



**Fundamentals on
Plant and Soil
Microbial Interactions**
(Theory and Practice)

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 **Bharti**

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Applications of Tools and Technologies Used in Modern Plant Research

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Plants are one of the most fascinating and important groups of organisms living on Earth. They serve as the conduit of energy into the biosphere, provide food, and shape our environment. If we want to make headway in understanding how these essential organisms function and build the foundation for a more sustainable future, then we need to apply the most advanced technologies available to the study of plant life (Grierson, 2011).

In 2009, a committee of the National Academy highlighted the "understanding of plant growth" as one of the big challenges for society and part of a new era which they termed "new biology." The aim of this article is to identify how new technologies can and will transform plant science to address the challenges of new biology (Wee, 2010). Plants serve as the conduit of energy into the biosphere, provide food and materials used by humans, and they shape our environment. There are three major challenges facing humanity in our time are food, energy, and environmental degradation. All three are plant related.

All of our food is produced by plants, either directly or indirectly via animals that eat them. Plants are a source of energy production. And they are intimately involved in climate change and a major factor in a variety of environmental concerns, including agricultural expansion and its impact on habitat destruction and waterway pollution.

Climate change places additional stresses on the food supply and on various habitats. So plant research is instrumental in addressing all of these problems and moving into the future. They divide the technology into three categories: existing technology that isn't