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“Global food security and food safety:
The role of universities”

Role of Biotechnology in the Prosperity and Food Security through Sustainable Agriculture in Developing World

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Abstract

Biotechnology is a modern science that deals with the biological process through which technological innovation can be achieved and subjected to deliver goods and services for the benefit of human being. Biotechnology is making it possible for researchers and developers to deliver products that help farmers protect their crops and livestock; and improve the economy and environment while grow grains, develop dairy products that improve the quality of the food we eat. Biotechnology will enhance quality of life in many ways, while helping the environment by reducing our dependence on non-renewable resources. The most common reproductive biotechnologies include, semen processing, cryo-preservation, vitrification, sexing of sperm and embryos, artificial insemination, embryo transfer, *in vitro* fertilisation, cloning, transgenesis, juvenile *in vitro* embryo transfer, chimera production, multiple ovulation and embryo transfer, aspiration of oocytes from the live animals and zygote intra-fallopian tube transfer. In the developing world these modern technologies have yet to play their due role in different areas especially in the fields of agriculture, medicine, dairy industry, environment and especially for food security. Previous experience suggests that few will have widespread impact on developing world's domestic animal and agricultural production. Nevertheless, the challenge has been, and will continue to be, for researchers to find ways of manipulating biotechnologies for improved production and food security. The application biotechnologies will help researchers, scholars, engineers, resources managers, students, policy-makers, and all those interested in agricultural and environmental sciences. This will also provide great opportunity to network with colleagues worldwide to share knowledge and experience on teaching and research in agricultural and environmental area. However, a more widespread and competent use of the available techniques is required in order to gain benefit from their applications. Especially in the developing world, this future intra-disciplinary cooperation will also be needed among the industries, consumers and research institutes for food supply chain. Failure to achieve a high level of cooperation can potentially lead to a delay in biotechnologies application in development and will result in serious long lasting economic losses in food security through sustainable agricultural and environment in developing world.

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