



农业对外合作之窗

农业对外合作与乡村振兴 系列丛书
Agricultural Foreign Cooperation and Rural Revitalization



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中国农业农村部
Ministry of Agriculture and Rural Affairs, P.R. China
埃塞俄比亚农业转型局
Ethiopian Agricultural Transformation Authority
比尔及梅琳达·盖茨基金会
BILL & MELINDA GATES foundation

联合支持项目
Joint Support Project

4

中国—埃塞俄比亚农业价值链合作研究
——以肉牛、芝麻产业为例

中国农业出版社
CHINA AGRICULTURE PRESS

RESEARCH ON CHINA-ETHIOPIA
AGRICULTURAL VALUE CHAIN COOPERATION

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CASE STUDY OF BEEF CATTLE AND SESAME

农业农村部对外经济合作中心 编著
Foreign Economic Cooperation Center,
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封面设计：姜欣

ISBN 978-7-109-28831-7



定价：89.00元

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China Agriculture Press
北京
Beijing



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序

中国与埃塞俄比亚（以下简称埃塞）自1970年建交以来，双边关系健康发展，合作历久弥新。中国已成为埃塞最大贸易伙伴、最大工程承包方和主要投资来源国。2019年两国政府签订了关于共建“一带一路”的合作规划。

农业是埃塞政府高度重视和重点支持的产业之一，也是中国和埃塞开展合作的重要领域之一。为进一步加强双边农业合作，在比尔及梅琳达·盖茨基金会（以下简称盖茨基金会）“埃塞与中国农业合作”项目支持下，2018年11月，中国农业农村部对外经济合作中心（FECC）与埃塞农业转型局（ATA）签署了《关于促进埃塞农业领域合作的谅解备忘录》。双方以识别战略合作机遇为目标，共同设计中国-埃塞农业合作方案，以构建农业价值链合作模式为抓手，以需求为驱动，以市场为导向，吸引中国私营部门加入，推动埃塞重点农业产业发展，促进提高埃塞农业生产能力和小农户的生计能力，实现互利共赢。在盖茨基金会和ATA的支持与协作下，针对埃塞方提出的肉牛和芝麻等重点农业产业的合作发展需求，FECC牵头开展了近2年的深入研究，于2019年5月和11月组团赴埃塞开展了17天实地调研，收集了丰富的一手素材，之后完成了相应的研究报告。

本研究的创新之处在于探索了农业价值链国际合作模式，注重合作的可持续发展。基于近年来农业“走出去”的实践经验，在此次合作中，FECC不偏重单个环节、单个合作类型，而是着力构建农产品的价值链合作模式，从田间到餐桌，从投入品到市场销售，抓住埃塞肉牛和芝麻产业价值链上的关键环节，结合中国肉牛和芝麻的产业发展经验，

邀请相关环节的资深专家和业内龙头企业，共同开展研究和实地考察。专家和企业代表均表示，通过对整个产业价值链的考察，了解了产品的上下游发展情况，有利于更好研判技术合作或投资项目的机遇和挑战。研究最终促成了产学研相结合、上下游相关联的价值链合作方案。

本研究得到了多方的关注和支持。特别感谢盖茨基金会对项目启动和执行给予的大力支持和通力合作。在项目推进过程中，我们得到了国内外众多部门和机构的广泛支持，包括中国海关总署、国家国际发展合作署、农业农村部国际交流服务中心、中国驻埃塞大使馆经济商务处、安徽省农业农村委员会、埃塞农业部、埃塞投资委员会、埃塞驻中国大使馆、联合国国际贸易促进中心、世界银行埃塞办公室、非洲绿色联盟等。我们邀请了价值链重要环节上的业内资深科研和技术团队、业内龙头企业、驻埃塞中资企业广泛参与，包括中国农业大学肉牛研究中心、中国农业科学院油料作物研究所、中国援埃塞高级农业专家组、梅特国际集团、中土畜通利进出口有限公司、青岛易邦生物工程有限公司、内蒙古东方万旗肉牛产业有限公司、康地谷物公司亚洲总部、英利华集团、合肥燕庄食用油有限公司、中垦锦绣华农武汉科技有限公司、传音控股有限公司、吾谷良品网络技术有限公司、中国土木工程集团有限公司埃塞俄比亚工程有限公司、中国中材国际工程股份有限公司埃塞分公司、埃塞亚宇农场等。中地海外农业发展有限公司埃塞分公司对本项目的实地调研给予了充分的当地活动支持。借此机会，向各方再次表示诚挚的感谢。

