

**Book Title (ID 2024\_05)**

## **Cutting-Edge Research in Sericulture: Enhancing Productivity and Quality**

### **ABOUT THE BOOK**

The book delves into the latest advancements in sericulture, emphasizing innovative methods to boost both the yield and quality of silk production. This comprehensive volume explores genetic improvements in silkworms, including the development of transgenic strains that exhibit enhanced disease resistance and superior silk properties. The book also highlights advancements in mulberry cultivation, such as the introduction of high-yield, pest-resistant varieties and optimized agronomic practices. Biotechnology plays a pivotal role, with breakthroughs in molecular markers and genomic tools aiding in the selection and breeding of silkworms and mulberry plants. Additionally, the integration of modern technologies like IoT and AI in sericulture management is discussed, showcasing their potential in monitoring and optimizing environmental conditions, thus ensuring optimal growth and productivity. The compilation of recent research underscores the importance of sustainable practices and the use of organic methods to improve the quality of silk while minimizing environmental impact. By bringing together contributions from leading scientists and experts in the field, the book serves as a vital resource for researchers, practitioners, and policymakers aiming to enhance the efficiency and sustainability of sericulture.

### **Chapters Outlines But Not Limited To:**

#### **Theme A: Feeding Potential and Nutrition**

**Sub-Theme: Nutritional Requirements of Silkworms: Current Understanding**

**Chapter 1:** Feeding the Future: Insights into Silkworm Nutrition

**Sub-Theme: Innovative Feeding Strategies for Enhanced Silk Production**

**Chapter 2:** Next-Gen Nutrition: Boosting Silk Yield with Innovative Feeds

**Sub-Theme: Alternative Feed Sources for Silkworms**

**Chapter 3:** Beyond Mulberry: Exploring Alternative Silkworm Feeds

**Sub-Theme: Optimizing Mulberry Cultivation for Silkworm Nutrition**

**Chapter 4:** Perfecting Mulberry: Techniques for Optimal Silkworm Nutrition

**Sub-Theme: Role of Micronutrients in Silkworm Health and Productivity**

**Chapter 5:** Micronutrient Magic: Enhancing Silkworm Health and Silk Quality

**Sub-Theme: Impact of Diet on Silk Quality and Yield**

**Chapter 6:** Diet Dynamics: Linking Silkworm Nutrition to Silk Excellence

#### **Theme B: Modern Rearing Techniques**

**Sub-Theme: Innovations in Silkworm Rearing Techniques**

**Chapter 7:** Rearing Revolution: Innovations in Silkworm Cultivation

**Sub-Theme: Automation in Sericulture: Tools and Technologies**

**Chapter 8:** Automated Sericulture: Embracing Technology for Efficiency

**Sub-Theme: Environmental Control in Silkworm Rearing**

**Chapter 9:** Climate Control: Optimizing Environment for Silkworms

**Sub-Theme: Organic Sericulture: Practices and Certification**

**Chapter 10:** Going Green: Organic Practices in Sericulture

**Sub-Theme: Sustainable Sericulture: Reducing Environmental Impact**

**Chapter 11:** Sustainable Silk: Practices for an Eco-Friendly Industry

#### **Theme C: Silk Production and Applications**

**Sub-Theme: Advances in Silk Production Technologies**

**Chapter 12:** Silk Synergy: Cutting-Edge Production Technologies

**Sub-Theme: Quality Control in Silk Production**

**Chapter 13:** Silk Standard: Ensuring Quality in Production

**Sub-Theme: Innovative Applications of Silk: From Textiles to Biomedicine**

**Chapter 14:** Beyond Fabric: Revolutionary Uses of Silk

**Sub-Theme: Silk-Based Biomaterials: Current Research and Future Prospects**

**Chapter 15:** BioSilk: Exploring Silk in Biomedicine and Beyond

**Sub-Theme: Value Addition in Silk: Enhancing Marketability**

**Chapter 16:** Silk Success: Strategies for Value Addition and Market Growth

#### Theme D: Genetics and Breeding

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**Chapter 17:** A Journey Through Time: The Evolution of Sericulture

