

New Age Agriculture- Designed to Serve Better

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Global population is estimated to be somewhere around nine billion by the middle of this century. This projection is directly associated with the near-doubling of the global demand for food, fuel and fibre and to meet this demand without compromising environmental integrity seems to be greater a challenge. Moreover, the focus has shifted from improvement in the potential yield to the quality of the produce in terms of its nutritional and gustatory value.

To face these challenges, technological advancements in contemporary scientific world are efficiently being applied to the theory and practice of agriculture. Newer concepts developed in some other environment are being tested for their practicability and viability in agriculture and surprisingly, proving equally beneficial, if not more than what they are in their original ecosystem.

The science and practice of agriculture has attracted more attention of the people working in diverse fields ranging from material science to the social sciences. Much of this attraction is attributed to the malleability of the technological attainment in its practicability and its immediate translation in the multifarious environment of farming systems. Precision agriculture technologies have contributed greatly to the reduction in the amounts of inputs in farming and thus, conservation of the resources vital to agriculture speaks itself of the long-term planning of strategic development in this sector. For example, micro irrigation systems have enabled us to rationalize the use of water and application of GIS, GPS and remote sensing technologies are ready to be used by farmers to refine the site-specific nutrient recommendation in their fields. Equipment telematics would enable our machines warn mechanics of an imminent fault or failure. Livestock biometrics system is aimed to relay us the real time vital information about our livestock. To sum up, integration of the new technologies for precision agriculture is the call of the day which is aimed not only to enhance the benefit-cost ratio but also to attain it with least disturbance to the planetary environment.

Genetically designed food, a step ahead the genetically modified food of modern world shall be the output of new age agriculture. It shall be tailored to address biological and physiological needs of individuals and further advancement in this area might be a food customized for a specific individual. *In vitro* culture of meat called tubesteak is already talk of the town which is being taken to the next level for its popularity among the consumers. Selective breeding for obtaining food loaded with target nutrient shall help combat the malnutrition around the globe.

Considering unavailability of cheap labour for agriculture and that too being unskilled, automation of agricultural processes through agricultural robots popularly called agbots is imminent. Dependence of agriculture on weather shall be reduced by development of closed

ecological systems. This will not only take care of the waste, but also convert it into some precious input for the enterprise reducing the cost of disposal of the waste as well as expenditure on the input concerned.

Reduction in the area of cultivable land is perhaps the major repercussion of urbanisation that is ready to put challenges before agriculture. The concept of urban or peri-urban agriculture has evolved to utilize whatever piece of land or space is available in cities and nearby areas for production of food. Apart from this, some novel approaches to farming in densely inhabited areas have not only been developed, but also are readily becoming popular such as rooftop farming. This is being taken up to a new level of natural extension of urban agriculture called vertical farming where cultivation of crops and animal life under controlled and protected conditions would be done in skyscrapers built for the purpose in urban settings. Innovation comes out of a mind that is fertile for ideas and these ideas need to be presented and extended widely for better penetration among the scientific masses. Innovative Techniques in Agriculture (ITAG), by publishing research papers of high quality from authors of eminence across the world is actively involved in spreading ideas among the scientific society and setting the trend for research in the days to come.

I express my thanks to the authors who have conducted their research work carefully to obtain the results of utmost significance to the stream of agricultural sciences. I am thankful to the reviewers who carefully selected the papers for publication after much exhaustive review process and gave the journal its shape. I believe that the current issue of the journal is going to make a meaningful contribution to the scientific knowledge and will complement to the development of scientific acumen among the researches of the future. I hope the readers will find the issue gainful and help us improve further in serving them better through their valuable suggestions.

(Jai P. Rai)

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