About the Authors



Dr. Dhirendra Kumar Singh born on 1st July, 1969 in Moradabad district of Uttar Pradesh. He has completed his Graduation, Post graduation (Poultry Husbandry) and Doctorate (Animal Breeding) from GovindBallabh Pant University of Agriculture and Technology, Pantnagar, Uttrakhand. He served many organizations for more than 13 years bearing the responsibilities under various capacities. Presently, he is serving SardarVallabhbhai Patel University of Agriculture and Technology, Modipuram, Meerut (UP) as

Handhook of Poultry

Assistant Professor (Sr. Scale) since last 10 years. He is credited to have more than 15 research papers in various National and International journals, 25 research, papers in seminar/symposia, 2 lead papers, 7 extension bulletins and 29 popular articles. Dr Singh has selected under Young Scientist Scholar Programme for oral presentation in "XXI World Poultry Congress-2000" and "7th World Congress on Genetics Applied to Livestock Production" during 2000 and 2002 held at Canada, and France, respectively and received Young Scientist Award under the said events. He is also associated as life member of various professional societies like Indian Poultry Science Association, Indian Society of Animal Breeders etc. He served as Principal investigator for an ICAR funded adhoc research scheme on Backyard Poultry Farming for three years. He has also been co-advisor of some PG students of Animal Breeding, Animal Husbandry and Dairy Husbandry. Currently, he is engaged in imparting trainings, demonstrations and other need based activities for practicing farmers, unemployed rural youths and professionals from the field of extension. Additionally, Dr Singh is looking after towards Poultry Research and Training Centre as Principal Investigator and Chief Contributor for technical aspects of this precious asset of the university.



Dr. Ibne Ali has obtained his BVSc&AH degree from Govind Ballabh Pant University of Agriculture and Technology. He secured 3rd rank in All India examination and joined IVRI, apex institution in animal sciences in South Asia, for master degree as Junior Research Fellow. He earned his Masters in Animal Physiology with specialization in reproductive endocrinology. During academics, he was actively involved in poultry husbandry and supported budding entrepreneurs in poultry farming. He has published more than 10 national and

international technical articles, popular articles and abstracts in various journals and poultry magazines regarding health and management of poultry birds. Actively involved with industry, he had worked as a technical editor of Poultry Times of India and Poultry Planner for Pixie Consulting Solutions Ltd. He is the founder of online knowledge portal for the poultry farmers named www.poultrygyan.com which is disseminating free telephonic and email consultancy to poultry farmers. At present he is providing consultancy for various integration in poultry farming and resource management to run a successfulprofitable poultry business.

Price : PB Rs. 395/-, USD 20 ISBN. No. : 978-93-83397-11-2

HIND PUBLICATIONS

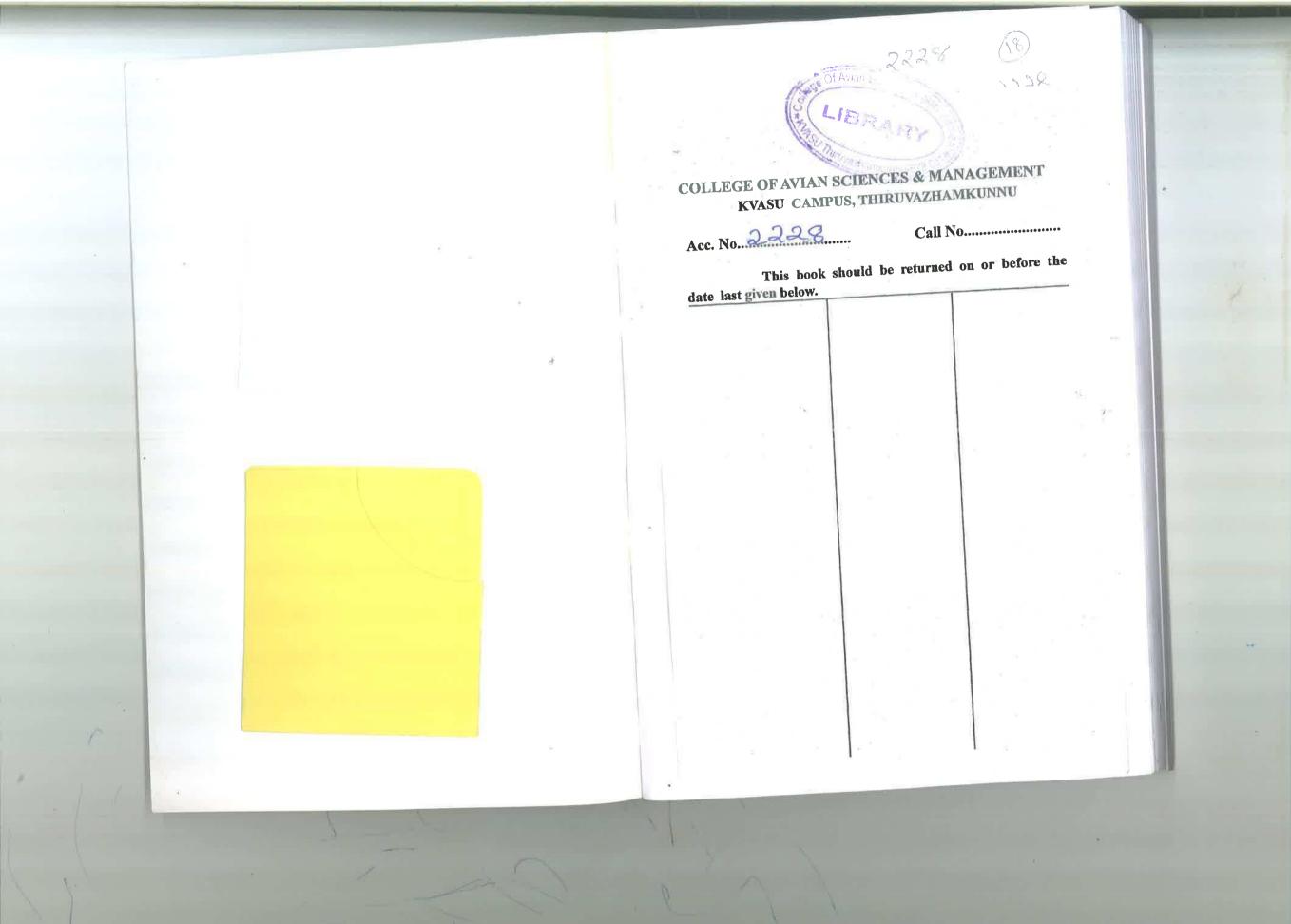
204, Plot_No, 19, HUDA Complex, Saroor Nagar, Hyderabad - 500 035, India. Phone : 040-24042046, Mobile : 09391378805, 9440837109 E-mail :hindpoultry@hotmail.com , Website : www.hindpoultry.com

