Out of eir Fields, Out of eir Diets

The 2002 Food Crisis Reveals Why GMOs Do Not Belong in Africa

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In 2002, several African countries experiencing acute food shortages took issue with genetically modified (GMO) corn that the United States offered as food relief. Some countries eventually took the aid, while others accepted it only once milled, and Zambia never accepted it at all. The U.S. refused to provide monetary aid to the countries, and only provided non-GMO aid to Zambia after intense pressure from the international community. The U.S. claimed the European Union had manipulated and scared the countries into refusing the aid, therefore exacerbating the hunger problem. The E.U. accused the U.S. of using GMO relief to hasten its inclusion on the world market, particularly because the E.U. refuses to import many GMOs. The African nations explained their concern was over their future agricultural trade relationships with the E.U. and with the health of their people who would be eating the GMO food. This turbulent situation brought the debate over GMOs to the forefront of world issues. While some parties argued that GMOs are perfectly safe for human consumption and will provide the high yields necessary to feed the hungry in Africa, others argued that GMOs have no place in Africa where farmers can not afford to jeopardize their trade relationships or become tethered to licensing agreements. While health concerns are valid and must be taken seriously the economic reasons to refuse GMOs provide an irrefutable argument against them. Until the African nations are in a position to accept GMOs without perceived risk, both in regard to their health and their economies, all genetically modified crops should be kept out of their fields and their diets.

Part of the issue that arises in regard to GMO food aid in Africa are the very different ways in which the U.S. and the E.U. interpret GMO safety. The U.S.'s position on GMOs is that "there is minimal risk attached to them, and that because of this a precautionary approach in their adoption is not warranted."1 The U.S. typically sees the benefits of GMOs (high yields, particular disease resistance) as outweighing their risks. The E.U. adheres to a precautionary principle, probably because of recent food scares such as Mad Cow disease. They believe in devoting more time and study to the risks of GMOs, and the general European consensus is that GMO risks (inadvertent cross-pollination, unknown health effects) outweigh the benefits.2 U.S. grain sales to Europe severely declined after the U.S. began growing mostly GMO crops in the mid-1990s. It is likely that the decline in sales to Europe, and Africa's tight trade relationships with the E.U. caused the U.S. to use the African food aid as a sort of "Trojan horse" to split open the African market (and eventually the European market by way of African exports) for GMOs.3 Zambia was particularly concerned by the possible contamination of baby corn and honey exports to Europe, and more generally for all organic exports.4 In the article 'The Political Economy of Food Aid in an Era of Agricultural Biotechnology' Jennifer Clapp argues that from its beginning, U.S. food aid was "a mechanism for surplus disposal and export promotion in the United States."5 Although she acknowledges that the politicization of food aid diminished in the 1990s due to a shrinking surplus, she asserts that the new debate over GMOs with the E.U. and the growing surplus of GMO corn in the U.S. have reignited America's tendency to use food aid as a political tool.6 In the article 'Feeding the famine? American food aid and the GMO debate in Southern Africa,' Noah Zerbe argues that

> the [U.S.] provision of assistance to Southern Africa was primarily intended to secure particular foreign policy objectives of the US government—in this case, promoting the cultivation of biotech crops, expanding market access and control of transnational agricultural corporations, and isolating Europe in the GMO debate.[7]

The U.S. denies this accusation and accuses the E.U. of allowing Africans to starve because of their fear of GMOs. Regardless of whether Clapp's or Zerbe's interpretations are false or not, the debate is being played out in Africa where starving people do not have the luxury to entertain such a forum. It

1 *Jennifer Clapp, " e Political Economy of Food Aid in an Era of Agricultural Biotechnology," Global Governance 11, (2005): 477.*
2 Clapp, "The Political Economy of Food Aid in an Era of Agricultural Biotechnology" 478.
3 Sarah Lieberman and Tim Gray, "GMOs and the Developing World: A Precautionary Interpretation of Biotechnology." British Journal of Politics & International Relations 10, (2008): 401.
4 Noah Zerbe, "Feeding the Famine? American Food Aid and the GMO Debate in Southern Africa," Food Policy 29, (2004): 600.
5 Clapp, "The Political Economy of Food Aid in an Era of Agricultural Biotechnology" 469.
6 Clapp, "The Political Economy of Food Aid in an Era of Agricultural Biotechnology" 470.
7 Zerbe, "Feeding the Famine? American Food Aid and the GMO Debate in Southern Africa," 594.

is unfair to ask them to either accept GMO food or starve. Accepting GMOs as food aid is a threat to African peoples' beliefs about food safety, even if those beliefs are a result of European influence. Donating cash aid instead of in-kind aid may not chip away at the mountains of surplus corn in the U.S. or open up a new market for GMOs, but it is arguably more manageable for the United States to accept this concession than it is for Africa to wait for food while they starve.

