

# **Sheep and Goat Production Handbook for Ethiopia**

**Edited by  
Alemu Yami and R.C. Merkel**

**Ethiopia Sheep and Goat  
productivity Improvement Program  
(ESGPIP)**

© Ethiopia Sheep and Goat Productivity Improvement Program, 2008



# ESGPIP

ETHIOPIA SHEEP AND GOAT PRODUCTIVITY IMPROVEMENT PROGRAM

Produced by

*Ethiopia Sheep and Goat Productivity Improvement Program (ESGPIP)*

Funded by

*United States Agency for International Development (USAID)*

Implementing partners

*Prairie View A&M University, Texas, USA;*

*American Institute for Goat Research of Langston University, Oklahoma, USA;*

*Ethiopian Ministry of Agriculture and Rural Development, Ethiopia*

# Contents

Chapter		Page
	Preface	v
<b>1</b>	Economic significance of sheep and goats <i>Adane Hirpa and Girma Abebe</i>	1
<b>2</b>	Breeds of sheep and goats <i>Kassahun Awgichew and Solomon Abegaz</i>	5
<b>3</b>	Sheep and goat production systems in Ethiopia <i>Solomon Abegaz, Girma Abebe and Kassahun Awgichew</i>	27
<b>4</b>	Sheep and goat management <i>Girma Abebe and Alemu Yami</i>	33
<b>5</b>	Reproduction in sheep and goats <i>Girma Abebe</i>	59
<b>6</b>	Genetic improvement of sheep and goats <i>Solomon Abegaz and Kassahun Awgichew</i>	81
<b>7</b>	Nutrition and feeding of sheep and goats <i>Alemu Yami</i>	103
<b>8</b>	Forage development for sheep and goats <i>Solomon Mengistu</i>	161
<b>9</b>	Sheep and goat flock health <i>Sileshi Zewde and Desalegn Lidetu</i>	215
<b>10</b>	Sheep and goat products and by-products <i>Tekle Zeleke</i>	275
<b>11</b>	Sheep and goat economics of production and marketing <i>Adane Hirpa</i>	297
<b>12</b>	Sheep and goat meat characteristics and quality <i>Amha Sebsibe</i>	325
<b>13</b>	Records and record keeping <i>Solomon Abegaz, Kassahun Awgichew, Alemu Yami, Girma Abebe, Sileshi Zewde and Adane Hirpa</i>	341



## Preface

Ethiopia, with over 42 million head, has the third largest number of sheep and goats among African nations and ranks eighth in the world. Traditionally, sheep and goats have served as a means of ready cash and a reserve against economic and agricultural production hardship. However, the proximity of Ethiopia to large Middle Eastern markets demanding export quality sheep and goat carcasses and an increase in the domestic demand for small ruminant meat is leading to a change in the importance and scale of sheep and goat production. No longer are sheep and goats subsistence livestock species only. Economic opportunities exist for small ruminant producers to supply animals to both the export and domestic markets. Taking advantage of these opportunities requires overcoming many barriers to increased productivity, including nutrition, health, reproduction/genetics, marketing, and management. This Sheep and Goat Production Handbook for Ethiopia is designed to assist in overcoming these barriers. Publication of this book is part of the Ethiopia Sheep and Goat Productivity Improvement Program (ESGPIP), a USAID-funded project involving the Ethiopian Ministry of Agriculture and Rural Development (MoARD) and two American universities, Prairie View A&M University and Langston University.

The Sheep and Goat Production Handbook for Ethiopia is the first text devoted to small ruminant production written exclusively for Ethiopian conditions by Ethiopian scientists. The broad scope of the handbook allows it to serve a variety of audiences. Its primary use will be as a training resource and reference handbook for Kebele Development Agents (KDAs) in their quest to transfer knowledge and skills to sheep and goat producers. Other stakeholders, such as non-governmental agencies and development workers will also find the book useful in their efforts to enhance sheep and goat productivity. The depth and coverage of information on all aspects of small ruminant production also renders the book usable in an academic environment as a resource or classroom text.

The outline for the wide array of topics covered in the handbook was prepared by the ESGPIP team with inputs from the MoARD and the American Institute for Goat Research of Langston University. Leading authorities for each topic were sought from universities, research institutes, and the MoARD to develop the handbook's content. Each chapter was then rigorously reviewed by relevant professionals and partner institutions to ensure the content would be applicable and useful to KDAs and farmers. Draft chapters were used in training KDAs in six regions of Ethiopia and comments received from KDAs themselves on ways to improve the handbook's usefulness.

It is the sincere belief of the ESGPIP team that the Sheep and Goat Production Handbook for Ethiopia, along with a companion series of Technical Bulletins on specific issues of small ruminant production, will greatly contribute towards improving the productivity of sheep and goats. Improving small ruminant production will enhance food security and help to bring about meaningful changes in the livelihoods of Ethiopian farmers and the country's economy.

At this juncture, I would like to express my special thanks to Drs. Alemu Yami, Training Officer at the ESGPIP, and Roger Merkel, Langston University, for devoting much effort and time to bring the handbook to its current state.

Desta Hamito (Prof.)  
Chief of Party  
ESGPIP