

## Genetically Modified (Gm) Crops and Ethical Issues: Protection of Farmers' Rights

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### Abstract

The introduction of genetically modified (GM) crops does not only pose considerable risks to the environment and human health; but based on literature, there are debates involving contested ethical values and widespread scientific uncertainty of GM crops. Malaysia has established regulatory measures to ensure that the development of modern biotechnology, and more specifically of genetically modified organisms (GMOs), takes place in safe conditions. Various policies are relevant and applicable to GM crops. GM technology is recognised as one of the mechanisms to ensure food security in a sustainable industry through the National Agro-Food Policy for 2011-2020. As a signatory to the Cartagena Protocol on Biosafety, Malaysia has established regulatory measures to ensure that the development of modern biotechnology, and more specifically of GMOs, takes place in safe conditions. Nevertheless, the regulatory measures may not serve well to address and protect bioethical issues relating to farmers' rights specifically rights to livelihood arising from GM crops in Malaysia. There is still room for improvement in the regulatory measures especially on the bioethical issues relating to farmers' rights evident from the subsequent analysis. Therefore, this research is pertinent because it investigates the adequacy of the existing regulatory measures in protecting farmers' rights arising from GM crops in Malaysia as well as the bioethical issues in respect of farmer's rights arising from GM crops. This research applies doctrinal and non-doctrinal approaches, which the findings discover that the existing regulatory frameworks do not adequately address the bioethical issues of farmers' rights protection.

**Keywords:** Genetically Modified (GM) Crops, Ethical Issues, Protection, Farmers' Rights, Regulatory Measures.

## Introduction

Genetically modified (GM) crops present an exciting range of possibilities, from feeding the hungry to preventing and treating diseases; however, these promises are not without potential peril. The rapid and broad use by the American farmer of glyphosate-resistant soybeans and *bacillus thuringiensis (Bt)*-expressing cotton and corn attests to the commercial success of these GM crops.<sup>1</sup> Nevertheless, the introduction of GM crops does pose considerable risks to the environment and human health; and based on literature, there are debates involving contested ethical values and widespread scientific uncertainty of GM crops. It is important that the benefits and risks of this technology need to be evaluated according to the ethical criteria to guide human activities and relations in the social, economic and political spheres.<sup>2</sup>

Farmers' right to livelihood assumes the obligations and imposes legal limitations when they sign genetically modified organisms (GMOs) contracts, such as Monsanto's Technology Agreement. Common obligations include giving up the right to save seeds, opening their fields up to inspections by the company, and acknowledging that the company will be entitled to specified remedies if farmers violate the agreement (Monsanto, 2017). Under these contracts, farmers were asked to agree to several limitations, such as the limitation on the warranties available for the GM seeds and the limitation on the right to sue or seek resolution in the event of a dispute with the company. Biotechnology companies and seed companies require farmers to sign grower or technology agreements to maintain control over GMOs. These agreements generally give farmers the rights to use or "license" the GM seeds in exchange for complying with all of the company's production methods and management requirements. The farmers will not get an opportunity to negotiate the terms of the Technology Agreement, which is offered on a take-it-or-leave-it basis as part of the seed purchase. This shows that the GM seeds industry practises bio-hegemonic culture in the GM crops contractual agreements. As far as contractual justice is concerned, everything is in order; but the way it is practised, ethical consideration is not ethical. The farmers have no choice in buying the GM seeds, and the terms are one-sided in favour of seed companies. Law per se is valid and binding, but not on ethical issues as it is not fair justice to the farmers.

Farmers can also be potentially liable for GM crops contamination. This situation requires ethical principles because, legally, the contract is valid, but ethically it does not justice the farmers. Not only is genetic drift impossible to prevent, but inadequate regulation also fails to hold seed companies accountable for any resulting damage and ultimately puts the onus on farmers who became victims of contamination. Coexistence between organic, non-GM crops and GM crops production has become more difficult due to the potential for gene flow and commingling of crops at both the planting and harvesting levels. It has severe ramifications for organic and non-GM crops farmers that face economic harm due to lost markets or decreased crop values. If contaminated, farmers producing non-GM crops and

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<sup>1</sup> James, C. (1998). Global Review of Commercialized Transgenic Crops. ISAAA Briefs No. 8. Ithaca, New York: International Service for the Acquisition of Agri-Biotech Applications (ISAAA) in National Research Council (US) Committee on Environmental Impacts Associated with Commercialization of Transgenic Plants.(2002). Environmental Effects of Transgenic Plants: The Scope and Adequacy of Regulation. Washington (DC): National Academies Press (US) at <https://www.ncbi.nlm.nih.gov/books/NBK207491/> Retrieved in April 2022.