Hand Book of POULTRY HUSBANDRY





HIND PUBLICATIONS



Hand Book of POULTRY HUSBANDRY

By Dr. Dhirendra Kumar Singh Ibne Ali

> Published By **HIND PUBLICATIONS** Website : www.hindpoultry.com

Published By

HIND PUBLICATIONS

204, Plot No. 19, HUDA Complex, Saroor Nagar, Hyderabad - 500 035. India. Phone : 040-24042046, Mobile : 09391378805, 9440837109 E-mail :hindpoultry@hotmail.com , Website : www.hindpoultry.com

First Edition: 2014

Price Rs. 395/-

ISBN. No. : 978-93-83397-11-2

© With Publisher All Right Reserved

No Part of this publication may be reproduced or stored in a retrieval system or transmitted, in any form or by any means, Electronic, Mechanical, Photo Copying, Recording or otherwise, without the prior written permission of the publisher.

Typesetting by : **Akshaya Graphics** Chikkadpally, Hyderabad.

Printed at : Akruthi Qffset Printers Chikkadpally, Hyderabad.

PREFACE

Poultry farming has played a prominent role in solving the problems of malnutrition and unemployment especially in semi-urban and urban areas and proved itself as a powerful instrument to uplift the socio economic status of people belonging to lower strata of the society. But it is still a challenge to meet the demand for poultry eggs and meat against the ICMR recommendations of 180 eggs and 11 kg meat per capita per year. India has a large market of poultry products due to increasing demand for variety of poultry products amongst urban and rural sectors alike. But the unique feature of Indian poultry industry is that broiler production predominantly remains the domain of small holders in a mixed farming system. Moreover, our country has the largest number of low producing layer and broilers. This could be attributed besides genetic makeup to their inadequate feeding, management and health care. With the changing food habits and preference, there is an urgent need for export-oriented poultry egg and meat processing units in the country. The rural poultry production is also gaining attention and there is need to put more efforts in this area for the benefits of rural masses.

Keeping in view these factors and other practical issues of our poultry men, authors have tried to bring the available information on poultry under one cover. The authors feels that this publication may serve as a guide to the poultry farmers, industry men, students and field workers in finding out some answers to their problems related to poultry farming.

