



A REVIEW ON GENETICALLY MODIFIED AND ORGANIC CROPS IN DEVELOPING COUNTRIES

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<p>Article Info</p> <p>Received 25/10/2013 Revised 15/11/2013 Accepted 18/11/2013</p> <p>Key words: Genetically Modified Crops, Farm Trials, Crops etc.</p>	<p>ABSTRACT</p> <p>The development of genetically modified crop varieties has raised a wide range of new legal, ethical and economic questions in agriculture. While organic crops are promoted as environmentally-friendly products in developed countries, they have provoked great controversy in developing countries facing food security and a low agricultural productivity. This article aims to review the main considerations and tradeoffs in field of genetically modified crops and their advantages over routine crops.</p>
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INTRODUCTION

Biotechnology is used almost in everything we now see in this world at some point or another [1]. Many countries have developed their technological strategies to improve their productivity in different fields. In developing countries where scientific and technological bases are weak and infrastructures are not strong, the formation of new biotechnology firms is mostly a strategic response rather than based on a real appreciation of environmental threats. Since the second half of the 1980s, when the first genetically modified (GM) organisms were introduced for the industrial production of medicinal products, there has been a heated debate over the applications of gene technology [2]. In addition, recent activities in the area of policy development have shown a growing recognition for the potential social and environmental costs imposed by GM crops. In most developing countries, farmers still do not grow any GM crops. The new EU regulation calling for strict labeling and traceability on all GM-derived foods and feeds will further discourage the planting of GM crops in poor countries [3]. Because of the potential risks of GM

crops, there is a growing debate which points to farmers to shift their farming method to organic farming (OF). The proponents of OF encourage farmers to stop GM production and implement OF [4].

However, because of certain concerns over OF, mainly being its lower productivity and therefore lower income, farmers, especially in developing countries usually do not accept this environmentally-friendly approach rather use GM. This article throws a light on both genetically modified and organic farming and the advantages and disadvantages both carries [5].

Genetically Modified Crops

The main advantage of GM food crops is their promise of future food security, especially for small-scale agriculture in developing countries [6]. Other advantages include higher yield, shorter growth duration, advanced pest management etc. The disadvantage includes doubts in people regarding safe food security, improved food quality and extended shelf-life. Belcher 2005 discussed that what impact biotechnology companies should take into their account for such crops [7]. Such advantages of GM crops would mitigate public hesitation about GM technology. Some researcher acknowledged the potential of plant biotechnology to improve plant breeding and crop

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production in developing countries [8]. Belcher, in 2005, said that the body of research examining the spatial aspects of contamination by GM crops is now growing [9]. A few researchers have currently been busy with the identification of effective and appropriate separation distances, and with developing criteria being used for the separation of GM crops from other sensitive crops to decrease the probability of cross-pollination to below a certain threshold level [10].

Organic Farming

Among many advantages of OF, the most common advantage is that might mostly be considered for small-scale farmers is their traditional knowledge of the natural environment that can be well-matched with it [11]. OF avoids chemical inputs which are generally expensive for small-scale farmers who have a livelihood farming system and earn normally much less than large-scale farmers who can afford expensive technologies [12]. Small farmers cannot easily eliminate the harmful effects of chemicals which normally need big funds to deal with. Yet, there is a fair amount of debate on whether or not OF is a lower-cost technology [13]. Organic Farming Research Foundation said that the main hurdle for transition from

conventional agriculture to organic is the major costs often involved in such a transition as it unavoidably increases the prices of the products, especially in developing countries where the agricultural sector is not independent in terms of producing the strategic products, farmer organizations are weak and lack of those organizations which can set up main organic standards with regard to quality control of the products and existing realities in farming systems [14]. Uzogara in 2000 discussed that GM has also the potential to improve the quality and nutritional value as well as increase the variety of food available for human consumption and waste management over OF [15].

CONCLUSION

Due to the possibilities offered by genetically modified technology in this new century, they are becoming very popular in different countries. This article focuses on the use, advantages and disadvantages offered by the genetically modified crops. Although such food is important and beneficial though it should be adopted under conditions that avoid potential risks. Time and effort must be devoted to on-farm trials before any interventions in this regard. This will enable to plan a strategy for improvement the quality and quantity of agricultural products in future.

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