his brand of ideologically-based pseudo-science, Lysenko had some of the Soviet Union's best plant scientists banished, imprisoned, and even killed, among them, the great plant taxonomist, N.T. Vavilov, who probably starved to death in a Soviet concentration camp. The damage to Soviet agriculture caused by Lysenko and his cohorts was enormous, and contributed directly to the collapse of the Soviet Union.

One of the great challenges facing society in the 21st Century will be a renewal and broadening of scientific education-at all age levels-that keeps pace with the times. Nowhere is it more important for "knowledge" to confront "fear born of ignorance" than in the production of food-still the basic human activity. In particular, we need to close the biological science "knowledge gap" in the affluent societies-now thoroughly urban and removed from any tangible relationship to the land. The needless confrontation of consumers against the use of transgenic crop technology in Europe and elsewhere might have been avoided had more people received a better education about genetic diversity and variation.

Privileged societies have the luxury of adopting a very low- risk position on the GM crops issue, even if this action later turns out to be unnecessary. But the vast majority of humankind does not have such a luxury, and certainly not the hungry victims of wars, natural disasters, and economic crises that are attended by the WFP. I agree with Mr. Walsh when he speculates that "esoteric arguments about the genetic make-up of a bag of grain mean little to those for whom food aid is a matter of life and death." He should take this thought more deeply to heart.

The World Food Programme is one of the shining stars of the UN system, and Ms Catherine Bertini, WFP Executive Director, is a gifted leader and administrator. First elected in 1992, she was re-elected for a second five-year term in 1997. Under her leadership, WFP has achieved the lowest administrative overheads and smallest percentage of staff posted at its headquarters (in Rome) of any UN agency. During 1999, WFP workers and their collaborators helped to feed 86 million people in 82 countries. They have also helped to make significant economic contributions through their efforts to develop food transport and distribution networks and by buying and shipping food from developing countries wherever feasible. WFP staffers are among the world's unsung heroes, who struggle against the clock and under exceedingly difficult conditions to save people from famine. Their achievements, dedication and bravery deserve our highest respect and praise.

Most African nations had the misfortune of gaining independence in the 1960s during the height of the Cold War. They were pulled back and forth between East and West, over-investing in their militaries and under-investing in rural infrastructure, schools and clinics. I fear that Africa, once again, is becoming caught in the crossfire between conflicting economic ideologies and trading blocks-this time centered around science and technology. I am alarmed that some anti-technology elitists are seeking to deny small-scale farmers in sub-Saharan Africa access to improved seeds, fertilizers, and when needed, crop protection chemicals, while they have had the luxury of plentiful and inexpensive food supplies which, in turn, has accelerated economic development. Africa must not be bypassed again!

The world has the agricultural technology-either available or well-advanced in the research pipeline-to feed those 8.3 billion people anticipated in the next quarter of a century. The more pertinent question today is whether farmers and ranchers will be permitted to use that technology. Indeed, extremists in the environmental movement, largely from rich nations and/or the privileged strata of society in poor nations, seem to be doing everything they can to stop scientific progress in its tracks. To be sure, very serious equity barriers exist in the access of the poor to food, and these issues must be addressed and corrected by the world community.

W cannot turn back the clock on agriculture and only use methods that were developed to feed a much smaller population. It took some 10,000 years to expand food production to the current level of about 5 billion tonnes per year. By 2025, we will have to nearly double current production again. This cannot be done unless farmers across the world have access to current high- yielding crop-production methods as well as new biotechnological breakthroughs that can increase the yields, dependability, and nutritional quality of our basic food crops. We need to bring common sense into the debate on agricultural science and technology, and the sooner the better!

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1970 Nobel Peace Prize