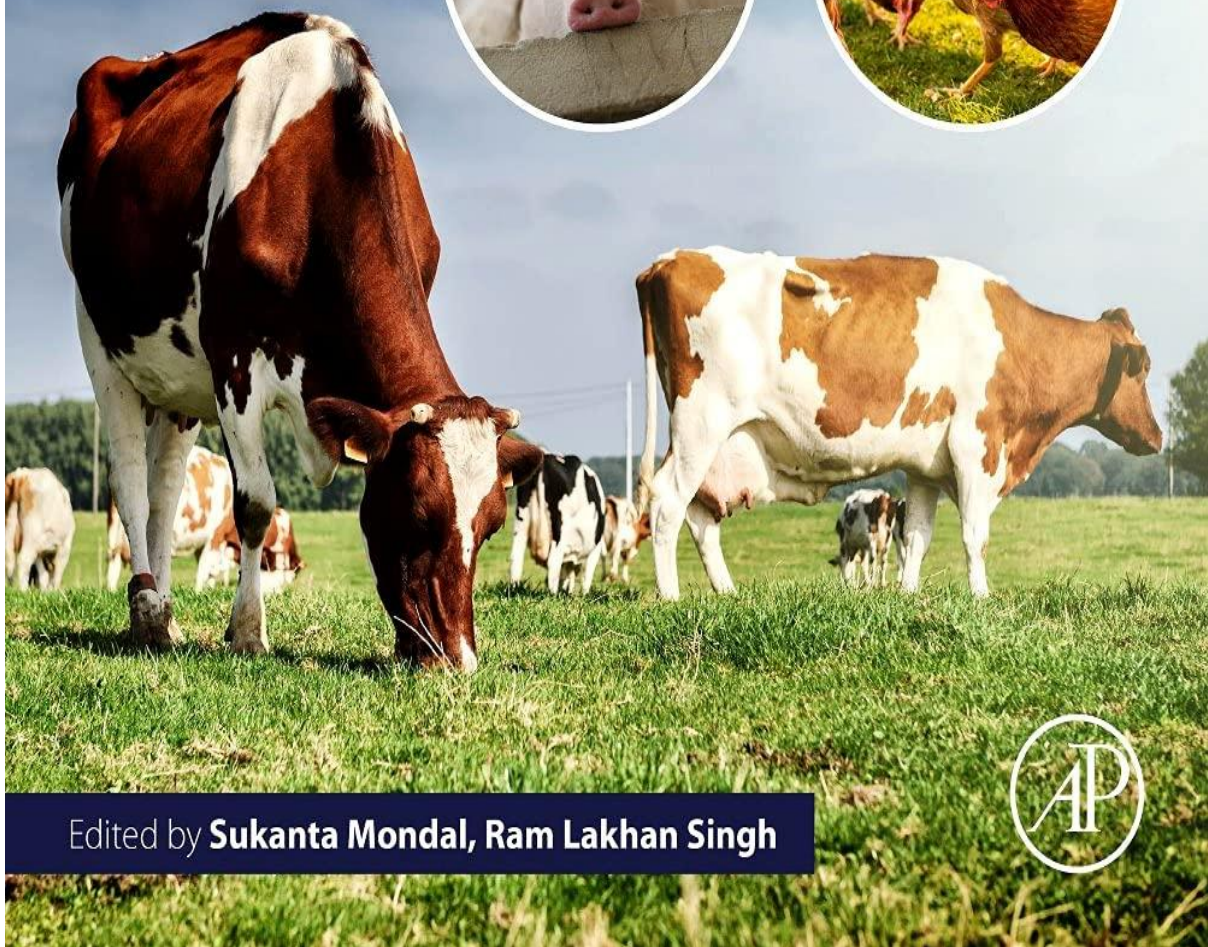


# Emerging Issues in Climate Smart Livestock Production

## Biological Tools and Techniques



Edited by **Sukanta Mondal, Ram Lakhan Singh**



# About the book

## Description

*Emerging Issues in Climate Smart Livestock Production: Biological Tools and Techniques* furnishes a detailed reference on livestock sustainability and the role of biotechnology for creating more sustainable livestock production systems. The book is a collection of scientific techniques, including genetic engineering used to modify and improve animals, fishes, and microorganisms for human benefit. The book is particularly attractive for scientists, researchers, students, educators, and professionals in agriculture, veterinary, and biotechnology science. This book promotes several biotechnological approaches that can easily be evaluated in the field for quality assurance programs beneficial to producing livestock products and overall public health.

Biotechnology has the potential to improve the productivity of animals via increased growth, carcass quality and reproduction, improved nutrition and feed utilization, improved food quality and safety, improved animal health and welfare, and reduced waste through more efficient utilization of resources.

## Key Features

- Identifies and explores biotechnological approaches for sustainable livestock and fish production
- Focuses on strategies for enhancing livestock and fishery productivity and sustainability
- Presents the latest research on modern methods and technologies

## Details

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# Chapter Nine - Potential implications of gonadotropin-releasing hormone analogues in assisted reproductive technology

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## Abstract

The gonadotropin-releasing hormone (GnRH) is a hypothalamic decapeptide that acts as the key regulator in vertebrate reproduction. An in-depth understanding of the GnRH structure and function potentially alleviates the fertility management of economically essential animals. Analogues of GnRH with a wide range of variable potencies and half-lives can be designed and synthesized employing recombinant DNA technology. These agonists generally activate the GnRH-receptor (GnRH-R), whereas the antagonist blocks the GnRH-receptor (GnRH-R), thereby engaging them to facilitate a desired outcome. Both agonists and antagonists of GnRH are commercially used on a large scale for regulating the fertility of the cattle herd, thereby increasing farm productivity. Treatment of GnRH agonists in rodents showed success in experimental in vitro fertilization. The long-term use of GnRH agonists in the livestock industry shows a significant increase in the annual yield. This chapter aims to briefly discuss the multiple roles of GnRH analogues in regulating the fertility and productivity of farm mammals and laboratory rodents.