Some experts argue that Africa was ultimately at fault for their own hunger because they folded to the E.U.'s wishes. Gerald D. Coleman, a Catholic clergyman and advocate of GMOs, argues in his article "Is Genetic Engineering the Answer to World Hunger?" that: "It was a moral disgrace that in 2002 African governments gave in to [GMO] opponents and returned to the World Food Program tons of [GMO] corn simply because it was produced by U.S. biotechnology."[8] Coleman's assertion is misguided.

The Zambian president Levy Mwanawasa explained, "the rejection is not intended to demean those who had donated it, rather it was done to protect the long-term interest of the Zambian people and the environment."[9] Regardless of whether the U.S. or the E.U. is right about GMO food safety it is a secondary issue to the more important economic relationships between Europe and Africa. After the 2002 crisis had subsided, Zambia started exporting non-GMO food, allowing its economy to begin the recovery process.[10] If GMO seeds had entered the Zambian agricultural sector through food aid, they would not have been able to export GMO-free food. Obviously, it was the right decision for Zambia to reject GMO aid. The U.S. must begin providing cash donations for food aid instead of in-kind aid while the debate over GMOs plays out in the developed world; or the U.S. must cultivate and separately store non-GMO food for emergencies.

The United States eventually offered to mill the GMO corn for the African countries, yet Zambia still refused to accept it. Zambia claimed that "any health problems that might arise from eating GMOs would be too costly to address."[11] The reasoning was that Zambian people consume much more corn than Americans do, suggesting that there is no scientific evidence to prove that a diet consisting of such an amount of GMO corn is safe.[12] In fact, many experts do claim that GMOs are unsafe to eat. One oft-cited study was conducted by Arpad Pusztai for the Rowett Research Institute. Pusztai found that GMO potatoes sometimes caused internal organ mis-development and weakened the immune systems of laboratory rats.[13] Proponents of biotechnology argue that Americans have been eating GMOs without incident, and that there is no non-refutable proof that GMOs are unsafe.[14] Norman Borlaug, the 1970 Nobel Peace Prize laureate and biotechnology advocate, argues that "To date, there is no reliable scientific information to substantiate claims that transgenic crops are inherently hazardous."[15] However, there is no conclusive evidence that transgenic crops are inherently safe, according to a large section of the scientific community. Notably most studies conducted on GMOs are funded by private institutions in developed nations. Asking Africa to accept GMOs into their diets and their economies is asking them to accept a product that their scientists have not been able to test with the same vigor as the developed nations. This problem did not escape Zambia. In response to the GMO aid that the U.S. offered, Zambia sent a small group of their scientists to study the issue. They traveled to the U.S., South Africa, and Europe, and concluded that GMOs should not be accepted.[16] The scientists determined that accepting the aid could endanger biodiversity in local corn varieties; that introduction of GMOs into Zambia could threaten the European export market; and that the U.S.'s claims of GMO safety were inconclusive, particularly regarding "toxicity, allergenicity and antibiotic resistance."[17] Even if GMOs would be perfectly safe to consume, Zambia did not cave to the E.U.'s precautionary stance. They did their own research and decided the risk was too high. The U.S. must respect the fact that African countries have the right to adopt the precautionary principle.

Beyond the issues of trade relations and human safety lies the threat of purposeful cultivation of GMOs in Africa. The typical small farmer in Africa cannot afford the licensing fees and expensive GMO seeds on a regular basis. This is proved time and time again by the fact that they so often need food aid because of crop failure. They certainly do not have the money to consistently renew licensing agreements or purchase GMO seeds. For example, several African farmers who purchased expensive GMO cotton seeds with the intention of increasing their production went into debt because the GMO yields

8 Gerald D. Coleman, "Is Genetic Engineering the Answer to World Hunger?," America, February 2005, 17.

9 Lieberman and Gray, "GMOs and the Developing World: A Precautionary Interpretation of Biotechnology" 404.

10 *Ibid* 404.

