

*Full Length Research Paper***AGRICULTURAL BIOTECHNOLOGY AND ETHICAL ISSUES**

Ashwini A

Faculty, Dept of Horticulture,

Bharatiya Engineering Science & Technology Innovation University, Andhra Pradesh, India.

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Abstract

Moral or ethical values are deeply held beliefs about what is right and wrong. Ethical issues arise when these values conflict with one another over an action, policy, or technology. Ethical issues can be personal. I can have a conflict about whether I should repay a debt to a friend when I know that he will use the money to feed his gambling addiction. Ethical issues associated with agricultural biotechnology, however, are social, people have beliefs about biotechnology that conflict with those of others.

Environmental and food safety issues arise because some people think that biotechnology is ethically right, while others think it is wrong. These views are based on different predictions of the impacts of biotechnology. There are other similar issues in this regard. For example, what will be the impacts on peasant farmers in poor countries? How will biotechnology affect global trade? In time, these issues may disappear as we become more experienced with biotechnology and as scientists become better able to assure opponents that biotechnology provides benefits without any significant risks.

Keywords: Ethical issues, transgenic technology, biosafety of plant biotechnology

Introduction

Through the advancement of technology, scientists have been able to develop more precise and powerful tools to produce crops and animals with selected traits that aim to benefit farmers and consumers. While merely a scientific tool, biotechnology has instigated worldwide debate and confusion as a result of mixed messages from various people like scientists, academics, activists, industry, religious representatives or consumer bodies. The worldwide debate on the pros and cons of biotechnology has been likened to a battleground and a prominent place for virtually every ethical concern. It has stirred conflicting ideas and opinions and has polarized sectors not only among stakeholders but even between countries. While agriculture has long been a topic of philosophical, religious and political reflection, it is only in the late 20th century that systematic thinking about the values and norms associated with the food system, such as farming, food processing, distribution, trade, and consumption, began to be discussed in the context of agricultural ethics (CAST, 2005) ^[1]. In addition, by placing biotechnology in the light of globalization, societal debate has moved towards a discussion of ethical and social impacts (Paula, 2001) ^[6].

In 2000, the Council of Europe Parliamentary Assembly recommended that it was increasingly important to include ethical considerations centered on humankind, society and the environment in deliberations regarding developments and applications in biotechnology, life sciences and technology. A year later, the United Kingdom's Royal Society Report asserted that "public debate about genetically modified food must take account of wider issues than the science alone (Kinderlerer and Adcock, 2003) ^[4].

What are agricultural ethics?

In general, 'ethics' is defined as the ideals, values or standards that people use to determine whether their actions are good or bad. It is what society uses to judge whether an issue or thing is acceptable and justifiable and determines responsibility and justice (Thompson, 2001) ^[7]. It answers the question "Is an action right or wrong?" On one hand, ethics is a set of universal norms that are documented through legal or professional codes of practice, religious texts, literature and philosophy. On the other hand, ethics are values defined by a person or groups that are personal, introspective, and hence, difficult to manage for public discussion (Thompson, 2001) ^[7]. Given the range of cultural diversity, it is expected that people would react in different ways to certain issues and concerns.

Ethics in agricultural biotechnology therefore encompass value judgments that cover the production, processing, and distribution of food and agricultural products.

The Food and Agriculture Organization of the United Nations asserts that ethical values determine its reason for being -these being the values for food, enhanced well-being, human health, natural resources, and nature (FAO, 2001) ^[2]. CAST (2005) ^[1] notes that ultimately the goal of agricultural ethics is to "discover or develop clear, noncontradictory, comprehensive, and universal standards for

judging right and wrong actions and policies."

What are some ethical issues raised about agricultural biotechnology?

Many of the ethical issues that form part of the biotechnology debate can apply also to food and agricultural systems in general. Accepting the need to understand and tolerate societal norms or beliefs, many statements of concern are often general and broad with little explanation about what makes them disagreeable or wrong. The following are examples of issues more clearly articulated by Kinderlerer and Adcock (2003) ^[4]; CAST (2005) ^[1]; the Food and Agriculture Organization of the United Nations (2001) ^[2], and Thompson (2001) ^[7].

"Playing God"

Genetic modification is said to involve human intervention into creation and hence, is an unnatural act. Often viewed as a religious question, it avers that the technology is "so intrusive to life processes that they amount to a form of disrespect for humanity's proper relationship to nature, a form of playing God" (Comstock cited by CAST, 2005) ^[1]. Some religions ascribe a particular "essence" to each living organism and hence, connect the concept of gene with the idea of essence. Others believe that biotechnology disrupts natural order and violates the limits of what humans are ethically permitted to do. Alternatively, there is the view that science and progress are good things and are God-given faculties to help mankind support life and better manage the environment.