**Sub-Theme: Genetics of Silkworm: An Overview**

**Chapter 18:** Unraveling the Genetic Mysteries of Silkworms

**Sub-Theme: Advances in Silkworm Genomics**

**Chapter 19:** Decoding the Silkworm Genome: Breakthroughs and Insights

**Sub-Theme: Silkworm Breeding: Traditional and Modern Approaches**

**Chapter 20:** From Tradition to Innovation: The Art and Science of Silkworm Breeding

**Sub-Theme: Genetic Engineering in Silkworms: Techniques and Applications**

**Chapter 21:** Engineering Excellence: Cutting-Edge Techniques in Silkworm Genetics

**Sub-Theme: Marker-Assisted Selection in Silkworm Breeding**

**Chapter 22:** Precision Breeding: Harnessing Marker-Assisted Selection

**Sub-Theme: CRISPR/Cas9 Technology in Silkworm Research**

**Chapter 23:** CRISPR Revolution: Editing the Silkworm Genome

**Sub-Theme: Molecular Breeding for Disease Resistance in Silkworms**

**Chapter 24:** Fortifying Silkworms: Molecular Strategies for Disease Resistance

**Sub-Theme: Exploring New Species of Silkworms: Potential and Challenges**

**Chapter 25:** New Horizons: Discovering and Breeding Novel Silkworm Species

**Sub-Theme: Transgenic Silkworms: Progress and Prospects**

**Chapter 26:** Transgenic Triumphs: The Future of Silkworm Innovation

#### Theme E: Diseases and Pests of Silkworm

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**Chapter 27:** Silkworm Health: An Overview of Common Diseases

**Sub-Theme: Viral Diseases in Silkworms: Identification and Management**

**Chapter 28:** Battling Silkworm Viruses: Detection and Control Strategies

**Sub-Theme: Bacterial Diseases in Silkworms: Diagnosis and Control**

**Chapter 29:** Bacterial Battles: Managing Silkworm Infections

**Sub-Theme: Fungal Diseases in Silkworms: Prevention and Treatment**

**Chapter 30:** Fungal Foes: Preventing and Treating Silkworm Fungal Infections

**Sub-Theme: Protozoan Diseases in Silkworms: Current Research**

**Chapter 31:** Protozoan Perils: Advances in Research and Management

**Sub-Theme: Integrated Pest Management in Sericulture**

**Chapter 32:** Holistic Protection: Integrated Pest Management for Silkworms

**Sub-Theme: Biological Control of Silkworm Pests**

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**Sub-Theme: Beneficial Microbes in Silkworm Health**

**Chapter 35:** Microbe Boost: Enhancing Silkworm Health with Beneficial Microbes

**Sub-Theme: Probiotics in Sericulture: Enhancing Silkworm Growth and Immunity**

**Chapter 36:** Probiotic Power: Boosting Silkworm Growth and Immunity

**Sub-Theme: Biological Control Agents in Sericulture: Current Trends**

**Chapter 37:** Biological Best Practices: Current Trends in Silkworm Pest Control

**Sub-Theme: Parasitoids of Silkworm: Identification and Utilization**

**Chapter 38:** Parasitoid Partners: Harnessing Natural Enemies for Silkworm Protection

**Sub-Theme: Entomopathogenic Fungi in Silkworm Pest Management**

**Chapter 39:** Fungal Fighters: Using Entomopathogenic Fungi Against Silkworm Pests

**Theme G: Global Perspectives**

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**Chapter 41:** Asian Excellence: Success Stories and Challenges in Sericulture

**Sub-Theme: Sericulture in Africa: Opportunities and Developments**

**Chapter 42:** African Aspirations: Opportunities in Modern Sericulture

**Sub-Theme: European Perspectives on Sericulture**

**Chapter 43:** European Endeavors: Sericulture in the European Context

**Sub-Theme: Sericulture in the Americas: Current Status and Future Prospects**

**Chapter 44:** American Ambitions: The Future of Sericulture in the Americas

**Sub-Theme: International Collaboration in Sericulture Research**

**Chapter 45:** United for Silk: Global Collaborations in Sericulture Research

**Theme H: Silkworm as a Protein Source**

**Sub-Theme: Nutritional Profile of Silkworms: A Protein-Rich Food Source**

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**Sub-Theme: Processing and Utilization of Silkworms for Human Consumption**

**Chapter 47:** From Cocoon to Cuisine: Processing Silkworms for Food

**Sub-Theme: Silkworms in Animal Feed: Potential and Benefits**

**Chapter 48:** Feeding Innovation: Silkworms as a Sustainable Feed Source

**Sub-Theme: Regulatory Aspects of Using Silkworms as Food and Feed**

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**Theme I: Entrepreneurship and Marketing**

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**Sub-Theme: Marketing Strategies for Sericulture Products**

**Chapter 51:** Selling Silk: Effective Marketing Strategies

**Sub-Theme: Economic Viability of Sericulture: Case Studies**

**Chapter 52:** Silk Economics: Real-World Success Stories

**Sub-Theme: Government Policies and Support for Sericulture Entrepreneurs**

**Chapter 53:** Policy Support: Government Initiatives for Sericulture Entrepreneurs

**Sub-Theme: E-commerce and Digital Marketing in Sericulture**

**Chapter 54:** Digital Silk: Leveraging E-commerce and Online Marketing

**\*\*Note:** Chapter title may be modified or new chapter may also be proposed by the author.

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