

Modern bio technology and its role in the world economy

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Biotechnology is a process that involves the usage of living organisms and systems for the development of products, or refers to any technological applications that utilizes biological systems. Furthermore, the living organisms may be used for the modification of products for a specific use. There are several types of bio-technology and these include medical, agricultural and industrial. The medical biotechnology involves the use of microorganisms such as yeasts and bacteria, transgenic animals and plants, enzymes or other biological substances for the processing of synthetic hormones, drugs, and bulk foods.

Agricultural biotechnology can be divided into crop production biotechnology and animal production biotechnology. The former uses modern techniques such as the transfer of different genes from a high developing variety of a certain crop. The main ideology is to improve the yield of crops, and reduce the vulnerability of plants to certain conditions.

Furthermore, the process leads to an enhancement in the quality and quantity of nutrients. On the other hand, the later process is the application of engineering and scientific biotechnologies for the creation of transgenic animals. Finally, the third group of technology involves the industrial process whereby the use of the above technology help increase production at different levels for the betterment of mankind. Hence, the above processes are a clear illustration of the relationship between biotechnology and the economy. Many authors label biotechnology as an illustration of the “new economy”.

As mentioned above, biotechnology has several positive impacts on the economy as it is a fairly new industry. Hence, it is a new employment sector as some states such as North Carolina experienced employment growth rates of approximately 23% in this industry (“Biotechnology”, 2010). This is an indication of the impact the industry has in many different parts of the world that are introducing biotechnology. In fact, studies in the United States alone illustrate that biotechnology jobs were the highest among all the biosciences

between 2001 and 2010 (“Biotechnology”, 2010). The main industries are related to biotechnology include research, pharmaceuticals and drugs, medical and testing labs, and agricultural chemicals and feedstock. In essence, the new industry of biotechnology is leading to an extension of other business sectors that are also increasing the number of jobs available.

Furthermore, there was evidence provided of the benefits of biotechnology in many summits such as BIO 2009 (“Types of Biotechnology”, 2015). Data at this summit illustrated that the majority of farmers throughout the world are increasing their crop yield as a result of biotechnology. Additionally, the inclusion of this process in farming was increasing the environmental and economic benefits. For example, farmers could increase the amount of crops, which would result in an increase in the amount of exports. Farming is also an industry that is not entirely dependent on the farmer as several external factors may also play a role in the process of farming (“Types of Biotechnology”, 2015). For example, there are some environmental factors that may lead to the destruction of crops such as pests or different weather conditions. However, the use of technology will significantly improve the crop yield and lessen the influence of the risk factors. In short, there are several countries that are dependent on agriculture as their main source of exports and investment. Hence, technology is improving the success of such economies.

Other benefits of biotechnology are a reduction in the amount of environmental pollution and the amount of expenses incurred by the farmer. Specifically, studies illustrate that the farmers use less fuel for the farming process, and this makes a significant contribution to the reduction in the amount of greenhouse emissions. The reduction is because of the use of less fuel and there is additional soil carbon storage from the reduction in tillage. Studies in 2007 illustrate that the reduction of carbon emission from the use of biotechnology was similar to removal of over six million cars from the road (“Agricultural Biotechnology”, 2015). Currently the world economies are aiming towards a green world.

This means a reduction in the amount of pollution in the atmosphere, which makes the use of biotechnology an attractive feat in this aspect. Additionally, studies illustrate that biotechnology reduces the amount of pesticide usage by over 350 kilograms (“Agricultural Biotechnology”, 2015). This is an eight percent reduction of pesticide use over the last ten years. Hence, this is also advantageous in the reduction on the impact on the environment (“Agricultural Biotechnology”, 2015).

In essence, the net economic benefits for farmers because of the use of biotechnology in 2007 were found to amount to approximately \$10 billion (“Agricultural Biotechnology”, 2015). Furthermore, since 1996, the benefits are over \$40 billion, and approximately forty-six percent (\$20.5 billion) was because of an increase in the crop yield and the remainder due to a reduction in production costs (“Agricultural Biotechnology”, 2015).

In short, biotechnology has numerous benefits to world economies as it increases the amount of yields, reduces production costs and increases the profits from farming. There are also some benefits in the reduction of environmental pollution that usually occurs as a result of farming.

References

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