在研究后期，提出的部分合作建议已形成共识并进入实操阶段。ATA于2019年9月赴中国山东青岛和内蒙古对有意向投资埃塞肉牛产业价值链合作的企业进行了实地考察，中资企业对埃塞的动物疫苗投资项目正紧锣密鼓推进，在埃塞开展肉牛养殖屠宰一体化项目的双方企业已开展多次商谈。在2019年12月召开的“首届中非农业论坛”上，合肥燕庄食用油有限公司、中垦锦绣华农武汉科技有限公司与埃塞Hiwot Agriculture公司（埃塞提格雷州最大的农业公司）、Desta Group公司（埃

塞提格雷州大型农场)分别签署了“中国-埃塞芝麻国际订单农场项目合作备忘录”,双方企业计划在2020年芝麻生产季开始联合生产。随后埃塞驻华大使馆赴安徽和湖北对签约的两家企业和中国农业科学院油料作物研究所进行了实地走访。

但由于2020年突如其来的新冠疫情全球大流行,以及2020年11月埃塞北部芝麻产区发生动乱,本项目设计的大部分合作方案暂缓推进。可喜的是,中垦锦绣华农武汉科技有限公司与中国农业科学院油料作物研究所联合申请获批了湖北省国际合作领域重点研发计划项目“中国-埃塞俄比亚高产优质适宜机械化芝麻品种选育及示范”,此项目正与埃塞方共同执行中。全球正在努力抗击新冠疫情,埃塞芝麻产区的局势正趋于恢复稳定,为恢复经济发展和民众生活,双方合作的需求将愈加凸显。

希望本书的出版能够给相关机构和企业提供埃塞肉牛和芝麻产业价值链的一手素材,吸引更多的公共资源和私营部门加入合作,在各方的共同努力下,加快推进相关领域的务实合作,实现互利共赢,并促进双方在农业领域实现更广泛的合作。同时,也希望本书能够为其他农业国际合作提供价值链合作模式参考。

编者



Preface

Since the establishment of diplomatic relations between Ethiopia and China in 1970, the bilateral relations between the two countries have developed well and our cooperation has a long history. China has become Ethiopia's largest trading partner, largest project contractor and major source of investment. In 2019, the two countries signed the "Belt and Road" joint development initiative.

Agriculture is one of the key industries supported by the Ethiopian government, and it's also one of the key areas of cooperation between Ethiopia and China. To further strengthen bilateral agricultural cooperation, supported by the "Ethiopia-China Agricultural Cooperation" program of the Bill & Melinda Gates Foundation, in November 2018, the Foreign Economic Cooperation Center of the Ministry of Agriculture and Rural Affairs (FECC) and the Ethiopian Agricultural Transformation Authority (ATA) signed the "Memorandum of Understanding on Promoting Cooperation in the Field of Agriculture in Ethiopia". The aim is to identify cooperation opportunities, co-design Ethiopia-China agricultural cooperation program, taking the development of agricultural value chain cooperation model as the starting point, in a demand-driven and market-oriented manner, attract Chinese public and private sector to come in to jointly promote the development of Ethiopia's key agricultural industries, improve the agricultural production capacity and the livelihood capacity of Ethiopian smallholder farmers, contribute to the reduction of poverty in Ethiopia, and achieve win-win results. With the support and cooperation of Gates Foundation and ATA, FECC has taken the lead in conducting in-depth study for nearly two years in response to the cooperative development needs of key agricultural industries such as beef cattle and sesame proposed by Ethiopia. In May and November of 2019, FECC organized delegations to come to Ethiopia and conduct 17

days of field research, during which time abundant first-hand materials were collected, and the corresponding research report was completed after the field research.

