

Climate-Smart Sericulture for Sustainable Silk Production

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Preface

Sericulture, the art and science of silk production, has long contributed to rural livelihoods, employment generation, and the economic empowerment of farming communities. However, the sector increasingly faces challenges from climate variability, rising temperatures, irregular rainfall, water scarcity, emerging pests and diseases and changing resource availability. These pressures highlight the need to transform conventional production systems into resilient, resource-efficient, and environmentally sustainable models.

Climate-Smart Sericulture for Sustainable Silk Production presents a timely approach to addressing these challenges by integrating climate adaptation, mitigation, technological innovation and sustainable farm management into sericultural practices.

The book explores climate-smart approaches across the silk production chain, including climate-resilient mulberry cultivation, efficient irrigation and nutrient management, improved silkworm rearing, disease and pest management, environmental monitoring, precision sericulture and the application of digital technologies. Emphasis is also placed on improved silkworm breeds, conservation of genetic resources, energy-efficient rearing systems, waste valorization and circular approaches that can reduce environmental impacts while maintaining productivity and silk quality.

By bringing together scientific knowledge, technological advances and practical management strategies, this book aims to support researchers, students, extension professionals, policymakers and sericulture farmers. It also highlights the importance of integrating traditional knowledge with modern innovations to build adaptive and economically viable production systems. Ultimately, climate-smart sericulture can contribute not only to sustainable silk production but also to resilient rural livelihoods, responsible resource utilization and a more sustainable future for the global silk industry.

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