25th November, 2014

Dhirendra Kumar Singh Ibne Ali

CONTENTS

Introduction

Hand Book of Poultry Husbandry

सरदार वल्लमभाई पटेल कृषि एवं प्रौद्योगिक विश्वविद्यालय, मेरठ 250110 SARDAR VALLABHBHAI PATEL UNIVERSITY OF AGRI. & TECH. MEERUT 250110

प्रोफेसर हरि शंकर गौड़ कुल्पति Professor H. S. Gaur

Vice Chancellor



Phone 0121-2888522 (O) 0121-2888566 (R) Fax 0121-2888505 Web svbpmeerut.ac.in E-mail vc.svpuat@gmail.com

FOREWORD

Among the livestock based vocations, poultry farming occupies a pivotal position due to its enormous potential to bring about rapid economic growth, particularly, benefiting weaker sections of the society and has been completely transformed from backyard venture in to a dynamic agro industry. In India, poultry is the fastest growing segment in the agriculture sector and ranks 2nd and 4th in egg and broiler production, respectively. However, per capita availability of eggs and broiler meat also increased to 52 eggs and 1.91 kg poultry meat but still it is far below the ICMR recommended levels of 180 eggs and 10.8 kg broiler meat per head per annum. Currently, Indian poultry industry has the strength of 221 million layers and 1800 million broilers. Skewed distribution/ consumption pattern of poultry products further deteriorates the situation in rural areas. In fact, 25% population residing in urban areas consumes 65% eggs and 70% poultry meat while in a typical Indian village; egg consumption is not more than 10 eggs per person per year.

Poultry farming has played a prominent role towards household nutritional security and upliftment of socio-economic status of poor. India has a big market for poultry products in urban and semi-urban areas but the unique feature of Indian poultry industry is that poultry production predominantly remains the domain of large producers and only 1/3rd part is with small and marginal poultry farmers. While in China, situation is entirely reverse where 2/3rd of total egg production is coming from backyard and small/marginal poultry farming. Rural poultry farmers are not well aware about the package of practices for poultry farming; therefore, it may also be equally important that latest technological developments in poultry production should reach the end users through proper dissemination approaches.

The objective of bringing out this Manuscript is to provide the versatile information on various aspects of pouliry production to poultry farmers, students and field workers in finding out some answers to their poultry farming problems. I am sure that document prepared as "Hand Book on Poultry Ilusbandry" will serve as a hand book on scientific poultry farming to all those engaged in sustainable poultry production.

I appreciate the efforts of the authors in bringing out this useful builtetin.

the (H. S. Gaur)

Factors Favoring Adoption and Development of Poultry 1×1 Farming 17 Selection of Chicks 2. 19 Housing and Layout 3. 23 Breeds of Poultry 4. 41 Maintenance of Grower Birds 5. 45 Culling of Unproductive Layers 6. 49 Feeding of Poultry 7. 53 Rat Control in Poultry Farms 8. 59 **Bio-security** 9. 61 Poultry Disease Management 10. 95 11. Nutritional Disorders 101 Gout Management In Poultry 12. 1.03 13. Summer and Winter Management of Broiler and Layer 107 14. Important Stresses in Poultry 113 Growth Promotion in Broilers 15. Some Basic Facts About Poultry Farming 117 16. 119 Nutrients in Food 17. 127 Feed Ingredients for Poultry 18. 131 Protein Sources for Poultry 19. 137 Mineral Sources for Poultry 20. Vitamin Sources and Non-nutrient Feed Additives 139 21. 141 Toxic Substances in Feed 22. 145 23. Feeding During Extreme Weather

Hand Book of Poultry Husbandry

5

07

24.	Other Domestic Species of Poultry	
25.	Poultry and Egg Processing	149
26.	Indigenous Value Added por th	165
27.	Indigenous Value Added Poultry Meat Products	173
	Research Priorities and Policy Options for Backyard Poultry Development to 2025	183
28.	Organic Poultry Production and Its Future Prospects	191
29.	Role of Nanotechnology in Poultry Research	
30.	Poultry Biotechnology, Current Current	197
	and Future Prospects	199
31.	Researchable Issues in Poultry Genetics and Breeding	209



6

Hand Book of Poultry Husbandry

Introduction

Among the livestock based vocations, poultry farming occupies a pivotal position due to its enormous potential and has completely transformed from backyard venture into a dynamic agro industry. In India, poultry is the fastest growing segments in agriculture sector and ranks 2nd and 4th in egg and broiler production with an average annual growth rate of 10-12% and 16-18% in layer and broiler production, respectively. In spite of astonishing progress in poultry production, per capita availability of eggs and broiler meat is only 44 eggs and 1.76 kg poultry meat against the ICMR recommendations of 180 eggs and 10.8 kg poultry meat per annum.

India's contribution to world's egg and chicken production was nearly 4 and 2%, respectively with an annual turnover of Rs. 350 billion. The industry provided direct and indirect employment to more than 5 million people and has great potential to generate gainful employment with every increase in egg/meat consumption. As a whole, poultry sector accounted for assets 1% of the Indian GDP and 10% of livestock GDP.

Emerging economy forces are creating both challenge and opportunities for the poultry sector. It is argued that perpetual growth in human population and sustained growth in per capita income would be the driving forces for increasing demand of poultry egg and meat. It has been estimated that by 2020 demand for egg and meat under different incomes and population growth scenarios would be in the range of 6.3 to 12.1 and 9.5 to 18.5 million tons, respectively.

Hand Book of Poultry Husbandry