This study is unique in that it explores the international cooperation model of agricultural value chain and focuses on the sustainable development of cooperation. Based on the practical experience of “going out” in the field of agriculture in recent years, in this cooperation, FECC does not focus on single link and single type of cooperation, but on building a value chain cooperation model of agricultural products, from farm field to dinner table, from inputs to market sales, focusing on key links in the value chain of Ethiopia’s beef cattle and sesame industry, combining with the industrial development experience of China’s beef cattle and sesame industry, and inviting senior experts and leading enterprises in the industry to jointly conduct research and field visits. All experts and enterprise representatives stated that understanding the upstream and downstream development of products through the investigation of the entire industry value chain is conducive to better studying and assessing the opportunities and challenges of technical cooperation or investment projects. The research eventually led to the value chain cooperation plan of “integrating industry, university and research, and linking upstream and downstream links”.

This study has been emphasized on and supported by multiple parties. Special thanks to Gates Foundation for their support and cooperation in the initiation and implementation of the project. In the process of the project, we received extensive support from multiple institutions and departments in China and abroad, including the General Administration of Customs of China, China International Development Cooperation Agency, Center of International Cooperation Service of MARA of China, the Economic and Commercial Office of the Embassy of China in Ethiopia, the Agricultural and Rural Affairs Committee of Anhui Province of China, the Ministry of Agriculture of Ethiopia, the Investment Committee of Ethiopia, the Embassy of Ethiopia in China, the International Trade Centre of the United Nations, Ethiopia Office of the World Bank, African Green Union, etc. We invited the industry’s senior scientific research and technical teams, leading enterprises and Chinese funded enterprises in Ethiopia, including

the Beef Cattle Research Center of China Agricultural University, Oil Crops Research Institute of Chinese Academy of Agricultural Sciences (OCRI), senior agricultural expert group of China in Ethiopia, Meat International Group, China Tuxu Tongli Import and Export Co., Ltd., Qingdao Yebio Bioengineering Co., Ltd., Inner Mongolia Oriental Flag Beef Cattle Industry Co., Ltd., Asia headquarter of Continental Grain Company, Unival Group, Hefei Yanzhuang Edible Oil Co., Ltd., Wuhan Good-seed Technology Co., Ltd., Transsion Holdings, Wuguliangpin Network Technology Co., Ltd., China Civil Engineering Construction Corporation, Sinoma International Ethiopia, Ethiopia Yayu Farm, etc. CGCOC Ethiopia has given full support to the local activities of the field research of the project. We would like to take this opportunity to express once again our sincere thanks to all parties.

In the later stage of the study, some cooperation proposals have reached a consensus and entered the implementing stage. ATA went to Qingdao and Inner Mongolia of China in September 2019 to conduct on-the-spot investigation on enterprises intending to invest in the value chain cooperation of beef cattle industry in Ethiopia. Chinese funded enterprises are vigorously promoting animal vaccine investment projects in Ethiopia, and enterprises of both sides have held multiple discussions on the beef cattle breeding and slaughtering integration project in Ethiopia. At the “First Forum on China-Africa Agricultural Cooperation” held in December 2019, Hefei Yanzhuang Edible Oil Co., Ltd., Zhongkenjinxiu Huanong Wuhan Technology Co., Ltd., Ethiopia Hiwot Agriculture Co., Ltd. (the largest agricultural company in Ethiopia) and Desta Group Co., Ltd. (large farm in Ethiopia) signed the “Memorandum of Cooperation on China Ethiopia Sesame International Order-based Farm Project” respectively. The two companies planned to start the joint production in 2020 sesame production season. Subsequently, the Embassy of Ethiopia in China went to Anhui and Hubei provinces of China to visit the two contracted enterprises and OCRI.

However, the global pandemic of COVID-19 broke out in 2020, and unrest in sesame producing areas of Northern Ethiopia in November 2020, caused most of the cooperative projects designed for this project to be postponed. It is gratifying that Wuhan Good-seed Technology Co., Ltd. and the Oil Crop Research Institute of the Chinese Academy of Agricultural Sciences

have jointly applied for approval of the Hubei Province's key research and development project in the field of international cooperation "China-Ethiopia high-yield, high-quality suitable mechanized sesame variety selection and demonstration". This project is being implemented jointly with Ethiopia. The world is striving to fight against the pandemic and the situation in the sesame producing areas of Ethiopia is tending to be stable. In order to restore economic development and people's livelihood, the demand for cooperation between the two sides will become increasingly prominent.

