

Understanding BIOTECHNOLOGY

Biotechnology is defined as any process that uses living organisms or parts of living organisms to make or modify a product, improve plants, tress, animals, or microorganisms for specific purpose. It comes from the latin word, bios + techne + logia = Biotechnology. The improvement of crops, making of bread, cheese , beer and wine, were the earliest forms of biotechnology.



A lot of the things that we eat, clothes that we wear and fuel come from crops that were initially found in the wild. If these crops were not improved through the years, they would not have provided and met our needs for food, clothing and energy. Through traditional biotechnology, plant breeders were able to develop new and improved crops. However, the methods they used took long periods of time before these scientists got the desired characteristics and results. To suit man's needs, scientists developed more precise techniques requiring shorter gestation time in coming up with better products.

Plants and animals have a chemical recipe in their cells that dictates the appearance and the role of each cell and the organism as a whole. That recipe is called the DNA or deoxyribonucleic acid. DNAs are substances that make up the genes. Through modern biotech, important traits from a related or unrelated organism can be isolated and transferred to a plant or animal that needs the trait. Genes can likewise be turned on or turned off to improve it's own characteristics without inserting genes from other organisms. It is like changing one of the ingredients in this recipe to make the dish better. DNA contains two strands wrapped around each other in a helix, and these are strands connected by molecules called nucleotides. Nucleotides determine the type of protein the organism produces. Developing Genetically Modified (GM) crops requires experts' skills and knowledge about biotechnology. Scientists are continually updated with the latest trends and techniques in biotech.

A genetically modified (GM) crop is also called a transgenic crop or biotech crop. Biotech crops produced in the lab does not immediately go to the market. It has to undergo long and rigorous process of tests and consultations to make sure that the GM crop is safe for humans, animals, and the environment and take several years to finish. Biotechnology started in 1996. Biotech crops have been planted all over the world. Soybean, corn , cotton and canola are the most planted biotech crops. There are still other crops that are being developed in the field and lab as well. In summary, increase in farm yield, increased farm income, lesser use pesticides, use of environment-friendly farming practices, better health and peace of mind for the farmers are the documented benefits of biotechnology.

As of 2011, 16.7 million farmers in 29 countries planted biotech crops in 160 million hectares of land. Argentina, USA, Brazil, India, Canada, Pakistan, South Africa, Paraguay, China and Uruguay are the top 10 biotech crop producing countries.

According to the International Service for the Acquisition of Agri-biotech Applications (ISAA), the world population is about 7 billion in 2011. Feeding 7 billion mouths every single day is a huge task for farmers. The world population is expected to be 9.2 billion in 2050. Thus the experts predict that agriculture must double its food production to feed the increasing world population.