

Current Trends of Research in Agriculture

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The role of modern agriculture in food security and sustainability cannot be neglected. Farmers are striving hard to increase crop productivity by employing modern tools available based on scientific research. It has been argued that, many in the urban world have forgotten this fundamental connection. Insulated by the apparent abundance of food that has come from new technologies for the growing, transportation and storage of food, humanity's fundamental dependence on agriculture is often overlooked. Currently, Genetically Modified Organisms especially crops have been considered as valuable source of enhancing food supply in many developed countries; however, they have been considered as a threat to our environment because they can have adverse effects on our health, food, water and safety of even animals. Before our society becomes too reliant on GM there is much more research needed in regards to safety, effects on human health, and effects on biodiversity, policy, and regulation. It would be truly unfortunate for us to disregard a technology that could so greatly benefit the world.

The ever increasing prices of chemical N-fertilizers and due to the concern of environmental pollution arising from their application, have renewed interest in integrated plant nutrition, especially in the use of organic N-fertilizers like animal manures and crop residues for improving growth and productivity in rice based system. An increased interest has been observed for the use of organic fertilizers recently in many countries. The use of synthetic fertilizers should be discouraged in order to avoid many inherent environmental issues.

Recent disturbances in the weather patterns accompanied by flooding, typhoons, cyclones, tornados, and droughts in many parts of the world have seriously affected agricultural productivity. Scientists have high confidence that global temperatures will continue to rise for decades to come, largely due to greenhouse gasses produced by human activities. The Intergovernmental Panel on Climate Change (IPCC), which includes more than 1,300 scientists from the United States and other countries, forecasts a temperature rise of 2.5 to 10 degrees Fahrenheit over the next century. CO₂ emissions (main cause of global warming) can be reduced by either fixation or by capture. Chemical, electrochemical and biological methods can be employed for reduction of CO₂ emissions. Biological methods include the use of aquatic plant, microalgae, microphytes and sea weeds and sea pores. Modern agriculture has serious challenges to combat climate change, increasing world human population and environmental degradation. Concerted efforts of environmental scientists, engineers and agriculturists are highly desired to employ multidisciplinary approaches in restoring disturbed environments, promoting afforestation, protecting fresh water resources and enhancing agricultural productivity. The role of agricultural biotechnologists is crucial in developing crop varieties which are highly productive, disease and drought resistant.

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