<sup>2</sup> The Nuffield Council on Bioethics (NCOB) in Weale, A. (2010). Ethical Arguments Relevant to the Use of GM Crops. *New Biotechnology*,27(5), page 583.

organic crops can also lose access to international markets. Besides the threat of economic harm from contamination, farmers who unintentionally grow patented GM seeds or harvest crops cross-pollinated with GM traits could face costly lawsuits by biotechnology firms for seed piracy.

The New York University (NYU) School of Law's Center for Human Rights and Global Justice (CHRGJ) released a report examining human rights concerns surrounding farmer suicides in India (Center for Human Rights and Global Justice, 2019). The result of the report is that many smallholder farmers are faced with growing despair and indebtedness because they have been forced to buy into a system that does not benefit small farmers. This ultimately leads to the loss or degradation of their land and livelihoods, which means that implementing industrialised agriculture with GM crops constitutes a violation of their right to productive employment.

GM crops contamination is well documented. According to the International Journal of Food Contamination, almost 400 cases of GM crops contamination occurred between 1997 and 2013 in 63 countries.<sup>3</sup> In the case of *Hoffman v. Monsanto*<sup>4</sup>, the organic farmers had three major complaints against Monsanto and Bayer with respect to alleged damage due to uncontrollable and ongoing genetic contamination of canola crops and fields caused to their organic canola crops by Monsanto's and Bayer's GM varieties of canola. The court ruled out nearly all of the plaintiffs' arguments because it was "*plain and obvious*" they had no "*reasonable prospect of success.*" In this case, farmers have been held liable under the law of tort which is negligence for pesticide use when the pesticide drift and encroaches on neighboring lands.<sup>5</sup>

It has serious ramifications for organic and non-GM crops farmers that face economic harm due to lost markets or decreased crop values. If contaminated, farmers producing non-GM crops and organic crops can also lose access to international markets. Besides the threat of economic harm from contamination, farmers who unintentionally grow patented GM seeds or who harvest crops that are cross-pollinated with GM traits could face costly lawsuits by biotechnology firms for seed piracy. Hence, even if the motive of planting GM crops was to do good, there needs to be a balance between these two principles and expect both benefits and risks.

The adoption of the herbicide and pest resistant GM crops has placed extreme economic pressure on many smallholder farmers. Many of these farmers live at or below the extreme poverty line,<sup>6</sup> and are not able to afford the cost of licensing the seeds or the expensive chemical inputs that are required, such as fertilisers, herbicides, and insecticides.

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<sup>3</sup> GM Contamination Register (2014). [<http://www.gmcontaminationregister.org>] GM Contamination Register (2014). Retrieved May 2022.

<sup>4</sup> *Hoffman v. Monsanto* [2005] S.J. No. 304.

<sup>5</sup> Holmberg, M. (2010). I-P crops: Mission impossible; problems in producing non-genetically modified identity-preserved crops. *Successful Farming*. Retrieved June 2022, from <http://business.highbeam.com/1131/article-1G1-71888203/p-crops-mission-impossible>; Hamilton, N. (2001). Legal issues shaping society's acceptance of biotechnology and genetically modified organisms. *Drake Journal of Agricultural Law*, 6, 81-115.

<sup>6</sup> IFAD, (2013). *Smallholders, Food Security, and the Environment* (Rome: International Fund for Agricultural Development, 6.

Some sources dispute the causal link between indebtedness and suicide, and point instead to an array of complex social pressures,<sup>7</sup> other reports detail a general decline in productivity among GM crops and the overall failure of those crops to live up to the promises of increased yields and decreased costs.<sup>8</sup> This leads ultimately to the loss or degradation of their land and their livelihoods, which means that the implementation of industrialised agriculture with GM crops constitutes a violation of their right to productive employment.

The reason for protecting farmers is because it involves human lives, which should all be respected. Ethical issues arising from GM crops involve farmers, scientists, ecosystems, animals and plants which make matters regarding GM crops more complex.<sup>9</sup> This ethical values discussion leads to bioethical concerns arising from GM crops technology. However, these bioethical issues are not addressed comprehensively in the biosafety regulatory measures. Recently, in Malaysia, there was a case where fruits from Cameron Highlands were exported to China. Checks were conducted and the fruits were rejected as they were found to be LMO products. The National Biosafety Board (“the Board”) took note of the incident and ordered the fruit trees not to be planted anymore. This incident impacts the livelihood of the local farmers as they lose their income as a result of the return of the fruits.

