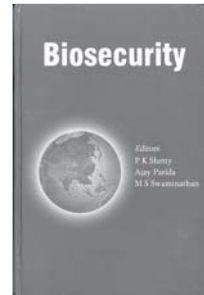


Biosecurity

P K Shetty, Ajay Parida, and
M S Swaminathan (eds)

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Biosecurity encompasses policy and regulatory frameworks to manage risks associated with agriculture and food production. It includes, for example, the introduction and release of GMOs (genetically modified organisms) and their products; the introduction and spread of invasive alien species and alien genotypes, plant pests, animal pests, and diseases and zoonoses (diseases that can be transmitted from animals to humans). The whole area of biosecurity is a very critical issue for national security, not only because of the livelihood security but also because of the economic losses that negligence of this issue may incur on our economy. The book *Biosecurity*, edited by P K Shetty, Ajay Parida, and M S Swaminathan, presents a discussion on the need to have a strategic and integrated approach to biosecurity in India, focusing on various issues related to biosecurity in India. *Biosecurity* contains lead papers from a discussion meeting as well as some contributed papers.

Biosecurity has 17 chapters, to which more than 20 experts from different areas have contributed to enrich the discussion. The opening chapter, Preparedness for ensuring biosecurity, by M Swaminathan, lays the foundation of a holistic biosecurity framework. It throws light on the interlinkages of biosecurity and various aspects of human development, as well as trade issues and invasive species, and places the issues of biosecurity in the global context. He focuses specifically on the issue of biosecurity in livestock and offshore genetic screening centre.

He strongly advocates the need for establishing a national biosecurity system to safeguard food, health, and trade security to India, as well as to enhance biosecurity literacy in India. He proposes that 'the policy and regulatory frameworks must have three important elements—education, regulation, and social mobilization'. He also indicates the need for a national agriculture biosecurity fund to help strengthen the infrastructure for sanitary and phyto-sanitary measures.

Khetarpal and Gupta, in Chapter 2, Plant biosecurity in India, discuss the ways in which new pests may enter into a new locality and their potential impacts. This chapter provides a good opportunity to the readers to gather information on the Indian plant quarantine set-up, with regard to legislation, infrastructure, details on the pests incepted in imported material, an overview of the GMO movement in India, examples of major exotic pests, and some of the important and urgent issues that must be addressed to enhance biosecurity.

The next three chapters focus on biosecurity in relation to aquaculture, human and animal health, and food security. The authors provide very interesting information and discussion on these areas which are often less emphasized. Pradhan provides an overview of the concept of bioterrorism and bioweapon. Prakash in chapter 'Improving food, health, and nutrition security in the backdrop of biosecurity' provides a very interesting discussion on the human lifestyle in present India and nutritional issues.

Biological warfare as a weapon of mass destruction is discussed at length in the chapter 'Biological warfare and terrorism', by Raghunath. He presents the history of bioweapons in a very interesting and elaborate manner and also discusses the international response to this problem and further needs for improvement.

Panjab Singh, in the chapter 'Developing options for agricultural biosecurity', focuses on agricultural biosecurity and critically analyses the role that modern biotechnology practices and invasive alien species can play in jeopardizing biosecurity. He complements this analysis with the discussion on economics of biosecurity and also highlights the desired response of the humans towards this issue, in the form of a set of recommendations. Renu Swarup provides a comprehensive description of the implementation of biosecurity under four aspects—policy

framework, institutional framework, monitoring and management system, and public awareness. Placed appropriately are the chapters by Kanda, Singh, and Virmani, who place all the discussions on biosecurity in the national context. Virmani concludes that in terms of biosecurity, our country would be faced with many challenges, including soil and water degradation and negative impacts of global warming.

Shetty, in the chapter 'Agro terrorism: biosecurity threats and preparedness', provides a very well-documented information on some of the world's most threatening diseases, along with information on some example cases of agricultural bioweapons. The next two chapters discuss specifics of virus and invasive species as threat to biosecurity. The FAO (Food and Agriculture Organization) has been working on the issues related to biosecurity and has served as a major hub and repository of information for long. The chapter by Gopi Ghosh provides information on the role played by the FAO in this area. Irradiation technology has been discussed by Arun Sharma, while Samra and P D Sharma establish the need to adopt appropriate natural resources management strategies for sustained agricultural production, environmental protection, and overall biosecurity. Samra and Sharma provide good data to support their discussion. The last chapter, 'The role of biosecurity in integrated pest management', by Trivedi, discusses the importance and examples of pest forewarning models for achieving biosecurity.

All the contributors in this book have stressed on the need to have in place a holistic and integrated national biosecurity system, which will draw its strengths from the existing information and expertise available. The book touches all the important aspects related to and needed for biosecurity. Overall, the book is a very good compilation of information and data on the topic of biosecurity and an excellent analysis of the current legislative and regulatory framework. It is a must read for researchers and policy-makers associated with the issue of biosecurity, agriculture, food security, and pest management.