ACTA SCIENTIFIC AGRICULTURE (ISSN: 2581-365X)

Volume 2 Issue 10 October 2018

Editorial

Modern Day Agriculture

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Received: August 01, 2018; **Published:** September 01, 2018

With the current human global population at 7.6 billion and growing at a 1.2% annual rate, it is incumbent on the governments and farmers to devise methods to increase agricultural productivity. Mechanization of agriculture, improved crop management practices, hybridization of seeds to counter diseases, use of chemical fertilizers and pesticides, among others, have been instrumental in improving traditional farm practices. Precision agriculture in the early 1990's integrated technology with modern day agriculture. The satellite-governed Global Positioning System (GPS) helps site specific crop management via guided seed sowing, irrigation, and fertilizer application. This enables resource optimization and curtails wastage.

Nanotechnology is a relatively recent field, application of which promises to improve agricultural management practices and productivity further. Nano sensors enable need based irrigation, target specific delivery of water or active ingredients in fertilizers and pesticides, and optimize nutrient management in agricultural plants. Nano-fertilizers and nano-pesticides are a wide area of nanotechnology application. Nano-coated chemicals, metal based or carbon based engineered nanoparticles, and organic nano-biopolymers form important agricultural amendments with potential for further productivity by reducing environmental impacts. Nano-enabled genetic engineering and plant breeding are also a growing practice. Besides, nano-technology has found application in water treatment, soil remediation, food processing, post-harvest technology, and other peripheral branches of agriculture [1,2].

Our goal is to maximize the benefits of nanotechnology in agriculture and minimize the risks to make natural resources sustainable and provide for posterity.

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