11 Clapp, "The Political Economy of Food Aid in an Era of Agricultural Biotechnology" 472.

12 Clapp, "The Political Economy of Food Aid in an Era of Agricultural Biotechnology" 473.

13 Mae-Wan Ho et al., GMO Free: Exposing the Hazards of Biotechnology to Ensure the Integrity of Our Food Supply (Ridgefield, Connecticut: Vital Health Publications, 2004), 22 and Roberto Verzola, "Genetically Engineered Foods Have Health Risks", in Genetically Engineered Foods, ed. Nancy Harris (San Diego, CA: Greenhaven Press, 2004), 38.

14 Florence Wambugu, "Why Africa Needs Agricultural Biotech," Nature 400. (1999): 15 and Norman Borlaug, "The Second Green Revolution," in Agriculture, Human Security, and Peace: A Crossroad in African Development, ed. M.Taeb and A.H. Zakri (West Lafayette, Indiana: Purdue University Press, 2008), 150.

15 Borlaug, "The Second Green Revolution," 150.

16 Clapp, "The Political Economy of Food Aid in an Era of Agricultural Biotechnology" 479 and Zerbe, "Feeding the Famine? American Food Aid and the GMO Debate in Southern Africa," 599.

17 Zerbe, "Feeding the Famine? American Food Aid and the GMO Debate in Southern Africa," 599-600.

were not significantly higher than conventional seed yields.[18] Norman Borlaug wrote,

I am particularly alarmed by those who seek to deny small-scale farmers of the Third World—and especially those in sub-Saharan Africa—access to the improved seeds, fertilizers, and crop protection chemicals that have allowed the affluent nations the luxury of plentiful and inexpensive foodstuffs which, in turn, has accelerated their economic development.[19]

While Borlaug is right that fertilizers and improved seeds have increased crop yields in the developed world, the missing piece is the cash required to purchase these inputs and build the extensive irrigation and pesticide systems necessary to make high-tech agriculture work. Borlaug does not grasp that the "luxury of plentiful and inexpensive foodstuffs" was achieved only by heavy investment—that is, investment that Africans cannot afford.[20] Those seeking to deny Africans of GMOs are attempting to save those farmers from a fate of licensing fees and seed-buying cycles. Africa, with the help of the developed world, may eventually be in a position to use high-tech methods and GMO crops, but now is not the time. The infrastructure and a low-risk economic environment must arrive before GMOs do.

Africa's current risk in adopting GMOs is extraordinary. In the briefing "Genetically Modified Crops in Africa: Implications for Small Farmers," Devlin Kuyek wrote:

> Once a farmer chooses to plant GM crops, it becomes very difficult to rethink that choice, particularly in the face of aggressive marketing and sales campaigns by the manufacturers and the widespread endorsement of such crops by government agencies.[21]

Any seeds saved from the GMO crops would be an infringement on patents if the proper licensing is not purchased the next year. If a neighbor grows a non-GMO version of the same crop and experiences inadvertent cross-pollination, they would be in violation of copyright laws as well. Essentially several non-GMO farmers could suffer from just one farmer planting GMOs. This means that the risk of planting GMOs is spread across a community of farmers, whereas any benefits could only be realized by a single farmer.