Religion and Agricultural Biotechnology

The religious sector, notably the Roman Catholic Church and the Muslim faith, have voice their views on biotechnology. To the Muslims, biotechnorogy is discussed from a religious perspective when it entails a discourse on food. The general criterion for any food to be consumed by Muslims are known as *halalan tayyiban* that means "permissible from the *shariah* perspective (*hala/*) and of good quality (*tayyib*)". In the case of GM food, as long as it meets these two criteria, then it may be consumed by Muslims.

Using the *halal* criterion, GM food that contains DNA from prohibited animals that cannot be consumed by Muslims, cannot be eaten by Muslims. In Malaysia, there is a *fatwa* (religious decree) that states that GM foods with DNA from pigs are *haram* (not permissible) for Muslims to eat. To date, only this *fatwah* has been issued (MABIC, 2004) ^[5].

The Jubilee of the Agricultural World Address of John Paul II in 2000 mentioned that in agricultural production or in the case of biotechnology, it must not be evaluated solely on the basis of immediate economic interest but through rigorous scientific and ethical examination. (Vatican, 2000) ^[8]. By October 2004, the Pontifical Council for Justice and Peace released the Compendium of the Social Doctrine of the Church, which is an "overview of the fundamental framework of the doctrinal corpus of Catholic social teaching." Biotechnology is mentioned as having powerful social,

economic, and political impact but that it should be used with prudence, objectivity, and responsibly (Vatican, 2004) ^[8].

General Welfare and Sustainability

A central issue is whether the technology considers of the greatest good together with the concept of sustainability. While a technology can provide more food it should not be to the detriment of the environment or to human health or disrupt traditional behavioral systems. In like manner, it is an ethical issue if food that can provide more and better nutrition is not made available to those who need it most. Hence, not to use a technology that has potential to improve the quality of lives of people is also a moral issue. As an environmental issue, questions raised have to do with concerns regarding environmental protection, sustainable use of biodiversity, economic growth and social equity.

Distribution of Benefits and Burdens

A concern particularly in developing countries is the concept of just distribution. Questions have to do with whether the products produced by the technology will be able to provide for those who really need it and whether it will generate wealth for the society as a whole. A technology's ability to increase or decrease the gap between the rich and poor renders it an ethical issue. This includes allegations that products derived from modern biotechnology are being introduced by private companies that have an obligation to make profits. Also, whether a technology, while able to increase technical employment might eliminate subsistence labor as a result of replacing cultural operations. Other concerns include exploitation or control over genetic resources, consumers' choice and rights, and use of genetically modified animals.

How do we deal with ethical issues?

FAO (2001) ^[2] recognizes that there is no single set of ethical principles sufficient for building a more equitable and ethical food and agricultural system. However, it recommends the following actions that individuals, states, corporations and voluntary organizations in the international community can take:

- Creating the mechanisms to balance interests and resolve conflicts
- Supporting and encouraging broad stakeholder participation in policies, programs, and projects
- Encouraging individuals, communities and nations to engage in dialogue, and ultimately, to do what is ethical
- Developing and disseminating widely the information and analyses necessary to make wise and ethical decisions
- Ensuring that decision-making procedures in international food and agriculture policy are well understood and transparent

- Fostering the use of science and technology in support of a more just and equitable food and agriculture system
- Ensuring that programs, policies, standards and decisions always take ethical considerations into account so as to lead to enhanced wellbeing environmental protection and improved health
- Developing codes of ethical conduct where they do not currently exist.
- Periodically reviewing ethical commitments and determining whether or not they are appropriate, in the light of new knowledge and changes in circumstances.

CAST (2005) ^[1] suggests the need to institutionalize agricultural ethics. This involves a deliberate move to include some consideration of ethics in the actions, decisions, and policies that stakeholders in the food system create or support. Each stakeholder has to "accept the fact that that if ethical issues are going to be understood, and if ethical conflicts are going to be resolved, it is our responsibility, within the limits of our place in the system, to understand and contribute."

Conclusion

Despite the diversity of ethical issues in agricultural biotechnology, there is a need to understand beliefs and doctrines as this allows coexistence within and across societies, and prevents social conflict. A technology's acceptance is based not only on technological soundness but also on how it is perceived to be socially, politically, and economically feasible from the viewpoint of disparate groups. An understanding of ethics helps determine what information is needed by society and how to deal with different opinions. A process of negotiation based on trust is essential to enable stakeholders to participate in debates and decision-making.

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