The National Biosafety Board (“the Board”) took note of the incident and ordered the fruit trees not to be planted anymore. This incident impacts the livelihood of the local farmers as they lose their income as a result of the return of the fruits. Hence, this research’s objectives are:-

- To identify the bioethical issues relating to GM crops that affect the farmers' rights
- To analyse the extent of the related legal framework, policy and good practices in assessing the ethical issues of GM crops in protecting farmers' rights
- To discuss the current legal frameworks to assess the bioethical issues of GM crops in protecting farmers' rights

## **Method**

This study incorporating both doctrinal and non-doctrinal approaches. As the nature GM crops and bioethics is multidisciplinary, incorporating various elements of philosophy, biotechnology, public policies and law, this study maintained the necessary multidisciplinary approach dictated by the subject.

The methodology used in this research is the research methodology that this study has applied incorporating both doctrinal and non-doctrinal approaches. As the nature GM crops and bioethics is multidisciplinary, incorporating various elements of philosophy, biotechnology, public policies and law, this study maintained the necessary multidisciplinary approach dictated by the subject.

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<sup>7</sup> Ibid.

<sup>8</sup> Samruddha, S. (2010). Brief Review of Bt Cotton in Karnataka. [https://jis-online.org/2017/04/21/gmos-as-potential-human-rights-violations/#\\_ftn32](https://jis-online.org/2017/04/21/gmos-as-potential-human-rights-violations/#_ftn32). Retrieved in April 2022.

<sup>9</sup> Murphy, D. (2007). *Plant Breeding and Biotechnology: Societal Context and the Future of Agriculture*. Cambridge: Cambridge University Press.; See also Thompson, P. B., & Hannah, W. (2009). Food and agricultural biotechnology: A summary and analysis of ethical concerns. *Advances in Biochemical Engineering/Biotechnology*, 111, 229–264.

This study has gone beyond doctrinal research. It firstly utilised library-based research by exposing ideas from philosophy, bioethics, GM crops and farmers' rights debates, the sciences and the historical development of farmers' rights theory. It then went further to analyse the relationship between those ideas and the development of law particularly involving farmers' rights protection in Malaysia. It next grasped aspects of the theoretical approach by considering an bioethical approach to justify protection of the protection of farmers' rights. Taking into consideration the fact that the need for food security and farmers' protection arising from GM crops are different between societies and jurisdictions, this research employed the interview method to further investigate the actual scenario with regard to the legal status of farmers' rights in the Malaysian jurisdiction. Incorporating the data derived from literature and fieldwork, this study also utilised a reform-oriented approach which later offered suggestions and recommendations designed to enhance the protection of the farmers' rights arising from GM crops in Malaysia.

## Results and Discussions

Article 10(6) of the Cartagena Protocol on Biosafety	Lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of a living modified organism on the conservation and sustainable use of biological diversity in the Party of import, taking also into account risks to human health, shall not prevent that Party from taking a decision, as appropriate, with regard to the import of the living modified organism in question as referred to in paragraph 3 above, in order to avoid or minimize such potential adverse effects
Section 35 of the Biosafety Act Malaysia	The Board or Minister shall not be prevented from taking a decision, as appropriate, under Part III or Part IV, where there is lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of living modified organisms or products of such organisms on human, plant and animal health, the environment and biological diversity and may also take into account socio-economic considerations
Regulation 25(b) of the Biosafety Regulations 2010	Provides for the inclusion of ethical issues as part of the socio-economic consideration under section 35 in relation to bioethical issues to farmers' rights.

Article 10(6) of the Cartagena Protocol Biosafety reads in full as follows:

“Lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of a living modified organism on the conservation and sustainable use of biological diversity in the Party of import, taking also into account risks to human health, shall not prevent that Party from taking a decision, as appropriate, with regard to the import of the living modified organism in question as referred to in paragraph 3 above, in order to avoid or minimize such potential adverse effects.”

Meanwhile, Section 35 of the Biosafety Act 2007 states as follows:

“The Board or Minister shall not be prevented from taking a decision, as appropriate, under Part III or Part IV, where there is lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of living modified organisms or products of such

organisms on human, plant and animal health, the environment and biological diversity and may also take into account socio-economic considerations.”