The same problem is experienced right here in the U.S., and farmers are losing their livelihoods over it. The large biotechnology company, Monsanto, argues that the benefits of GMOs, which they cite as reduced pesticide reliance and reduced water needs, outweigh any drawbacks that may be realized from patent infringement.[22] In the Monsanto Web site article "Why Does Monsanto Sue Farmers Who Save Seeds," the company wrote that not suing "would be unfair to the farmers that honor their agreements to let others get away with getting it for free."[23] In regard to monetary settlements, Monsanto representative Chris Reat said that "Our goal has never been to put anybody out of business. The terms of the settlement have been extended through years . . . to let the grower . . . try to fit that settlement into his farming operation."[24] But paying off settlements to Monsanto doesn't fit anywhere in the farming operations of poor African farmers. While this may fly in the U.S. where national food security is negligibly affected by picking off patent infringers, Africa needs to maintain a nurturing environment for all farmers in order to ensure its food supply. If some African farmers fall victim to marketing campaigns for GMOs and decide to give them a try, there will be negative consequences for those farmers, their farming communities, and their local food security. First, if the GMO farmer wants to switch back to non-GMO crops in the future, they must either have a non-GMO seed source saved or would have to purchase non-GMO seeds. Second, any GMO seeds that survive and grow into plants would threaten the integrity of their non-GMO crops by cross-pollination. Third, any neighboring farmers whose crops were compromised by GMO pollen could become targeted by biotechnology corporations for inadvertent patent infringements. Lastly it is unethical for the developed world to allow Africa to become entangled in the kind of situation in which their ability to produce their own food is on the line. The risks are too great. The world cannot allow GMOs where acute hunger problems and poverty thrive, at least until patenting laws are redesigned to benefit small African farmers.

There is another glaring economic reason why African countries cannot cultivate GMOs without serious risk. Almost no GMOs have been developed for use in Africa. Most GMOs were developed by private corporations for wealthy nations such as the United States and Canada. They were specifically designed to thrive in middle latitudes in high-input monocrops. Africa has extremely varied climates and little advanced agricultural infrastructure. Maarten Chrispeels, in his article "Biotechnology and the Poor" wrote about GMO development:

> True enough, the big corporations are not working on the crops of the poor, such as cassava, millets, sorghum, sweet potatoes, yams, and legumes (other than soybeans). Furthermore, they are not giving away their technology to

18 Lieberman and Gray, "GMOs and the Developing World: A Precautionary Interpretation of Biotechnology" 406.

19 Norman Borlaug, "Feeding a World of 10 Billion People: The Miracle Ahead," In Vitro Cellular and Developmental Biology, Plant 38, no. 2 2002): 227.

20 *Ibid* 227.

21 Devlin Kuyek, "Genetically Modified Crops in Africa: Implications for Small Farmers." Genetic Resources Action International, August 2002, 13.

22 E. Freeman, "Why Does Monsanto Patent Seeds?," http://www.monsanto.com/monsanto_today/2008/monsanto_patent_seeds.asp.

23 Monsanto Company Online, "Why Does Monsanto Sue Farmers Who Save Seeds?," http://www.monsanto.com/monsanto_today/for_the_record/monsanto_saved_seed_lawsuits.asp.

24 E. Freeman, "Settling the Matter" http://www.monsanto.com/monsanto_today/2008/saved_seed_settlements.asp.

poor countries because they want to recover the costs of their investments in biotechnology.[25]

This speaks directly to one of the biggest flaws in the argument for GMOs as cures for hunger. Florence Wambugu, the director of the International Service for the Acquisition of Agri-Biotech Applications, argues that "The African continent, more than any other urgently needs agricultural biotechnology including transgenic crops, to improve food production."[26] But GMOs will not "improve food production" if they can't thrive there.[27] For GMOs to truly do good, there would have to be significant investment by the African public sector to develop technology specifically for free use by African farmers. If those impoverished countries did start GMO development, their trade relationships with Europe that rely on producing GMO-free products would have to either dissolve, or Europe's stance on GMOs would have to change.

Food production problems are not the only reasons why people go hungry. In the article "Genetic Engineering is Not the Answer" Sean McDonagh argues that "Hunger and famine around the world have more to do with the absence of land reform, social inequality bias against women farmers and the scarcity of cheap credit and basic agricultural tools than with the lack of agribusiness super-seeds."[28] He cites the example of Brazil: they are world's third largest food exporter, yet one fifth of Brazilians suffer from hunger. The 2002 African crisis is yet another example of hunger caused by myriad reasons.[29] Noah Zerbe argues that ". . . [Africa] faced critical food shortages caused by a complex combination of factors, including climatic shocks, HIV/AIDS, structural adjustment, debt, collapsing public services, and poor governance."[30] It is obvious that GMOs do not offer a solution to all of these problems. Even GMO advocates admit that they are not a cure-all. Although Maarten Chrispeels believes GMOs are an important part of the solution to hunger, he readily admits that they are "only one tool."[31] Gregory E. Pence, a bioethics professor and proponent of GMOs, artfully explains, "How a tool is used depends on the person using it: a hammer can build a house or kill someone. So with GM plants."[32] It only makes logical sense that GMOs should be kept out of Africa now while they pose a threat to the very food security they are supposed to address. With their patenting and cost issues, GMOs can only exacerbate the economic and social causes of hunger in Africa.

