# **Recent Progress in Cattle Breeding**

Edited by:

Dr. Seyedmousa Hosseini



# **Recent Progress in Cattle Breeding**

Edited by: Dr. Seyedmousa Hosseini Islamic Azad University, Department of Animal Science, Qaemshahr Branch, Iran



Published by: *World Science and Research Publishing* 

© 2022 World Science and Research Publishing. All Rights Reserved. ISBN: 978-622-94331-3-3

Library of Congress Cataloging-in-Publication Data

Recent Progress in Cattle Breeding

Edited by: Dr. Seyedmousa Hosseini Includes bibliographical references and index. Contents: Breeding of Cattle 1. Animal Science. 2. Breeding 3. Cattle ISBN: 978-622-94331-3-3

This book contains information obtained from authentic and highly regarded sources. Reprinted material is quoted with permission, and sources are indicated. A wide variety of references are listed. Reasonable efforts have been made to publish reliable data and information, but the author and the publisher cannot assume responsibility for the validity of all materials or for the consequences of their use.

All rights reserved. No part of this book may be reprinted, reproduced, transmitted, or utilized in any form by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying, microfilming, and recording, or in any information storage or retrieval system, without written permission from the publishers.



World Science and Research Publishing Visit our web site at http://www.wsrpublishing.com

## CONTENTS

Prefacei
List of Contributors
Chapter 1: Global Trends of Meat Production and Consumption 1
Chapter 2: Evaluation of Rreproductive and Pproductive
Pperformance of Indigenous Dairy Cows 16
Chapter 3: Relationship between Fertility and Milk Production Traits
in Pure Jersey Dairy Cows: Multitrait Analysis 40
Chapter 4: Estimation of (Co) Variance Components and Genetic
Parameters of Growth Traits for Boran Cattle 59
Chapter 5: The Role of Direct-Fed Microbes to Ruminants
Chapter 6: Effects of Supplementing Borana Dairy Cows with Local
(Vachelliatortilis pods) and Conventional Feeds on Milk Yield and
Milk Composition
Chapter 7: Prediction of First Lactation Milk Yield from Part
Lactation Yields for Buffaloes 121
Chapter 8: Major Factors that Influence the Success of Artificial
Insemination 129
Chapter 9: Opportunities and Constraints of Dairy Production 150
Chapter 10: Structural Traits, Structural Indices and Body Weight
Prediction of Arsi Cows 163
Chapter 11: Prevalence of Mastitis, Risk Factors and Its Causative
Agents
Chapter 12: Estimates of Sire Breeding Value for Milk production
and Reproductive Traits in Crossbred Dairy Cattle 213

Chapter 13: Composition and in Vitro Gas Production Evaluation of
Corn Silage Cultivated at Twenty and Thirty Thousand Plants per
Feddan
Chapter 14: Institutional Structure, Perception, Efficiency and
Administration of Artificial Insemination
Chapter 15: Husbandry practices of Simada Cattle Population 279
Chapter 16: Utilization of Brewery By-products as Protein-rich Feed
Source for Efficient Livestock Production
Chapter 17: Effect of Using Unconventional an Energy Source in
Silage Possessing on Silage Quality and Performance of Lactating
Cows
Chapter 18: Microbial Safety, Physical Properties and Chemical
Composition of Cow Milk
Chapter 19: Study on Nutritional Quality of Major Beef Cattle Feed
Resources
Chapter 20: Assessment of Microbial and Physicochemical Qualities
of Cow Milk

### PREFACE

The issue of addressing food and nutrition security is and will remain a huge concern. To meet the demands of a growing population in a changing climate, food systems must become more productive and efficient, but the quality of the food must also be able to satisfy dietary needs. Livestock has shown to be a reliable source of nutritious food. In addition to producing food, livestock has many other advantages. 13 percent of the world's calories and 28 percent of its protein come from livestock.

The global cattle population amounted to about one billion head in 2022, up from approximately 996 million in 2021. Cattle were first domesticated between 10,000 and 5,000 years ago. Cattle have been bred for their meat and dairy products since prehistoric times. Leather is made from cattle skin, while manure is utilized as fuel and fertilizer for crops. One of the most popular types of meat consumed worldwide is cattle meat, such as beef and veal.

The contents of this book cover key areas and relevant information necessary for breeding cattle and mainly focus on practicaloriented concepts on breeding. This book contains various materials suitable for students, researchers, nutritionists, scientists, veterinarians, and academicians in the field of cattle.

#### Seyedmousa Hosseini

Islamic Azad University Qaemshahr Branch Iran

i

	List of Contributors
	(Sort by name)
A. Elsheikh	Animal Production Research Institute, Agriculture
Hanim	Research Center (ARC), Giza, Egypt
Addisu Tegegn	Oromia Agricultural Research Institute, Food Science Research Directorate, Food Microbiology Research Team, Ethiopia
Aman Gudeto	Adami Tulu Agriculture Research Center, Batu, Ethiopia
Amanuel Bekuma	Department of Animal Science, Mettu University, P.O. Box 318, Bedele, Ethiopia
Ashenafi Miresa	Department of Animal Sciences, College of Agriculture and Veterinary Medicine, Jimma University, Ethiopia
Ayantu Mekonnen	Ayantu Mekonnen, Wellega University, Ethiopia
Bainesagn Worku Wolelie	Ethiopian Institute of Agricultural Research, Debre Markos Agricultural Research center, Debre Markos, Ethiopia
Beshir Hussien	Oromia Agricultural Research Institute, Yabello Pastoral and Dryland Agriculture Research Center, P.O. Box 85, Yabello, Ethiopia
Birhanu Bekele	Oromia Agricultural Research Institute, Yabello Pastoral and Dryland Agriculture Research Center, P.O. Box 85, Yabello, Ethiopia
Chandra Vir Singh	Department of Animal Genetics and Breeding, College of Veterinary and Animal Science, G.B. Pant Univ. of Agriculture and Technology, Pantnagar- 263145, Distt. U.S. Nagar (Uttarakhand), India
Dejenie Mengistie	National Agricultural Biotechnology Research center, P.O. Box:31, Holeta, Ethiopia
Dereje Beyene	Addis Ababa University, P.O. Box 1176, Addis Ababa, Ethiopia
Elias Bayu	Mizan Tepi University, college of agriculture and natural resource and department of animal science, Ethiopia