It is hoped that the publication of this book can provide first-hand materials for the value chain of beef cattle and sesame industry in Ethiopia to relevant institutions and enterprises, attract more public resources and private sectors to join in the cooperation, accelerate the practical cooperation in relevant fields with the joint efforts of all parties, realize mutual benefit and win-win, and promote the two sides to achieve broader cooperation in the agricultural field. At the same time, it is hoped that this book can provide value chain cooperation model reference for other international agricultural value chain cooperation.

Editorial Board



摘要

畜牧业和芝麻产业在埃塞俄比亚的经济发展中占有重要地位，中国和埃塞在畜牧业和芝麻产业领域均具有扩大合作的潜能。埃塞拥有非洲最大和世界第五大牛群，但出口量微小；埃塞是世界芝麻的主要生产国和出口国，芝麻是埃塞第二大出口创汇产品。中国是国际牛肉、芝麻的主要消费国和进口国，也是埃塞芝麻的主要进口国。

本研究对埃塞肉牛和芝麻产业价值链开展了深入的案头研究和实地考察。埃塞的肉牛和芝麻产业具有较好的比较优势和发展潜力。但埃塞牛群的疫情、牛肉品质和成本等因素制约了埃塞进入广阔的国际市场，芝麻的低单产、高人工成本等因素制约了埃塞芝麻更好发挥国际竞争力。回顾中国的肉牛和芝麻产业发展历史，中国也曾经历相似的生产发展历程，通过近几十年的发展已在肉牛和芝麻产业价值链的各个环节都积累了丰富经验和适宜技术，并随着国民经济的发展和收入水平的提高形成了巨大的消费市场和进口需求。

在肉牛产业价值链合作方面，建议埃塞方创造更良好的营商环境，吸引中国私营部门进入疫病防控和一体化生产环节。中方可与埃塞方在价值链的育种、育肥、饲料、防疫、屠宰等重点环节进行经验分享和技术交流，降低生产成本，提高牛肉品质。中国的科研机构 and 私营部门可在肉牛价值链的薄弱环节寻找技术和资本的合作机会，以疫病防控先行，新建疫苗、兽药厂，助力加强埃塞肉牛疫病防控能力；建设饲草种植、肉牛养殖和屠宰生产一体化示范项目，进行成本控制和品质提升；遵循埃塞活畜和肉类发展战略，在近期以扩大中东市场为主，在中长期开拓进入更广阔的国际市场。

在芝麻产业价值链合作方面，建议以提高单产、降低人工成本为核心目标，吸引中国公共部门和私营部门建立长期合作机制，开展品种改良、芝麻机械化生产等方面的技术合作和能力建设；基于埃塞芝麻产业成熟的生产组织体系，发展国际订单农业合作，在订单农场中嵌入适宜的育种、栽培技术和农机，保障埃塞芝麻的稳定销售。通过打造合作示范模式，吸引更多的中国私营部门加入，实现双方互利共赢，推动埃塞芝麻产业价值链的可持续发展。



Abstract



The livestock sector and sesame play an important role in the economic development of Ethiopia. China and Ethiopia have the potential to expand cooperation in the livestock and sesame industry. Ethiopia has the largest cattle herd in Africa and the fifth largest in the world, but its export volume is limited; sesame is the second largest export product of Ethiopia, and Ethiopia is a major producer and exporter of sesame in the world. China is a major international consumer and importer of beef and sesame, as well as a major importer of sesame from Ethiopia.

This program carried out in-depth desk research and field research on the value chain of beef cattle and sesame industry in Ethiopia. The beef cattle and sesame industry in Ethiopia have good comparative advantages and development potential. However, the epidemic diseases of cattle in Ethiopia, the quality and cost of beef and other factors restrict Ethiopia's entry into the broad international market. Sesame's low yield and high labor cost restrict Ethiopia from gaining greater international competitiveness. Looking back on the development history of beef cattle and sesame industry in China, we see that China has experienced a similar course of production and development. Through the development in recent decades, we have accumulated rich experience and suitable technologies in all links of beef cattle and sesame industry value chain, and formed a huge consumer market and import demand with the development of national economy and the improvement of income level.

