UNIVERSITY OF THE PEOPLE

POLS-01 GLOBALIZATION - AY2024-T3

WRITTEN ASSIGNMENT UNIT 7

INSTRUCTOR: MICHELE SIDONIE MFATCHEU KWETO

I will opt in favor of adopting genetically engineered (GE) crops or GMO in Africa.

"Genetically modified organisms (GMOs) can be defined as organisms (i.e. plants, animals or microorganisms) in which the genetic material (DNA) has been altered in a way that does not occur naturally by mating and/or natural recombination" (WHO, 2024).

FOLLOWING ARE THE REASONS WHY AND HOW GMO WOULD BENEFIT THE AFRICAN CONTINENT:.

IMPROVED FOOD SECURITY:

GE (Genetically engineered) crops have relatively more potential to boost yields and increase food production, which is a critical issue in sub-Saharan Africa. The region faces serious food security problems, exacerbated by factors such as over-reliance on rain-fed agriculture, conflicts, and insecure property rights.

CLIMATE CHANGE ADAPTATION:

GE crops can play a significant role in climate change adaptation. As the article describes that the intergovernmental panel on climate change (IPCC) expects yields to decline by 2% per decade due to climate change, while food demand is expected to increase by 14% per decade. GE crops can be engineered to be drought-resistant, pest-resistant, and tolerant to harsh environmental conditions, making them well-suited to adapt to the impacts of climate change in Africa.

INCREASED PRODUCTIVITY:

GE crops like bacillus thuringiensis (Bt) cotton and drought Gard maize have been developed to be disease-resistant, pest-resistant, and drought-tolerant, which can improve crop productivity in African countries.

REDUCED DEPENDENCE ON FOREIGN SUPPLIES:

There is a concern about dependence on foreign private sectors for GE seed stocks, but initiatives like the one funded by the bill and Melinda Gates foundation, the Howard G. Buffett foundation, and the US. agency for international development are supporting local production capacity in countries like Kenya, Mozambique, south Africa, Tanzania, and Uganda.

ADDRESSING POTENTIAL NEGATIVE IMPACTS OF GMO:

A. Concerns about safety: the article cites a meta-analysis that found no substantial difference between transgenic DNA and other DNA already present in food, addressing safety concerns.

B. Impact on trade: the article argues that current GE crops targeted for Africa are mainly for food security and climate adaptation, not for export crops like tea, cut flowers, or coffee. The impact on trade is likely to be minimal, except for a few exceptions like cotton in Egypt.

C. Compatibility with small-holder farm systems: while GE crops may require purchasing new seeds each year, the article suggests educating farmers on best practices for both hybrid and GE crops.

D. Dependence on foreign private sectors: supporting local production capacity, as mentioned above, can help reduce dependence on foreign supplies of GE seeds.

COUNTRY THAT COULD BENEFIT FROM HARVESTING GMO PRODUCTS:

In my point of view, Ethiopia is highly vulnerable to the impacts of climate change and would greatly benefit from adopting GE crops. As it is heavily dependent on agriculture, with over 80% of the population engaged in agricultural activities, and a significant portion of the land is rain-fed. Hence adopting these drought-resistant and

pest-resistant GE crops could help improve food security and adapt to the changing climate conditions in the country.

Ethiopia has already taken steps towards creating a biosafety framework, with the establishment of the national biosafety framework and the biosafety law in 2009. However, the implementation of the framework has been slow, and there is a need for further capacity building and public awareness campaigns to address concerns about GE crops.

By investing in the necessary infrastructure, regulatory frameworks, and public education, Ethiopia could harness the potential benefits of GE crops in improving agricultural productivity, enhancing food security, and building resilience to climate change impacts.

Wordcount: 581

REFERENCES:

Deressa, T., Pugliese, J., Kimenyi, M.S. (2014). Genetically Engineered Crops: Key to Climate Adaptation and Food Security in Africa. Brookings Institute. Retrieved from: https://www.brookings.edu/blog/africa-in-focus/2014/09/04/genetically-engineered-crops-key-to-climate-adaptation-and-food-security-in-africa/

World Health Organization (WHO). (2024, March 20) Food, genetically modified. https://www.who.int/news-room/questions-and-answers/item/food-genetically-modified