From the above provisions, it seems that the words “in order to avoid or minimize such potential adverse effects” found at the end of Article 10(6) are not included in Section 35 of the 2007 Act. Section 35 does not seem to command the Board or the Minister to take appropriate action or to make appropriate decision to protect against the potential adverse effects, which is fundamental in the dimensions of the principle of the Precautionary Principle. Even though both provisions allow an ‘appropriate’ decision to be made by the relevant authorities even when there is a lack of scientific certainty, the measures and methods to quantify the appropriateness is not provided by both provisions. Article 10(6) of the Biosafety Protocol deemed that “appropriate” can be considered to avoid and potential risks of the LMOs. However, the term of appropriate under Article 35 is remained silent as whether it refers to potential risks of GMOs.

This could mean the Board may make any decision even though it might be potentially harmful but economically preferred on the basis that there is a lack of scientific certainty. For example, if there is insufficient scientific knowledge to show plantation of GM crops might possibly affect farmers’ right to livelihood, then literally according to Section 35, a decision to approve an application to plant is legal even if it is proven to be unfavourable to farmers’ rights ten years from that time simply because it is appropriate to Malaysia’s agriculture and food security demands then. If this is the justification for the missing of the end sentence of Article 10 in Section 35 of the 2007 Act, then it is a distortion of the Precautionary Principle to safeguard the farmers’ rights.

Consequently, even though Section 35 allows Malaysia to prohibit the importation of LMOs or the product thereof irrespective of whether there is any scientific basis for the refusal when it deems fit if such importation may adversely affect the socio-economic activities and interests in Malaysia, this is only a probability rather than certainty as the ‘objective’ of “avoiding or minimising such potential adverse effects” is absent in the 2007 Act.

Relevant issues highlighted in the literature review concerning the scope of socio-economic considerations pertaining to farmers shall serve as a form of guideline in analysing Malaysia's compliance with regard to socio-economic considerations under Section 35 of the 2007 Act. One of the main concerns driving the inclusion of bioethical considerations is farmers' ability to cross-breed their own crops, save and exchange seeds with their peers. The introduction of GM crops has a negative impact on employment and indebtedness, with extreme cases leading to farmer suicide. These are bioethical considerations. Regulation 25(b) of the 2010 Regulations provides for the inclusion of ethical issues as part of the socio-economic consideration under section 35 in relation to bioethical issues to farmers' rights. However, this section does not fully explain the specific requirements of such consideration. Despite these two provisions, the new legal framework is rather hazy on the definition of bioethical issues, as it was not explicitly clarified.

Not only is the definition problematic, but Section 35 and Regulation 25(b) are silent on the scope and types of bioethical issues concerning GM crops. Aside from addressing religious dietary issues to justify Section 35, the Board and the Department of Biosafety have indicated that socioeconomic considerations could also cover any ethical issues affecting the production and use of genetically modified crops. These ethical issues have not been developed and remain elusive. As Section 35 remains unclear, one of Malaysia's most prominent NGOs believes that the Department of Biosafety should define the scope of socioeconomic considerations and ethical issues. In this regard, it should be noted that the Department is working on developing a regulation or guideline to address issues involving socioeconomic considerations in due time.

### **Conclusion**

There are some reasons to be cautious about explicitly protecting bioethical issues in regulatory measures, it is argued. Unlike safety and efficacy, where people can generally agree on what is a good or bad outcome, there is more room for disagreement on what constitutes a good or bad moral or social effect. Bioethical risks are more intangible, as well as more difficult to define and quantify, and thus do not lend themselves to the same quantitative analyses and validation that regulatory agencies use to determine safety or efficacy. Bioethical issues, like other societal factors, are not fixed in time and tend to shift rapidly with changes in technological capabilities. In this case, the bioethical principle of distributive justice, which is closely related to the allocation of scarce resources, can be applied to the above situation to examine whether farmers' right to livelihood is ethically violated in relation to GM crops.

The findings of the paper indicate the extent to which the Malaysian regulatory measures are able to address and preserve bioethical concerns regarding the rights of Malaysian farmers, in particular their rights to livelihood that are related to GM crops. Amongst the identified regulatory lacunae includes, primarily, the lack of coordinated regulatory capacity for GM crops and failure of framing the scope of socioeconomic considerations and ethical issues embedded in Section 35 of the Biosafety Act 2007. The legislative conspectus assists in ensuring that the authorization procedures concerning GM crops achieve a high level of protection to human, animal and environmental health and that the law adjusts to the *mores* of society, informed by the years of cultivation and regulation of GM crops.

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