

ECONOMICAL ZOOLOGY

Dr. Shivanand M Gotyal



Economic Zoology



First Edition

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Preface

Welcome to the fascinating realm of Economic Zoology, where the intricate interplay between human civilization and animal kingdom unfolds through centuries of cultural heritage, scientific innovation, and sustainable practices. This comprehensive book explores the diverse facets of Sericulture, Apiculture, Livestock Management (including Dairy and Poultry), Aquaculture, Fish Culture, Prawn Culture, Vermiculture, and Lac Culture, offering a deep dive into their historical significance, present-day practices, and future potentials.

Sericulture, the ancient art of silk production, is traced from its origins in India to its modern-day applications, highlighting the cultivation of both mulberry and non-mulberry species across Karnataka and the wider Indian landscape. The lifecycle of the *Bombyx mori* silkworm, mulberry cultivation techniques, and methods for reeling and processing cocoons are meticulously detailed, alongside strategies for combating silkworm diseases and pests crucial for sustaining this vital industry.

Apiculture emerges as a pivotal component of agricultural ecosystems, where the lifecycle and organizational dynamics of honey bees, particularly *Apis indica*, play a crucial role in pollination services and the production of honey, beeswax, and other hive products. The chapter delves into indigenous beekeeping methods, advanced extraction technologies, and the challenges posed by bee diseases, viruses, and pests, underscoring the importance of holistic beekeeping practices in preserving biodiversity and ensuring food security.

Livestock Management, encompassing Dairy and Poultry farming, explores the foundational principles of animal husbandry and the management practices essential for optimizing milk production, egg yields, and meat quality. From selecting suitable dairy cattle breeds to implementing innovative housing systems and feed formulations, this section equips readers with practical insights into maintaining animal welfare while enhancing farm productivity. It also addresses prevalent diseases and their control measures, critical for sustaining healthy livestock populations.

Aquaculture and Fish Culture chapters delve into the dynamic world of aquatic farming, from pond construction and species management to the commercial cultivation of fish and shellfish species essential for global seafood markets. Prawn Culture further explores the intricacies of freshwater and marine

prawn farming, detailing farm preparation, preservation techniques, and international trade dynamics.

Vermiculture, an emerging practice in organic farming, highlights the role of earthworms in enhancing soil fertility through vermicomposting. The chapter discusses earthworm species, cultivation methodologies, and the environmental benefits of vermicompost in sustainable agriculture. It also addresses common challenges such as diseases and pests affecting earthworm populations, emphasizing integrated pest management strategies for successful vermiculture operations.

Lastly, Lac Culture, an ancient art form steeped in tradition, traces its evolution in India from traditional to modern practices. This section explores the lifecycle of lac insects, cultivation techniques, and the diverse applications of lac products in industries ranging from textiles to pharmaceuticals.

Throughout this book, readers will embark on a journey that blends scientific inquiry with practical application, aiming to foster a deeper understanding of Economic Zoology's role in agricultural sustainability, economic development, and cultural heritage preservation. Whether you are a student, researcher, or practitioner in the field, this book aims to inspire and inform, paving the way for innovative practices that harmonize human needs with ecological stewardship.

Acknowledgement

The completion of this chapter on Economical Zoology is a result of the concerted efforts and support of many individuals and institutions, to whom I extend my heartfelt gratitude.

I also wish to express my sincere thanks to the Department of Zoology at KUD University. The access to comprehensive library collections and modern laboratory equipment has been invaluable in the compilation of this material.

A special thank you goes to my colleagues and fellow researchers who have shared their expertise and knowledge. Their feedback and collaborative spirit have significantly contributed to the depth and accuracy of the content.

I am indebted to the numerous authors and researchers whose published works have served as a foundation and inspiration. Their dedication to advancing the field of Economical zoology is greatly appreciated.

I would also like to thank my Parents, family members and friends for their unwavering support, patience, and encouragement throughout the course of this work. Their belief in my abilities has been a constant source of motivation.

Lastly, I extend my gratitude to the numerous individuals and organizations involved in the fields of sericulture, apiculture, livestock management, aquaculture, fish culture, prawn culture, vermiculture, and lac culture. Their practical insights and real-world applications have been crucial in shaping the practical aspects of this chapter.

Dr. Shivanand. M. Gotyal

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ABOUT THE AUTHOR



Dr. Shivanand M. Gotyal is an accomplished academic and researcher with a robust background in zoology. He earned his MSc and MPhil from Karnataka University, Dharwad, and later completed his PhD from CMJ University. Dr. Gotyal has been actively contributing to the field of science since 2009, establishing himself as a dedicated educator and researcher. Since 2017, Dr. Gotyal has been serving as the Head of the Department of Zoology at Shri Jagadamba First Grade Arts and Science College, Hittinahalli L T. In this role, he has been instrumental in shaping the inspirational path and mentoring students. His research has led to the publication of more than 12 articles, reflecting his commitment to advancing knowledge in his field. Dr. Gotyal's expertise and leadership in zoology have made him a respected figure in the academic community. His ongoing work continues to inspire and educate the next generation of scientists.



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