If not GMOs, what? As McDonagh explained, there are many contributors to hunger that have nothing to do with actual crop yields. While food aid will probably continue to be needed by Africans, the world can begin to address in more earnest the underlying causes of hunger in Africa, particularly HIV/AIDS, residual debt, and failing public services. Instead of giving as much in-kind aid or cash, the U.S. could donate and build more efficient agricultural infrastructure like irrigation and water retention systems. Instead of subsidizing as much GMO corn, special subsidies could be made for non-GMOs, once again opening up the European market and ensuring non-GMO availability for emergency aid. In this way the U.S. would still be getting a return on their investment. Many experts also argue that there are alternative ways to address the low yield of typical African farms. For example, in the article "Linking Agricultural Biodiversity and Food Security: The Valuable Role of Agrobiodiversity for Sustainable Agriculture," Lori Ann Thrupp argues that sustainable practices such as crop rotation, integrated pest management, green manures, and cover cropping would boost yields while preserving the local ecology.[33] There are other studies that have found that intensified organic agriculture has the ability to increase crop yields without requiring the investment risk that high-input crops and GMOs need.[34] Essentially, alternatives to GMO cultivation abound. While the debate over biotechnology plays out in the developed world, Africa can turn to these alternatives to improve their food security.

The 2002 food crisis forced underdeveloped Africa to become embroiled in the world debate over GMOs. Armed only with data offered to them by the West, Africa had to make quick and difficult decisions about the future of food and agriculture there. When several African countries took issue with the GMO aid, the U.S. accused the E.U. of manipulating Africa with their fear of biotechnology. The E.U. accused the U.S. of using food aid as a political tool instead of humanitarian relief. The African countries claimed that the critical reasoning for rejecting the aid was to protect their fragile internal and export economies. Today, almost eight years later the world has been able to carefully review this situation. Hindsight and evidence prove that the African countries were right to refuse the aid. Patenting laws have not been redesigned to benefit small African farmers, and few publicly-funded GMOs have been developed for cultivation in Africa. Europe's position

25 Maarten Chrispeels, "Biotechnology and the Poor" Plant Physiology 124, 2000): 2.

26 Wambugu, "Why Africa Needs Agricultural Biotech," 15.

27 Ibid, 15.

28 Sean McDonagh, "Genetic Engineering Is Not the Answer" America, May 2005, 10.

29 Zerbe, "Feeding the Famine? American Food Aid and the GMO Debate in Southern Africa," 594 and Clapp, "The Political Economy of Food Aid in an Era of Agricultural Biotechnology" 472.

30 Zerbe, "Feeding the Famine? American Food Aid and the GMO Debate in Southern Africa," 594.

31 Chrispeels, "Biotechnology and the Poor" 5.

32 Gregory E. Pence, "Genetically Engineered Foods Will Help Stop World Hunger" in Genetically Engineered Foods, ed. Nancy Harris (San Diego, CA: Greenhaven Press, 2004), 59.

33 Lori Ann Thrupp, "Linking Agricultural Biodiversity and Food Security: The Valuable Role of Sustainable Agriculture," International Affairs 76, no. 2 (2000).

34 Catherine Badgley et al., "Organic Agriculture and the Global Food Supply" Renewable Agriculture and Food Systems 22, no. 2 (2006): 94 and Brian Halweil, "Can Organic Farming Feed Us All?," World Watch 19, no. 3 (2006).

on GMOs has changed little, and Africa's trade relationships with the European Union remain crucial. Yet, the dispute over GMOs continues to rage between the U.S. and the E.U. The world cannot allow this debate to be taken to Africa again. For now, the U.S. and the E.U. should provide non-GMO food aid when needed while Africa uses the variety of alternatives to GMO agriculture available. Until all facets of biotechnology including health concerns, patents, and trade relationships are resolved in favor of African people, GMOs must be kept out of their agricultural sector and food relief.

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