F.M. Abo-Donia	Animal Production Research Institute, Agriculture
	Research Center (ARC), Giza, Egypt
G.E. El-Emam	Animal Production Research Institute, Agriculture
	Research Center (ARC), Giza, Egypt
Genet Zewdie	Ethiopian Biotechnology Institute, P.O. Box 5954,
	Addis Ababa, Ethiopia
Hailu Dadi	Ethiopian Biotechnology Institute, P.O. Box 5954,
	Addis Ababa, Ethiopia
Hamed	Animal Production Research Institute (APRI),
Mohamed	Agricultural Research Center, Dokki, Giza, Egypt
Gaafar	
Jabessa Ayele	Department of Animal Science, Mettu University,
	P.O. Box 318, Bedele, Ethiopia
K. Suk Kim	Department of Animal Science, Chungbuk National
	University, Cheongju, Chungbuk, South Korea
	Ethiopian Institute of Agricultural Research, Holetta
Kefale Getahun	Research Center, P O Box 2003 Addis Ababa or 31
	Holetta, Ethiopia
	Ethiopian Institute of Agricultural Research, Holetta
Kefale Getahun	Agricultural Research Center P.O. Box 2003 Addis
	Ababa or 31 Holetta, Ethiopia
Lakew Alemu	Bench Sheko Zone Agriculture Development
	Department, Ethiopia
M.A. El-Shora	Animal Production Research Institute, Agriculture
<b>NI.A. EI-SHUT</b>	Research Center (ARC), Giza, Egypt
M.A. Fayed	Animal Production Research Institute, Agriculture
Amal	Research Center (ARC), Giza, Egypt
Matiaha Variat-	Department of Animal Science, Bonga University,
Maticha Korato	Bonga, Ethiopia
N 11 N7 1	Department of Animal Science, Mekdela Amba
Medina Yassin	University, Mekdela Amba, Ethiopia
Mehammed Seid	Department of animal science, College of Agriculture,
	Oda Bultum University, Ethiopia
	Department of Animal Sciences, College of
Melaku	Agriculture and Veterinary Medicine, Jimma
Mulugeta	University, Ethiopia
	J / 1

Melkam Tsega	Injibara university department of animal science,
	Ethiopia
Mengistu Urge	Haramaya University, Dire Dawa, Ethiopia
Meskerem Asefa	Department of Animal Science, Mettu University,
	P.O. Box 318, Bedele, Ethiopia
Mohammed	Department of animal science, College of Agriculture,
Yusuf	Oda Bultum University, Ethiopia
	Ethiopian Institute of Agricultural Research, Debre
Mosisa Dire	Zeit Agricultural Research Center, Debre Zeit,
Babura	Ethiopia
Muhammed	Department of dairy and meat technology, College of
Nurye	Agro industry, Oda Bultum University, Ethiopia
	Department of animal science, College of Agriculture,
Mulu Demlie	Oda Bultum University, Ethiopia
	Ethiopian Institute of Agricultural Research, Holetta
Nibo Beneberu	Research Center, P O Box 2003 Addis Ababa or 31
	Holetta, Ethiopia
	Animal Production Research Institute (APRI),
R.A. Mesbah	Agricultural Research Center, Dokki, Giza, Egypt
Sandip Banerjee	College of Agriculture Science and Technology, India
	International Livestock Research Institute, P.O. Box
Selam Meseret	5689, Addis Ababa, Ethiopia
	Oromia Agricultural Research Institute, Food Science
Shure Soboka	Research Directorate, Food Technology and Process
	Engineering Team, Ethiopia
	Animal Production Research Institute, Agriculture
T.H. El-Sawah	Research Center (ARC), Giza, Egypt
	Department of Animal Science, Mekdela Amba
Teramaj Abebe	University, Mekdela Amba, Ethiopia
Tesfa Kassa	Department of Animal Sciences, College of
	Agriculture and Natural Resources, Mekdela Amba
	University, Tulu Awulia, Ethiopia
Tesfaye Alemu	Oromia Agriculture Research Institute (IQQO), Addis
Aredo	Ababa, Ethiopia
	· 1

Tarfarra Strarr	Addis Ababa University, P.O. Box 1176, Addis
Tesfaye Sisay	Ababa, Ethiopia
	Mizan Tepi University, College of Agriculture and
Worku Masho	Natural Resource and Department of Animal Science,
	Ethiopia
Yishak	Department of animal science, College of Agriculture,
Mohammed	Oda Bultum University, Ethiopia
Yosef Tadesse	Haramaya University, Dire Dawa, Ethiopia
	Department of Animal Sciences, College of
Zemedkun Diffe	Agriculture and Natural Resources, Mekdela Amba
	University, Tulu Awulia, Ethiopia
Zenebech Lemma	Ethiopian Institute of Agricultural Research, Holetta
	Research Center, P O Box 2003 Addis Ababa or 31
	Holetta, Ethiopia

V

