Biotechnology and genetic modification of crop plants research paper

Environment, Plants

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Introduction

Science contributes a lot in different pillars constituting the modern generation life form. Biotechnology is one form of science application in modern times. The process had been there since the early ages when man realized he could plant and breed his own animals to cater for food. As time goes on, new techniques and innovative ideas in this field keep on flourishing in the modern society. This form of innovation keeps on illuminating new ideas into the society on how we could explore different options to acquire the same ends. For example, let us look at plants, they make more than half of the food for human beings and provide them with medicine, clothing and building materials among other things. Without biotechnology, this could not have been possible. This paper seeks to discuss the importance of biotechnology in genetically modified crop plants, its implications both social and ethical.

Analysis of the technology

Biotechnology brings into consideration different types of ideas. Some people think of animal breeding while others think of new ways to provide more crops for consumption due to the rising population factor.

Biotechnology refers to " the application of living organisms or their products to better the human health or surroundings" (Peters, 1993). From this basis, one can gather that the process is built on scientifically relevant and accepted ideas. The process is biological from its inception to the product rather than engineered.

Genetically modified crop or plant process involves the manipulation of plants or crops genetic composition by adding specific useful genes that could reduce the plant's vulnerability to any external effect trying to deter it from generating optimum yield (Peters, 1993). These special genes contain information, which determines certain characteristics of trait.

There are many reasons why one would prefer to introduce genetically modified crops into his or her farm. Modification of plants through genetics accomplishes many things, which help enhance the plants productivity. First, it offers plants with traits that help them flourish in their designated climate zone. This reduces risks of crops dying due to climatic errors. Another accomplishment of genetically modifying plants is that, it accelerates the products performance. This means that, when a genetically modified crop is planted within areas that are in conformity with its traits, the chances of the crop increasing its yield are amplified (Kempken, 2010). In addition to this, such crops that have been modified have the potential to stay in farms for longer thus giving them time to ripe properly. This is unlike common

traditional species, which end up rotting before harvest is complete.

According to scientific principles, every living organism has genes within their DNA strands that characterize their productivity. Through this principle, scientists found out that they could introduce new foreign genes with enhanced characteristics to increase the viability of plants. A good example is that, scientists could take genes from pesticide resistant bacteria and insert it on plants. The plant will acquire these gene codes thus able to also withstand from pesticides that are harmful to their development (Peters, 1993). This principle has helped scientists modify plants and animals to increase their survival.

The production and distribution of genetically modified crops in the world's food chain has brought many controversies. These issues have been propelled by either social or ethical issues. For precise details, we are going to discuss these two issues differently.

- Ethical Issues

It is important for governments and other national stakeholder institutions which make policies consider the general welfare of their citizens. When considering this principle, many critics have hit out on the production of genetically modified crops. Some are still wondering on how the crops will promote gender welfare. It is through the reduction of the use of pesticide or the increased safety of the food. The unknown side effects of such foods are also another concern which arises from the gender welfare perspective. Over the years, the environment has also been regarded of vital importance on people's welfare (Peters, 1993).

The rights of consumers and farmers must also be respected. What if the

farmer prefers the tradition mode of crop production? Some consumers also prefer to consume crops, which have not been genetically induced. Farmers especially from third world countries have been known to question the sustainability of modified crops (Sandler and Cafaro, 2005).

Finally, it is also ethical for justice to be done when it comes to sharing the benefits and disadvantages brought forward by this new technology. People tend to shift blame when consequences start showing up while, on the other hand, major stakeholders are always reluctant to share equally when the technology is a success. These are three of the most important ethical issues that are faced with genetically modified crop reception.

- Social implications

Most social implications that are brought forward concerning genetically modified foods have everything to do with safety. This requires safety rules and testing guides well adhered to by stakeholders supporting such crops. Safety reasons have indicated just how much the society ought to deal with such cases of food modification in the future (Sandler and Cafaro, 2005).

The question concerning the need for genetically modified food is another concern that arises in the social context. Many people suggest that food shortage is experienced due to political or economic barriers since there are many small-scale diverse farms doing well across the globe. This has created a lot of rejection of such foods in the social context as they see it as another scheme of the elite to make money.

In addition to these implications concerning the technology, there are known risks, which are posed by it. People have reported no record of side effects concerning genetically modified foods despite claims. Although this is

important, it leaves scientists in the dark in case an outbreak occurs. Furthermore, most people may end up being affected if such an event occurs. On the other hand, there are benefits which have been known to be generated by modifying crops. It increases food supply optimizes yield, reduces maintenance cost on the side of buying pesticides and helps improve economic growth (Sandler and Cafaro, 2005).

As time passes on, new technological ideas come to pass. Genetic modification of crops is one such example. The process just like any other invention will have its flaws, but as of now no reported side effects exists. This makes me, not question but accept the benefits the innovation brings in terms of food supply, economic growth and scientific progress.

Conclusion

Genetic modification of plants is an innovative technology, which holds many benefits if well strategized and utilized within the social context. We have many people dying of hunger due to prevalent droughts and erratic climatic conditions. This is due to unsustainable traditional crops that cannot sustain under such conditions. Biotechnology offers a process, which we could counter such calamities and increase our safety levels through food production. It is a high time that farmers and consumers are educated on the importance of such crops at these times that are dynamic.

References

Peters, P. (1993). From Biotechnology: A Guide To Genetic Engineering. Iowa: Wm. C. Brown Publishers Inc.

Kempken, F. (2010). Genetic Modification of Plants. New York, NY: Springer

Publishers.

Sandler, R & Cafaro, P. (2005). Environmental Virtue Ethics. Boulder, CO:

Rowman and Littlefield Publishers.