In terms of beef cattle industry value chain cooperation, it is suggested that Ethiopia create a better business operation environment to attract Chinese private sector to come into the field of epidemic prevention and control and integrated production. China can share experience and technologies with Ethiopia in breeding, fattening, feed, epidemic prevention, slaughtering

and other key links of the value chain, so as to reduce production costs and improve beef quality. China's scientific research institutions and the private sector can seek opportunities for cooperation in technology and capital in the weak links of beef cattle value chain, prioritize epidemic prevention and control, build vaccine and veterinary drug factories, and help to strengthen the epidemic prevention and control capacity of Ethiopia; establish forage planting, beef cattle breeding and slaughter production integration demonstration projects, control costs and improve quality; the development of beef export market needs to follow the Live Animal and Meat Development Strategy of Ethiopia, with a focus on expanding the Middle East market in the near future and expanding into a broader international market in the medium and long term.

In terms of sesame industry value chain cooperation, it is suggested that the core goal should be to increase the yield per unit area and reduce the labor cost, attract the Chinese public and private sectors to establish a long-term cooperation mechanism, and carry out technical cooperation and capacity-building in variety improvement and mechanized production; based on the mature production organization system of the sesame industry in Ethiopia, we should develop international cooperation in order-based farming, embed appropriate breeding, cultivation technologies and agricultural machinery in order-based farms, and ensure the stable sales of sesame in Ethiopia. By creating a model of cooperation demonstration, more Chinese private sectors will be attracted to join in, so as to achieve mutual benefit and win-win results and promote the sustainable development of the sesame industry value chain in Ethiopia.



前言

埃塞俄比亚位于非洲东北部，面积110.36万平方公里，人口1.12亿（世界银行，2019），是具有3 000多年历史的文明古国和非洲第二人口大国。

近年来埃塞经济快速发展，是世界上经济增速最快的经济体之一，对外国投资者有着强大的吸引力。埃塞充分借鉴中国发展经验，实施以经济建设为中心、以农业和基础设施建设为先导的发展战略。埃塞于2010年发布了“增长和转型计划”（GTP），涵盖三个阶段：GTP I（2010/11—2014/15），GTP II（2015/16—2019/20），GTP III（2020/21—2024/25），目前已执行了前两个5年计划，取得了一系列重大进展。据世界银行统计，过去10多年间，埃塞经济年均增长率近10%，长期位居全球经济增长最快的10个国家行列。2019年，在全球经济低迷和国内发生严重干旱的大环境下，埃塞人均GDP为961美元，仍以9%的经济增长率领跑全球。

当前，埃塞正面临政府债务上升、外汇持续短缺、区域发展失衡等“成长中的烦恼”。但埃塞借鉴中国经验，建设工业园区，制定了财政激励政策、非财政激励政策等有力的招商优惠政策（见附录1），凭借丰沛的人口红利、低廉的营商成本和巨大的市场潜力，不断吸引着外国投资者赴埃塞开拓商机，中国则已成为埃塞外国投资最重要的来源国。

农业是埃塞国民经济和出口创汇的支柱，与中国具有优势互补和合作共赢的广阔空间。埃塞农业约占GDP的40%，农产品出口约占出口总额的80%。其中，埃塞的畜牧业直接和间接地为60%~70%的埃塞人口的生计作出贡献，而畜牧业的近一半为养牛业，芝麻则是埃塞第二

大出口创汇产品。中国是国际牛肉、芝麻的主要消费国和进口国，也是埃塞芝麻的主要进口国，中国也具备丰富的畜牧业、芝麻产业的发展经验和适宜技术。

为加强中国-埃塞的双边农业合作，在盖茨基金会的“埃塞与中国农业合作”项目支持下，在埃塞农业转型局（ATA）通力合作下，中国农业农村部对外经济合作中心（FECC）于2018—2020年牵头开展了中国-埃塞肉牛和芝麻产业价值链合作研究。

本书上篇为中国-埃塞肉牛产业价值链合作研究成果，下篇为中国-埃塞芝麻产业价值链合作研究成果。具体章节内容包括：①案头研究，基于已有文献资料和数据，对埃塞肉牛产业价值链的品种繁育、育肥、饲料、防疫、屠宰加工、出口和芝麻产业价值链的品种、种植、市场、出口等核心环节进行简要回顾。②分享中国经验与市场需求，邀请中国肉牛和芝麻产业价值链重要环节的资深专家加入项目组，梳理中国肉牛和芝麻产业价值链发展经验，对两国的相似阶段进行对比分析，分析了中国牛肉和芝麻产品的消费市场和进口需求。③开展实地调研，FECC邀请了对埃塞肉牛和芝麻产业价值链感兴趣的相关中国企业加入调研团，分享前期研究成果，识别实地调研详细需求，并于2019年5月和11月，分别赴埃塞实地考察肉牛和芝麻产业价值链的主要环节。两次调研团共邀请了10名专家、12家企业、2个国际机构参团，在17天时间里马不停蹄地开展了52场调研，收集了丰富的一手素材。④结合案头研究和实地考察，分析埃塞肉牛和芝麻产业价值链的发展潜力、国际竞争力和制约因素。⑤提出中国公共和私营部门参与埃塞肉牛产业、芝麻产业价值链发展的合作展望和建议。



Introduction

Ethiopia is located in the northeast of Africa, with an area of 1,103,600 square kilometers and a population of 112 million (World Bank, 2019). The country is an ancient civilization with a history of more than 3,000 years and the second most populous country in Africa.

In recent years, with rapid economic development, Ethiopia became one of the fastest growing economies in the world and a great attraction to foreign investors. Ethiopia fully learns from China's development experience and implemented the development strategy with economic construction as the center and agriculture and infrastructure construction leading the way. Ethiopia issued the *Growth and Transformation Plan* (GTP) in 2010, with three stages: GTP I (2010/11-2014/15), GTP II (2015/16-2019/20) and GTP III (2020/21-2024/25). At present, the first two five-year plans have been implemented and a series of significant progress has been achieved. According to the statistics of the World Bank, in the past 10 years, the average annual economic growth rate of Ethiopia has been nearly 10%, ranking among the top 10 fastest growing countries in the world for a long time. In 2019, against the backdrop of global economic downturn and severe domestic drought, Ethiopia's per capita GDP was 961 US dollars, still leading the world with 9% economic growth rate.

At present, Ethiopia is facing “growing pains” such as rising government debt, continuous shortage of foreign exchange and imbalance of regional development. Ethiopia learned from China's experience, built industrial parks, formulated financial incentive policies, non-financial incentive policies and other powerful preferential policies for investment promotion (see the Annex). With abundant demographic dividend, low business operation cost and huge market potential, Ethiopia has been continuously attracting foreign investors to explore business opportunities in Ethiopia, and China

has become the most important source country for foreign investment in Ethiopia.

Agriculture is a pillar of Ethiopia's national economy and foreign exchange earnings through export. Ethiopia and China have ample room for complementing each other and win-win cooperation in this aspect. Ethiopia's agriculture accounts for about 40% of its GDP, and the export of agricultural products accounts for about 80% of total export. In particular, livestock sector directly and indirectly contributes to the livelihood of 60%-70% of the population in Ethiopia, while nearly half of the livestock sector is cattle farming. Sesame is the second largest export product in Ethiopia. China is a major consumer and importer of beef and sesame in the world, and it's a major importer of sesame from Ethiopia. China also has rich experience and suitable technologies in the development of livestock and sesame industry.

In order to strengthen the bilateral agricultural cooperation between China and Ethiopia, supported by the "Ethiopia-China Agricultural Cooperation" program of the Bill & Melinda Gates Foundation, and with the full cooperation of ATA, FECC led the research on the Ethiopia-China beef cattle and sesame industry value chain cooperation from 2018 to 2020.

Part I of this book addresses the research results of Ethiopia-China beef cattle industry value chain cooperation, and Part II addresses the research results of Ethiopia-China sesame industry value chain cooperation. The contents of the specific chapters include: ① Desk research: based on the existing literature and data, a brief review of the breeding, fattening, feeding, disease prevention, slaughtering and processing, export of beef cattle industry value chain in Ethiopia, and the variety, planting, market, export and other core links of the sesame industry value chain in Ethiopia. ② Sharing China's experience and market demand, senior experts in China's beef cattle and sesame value chain were invited to join the program team, to share China's development experience, to make comparisons and analysis of the similar stages of the two countries, to analyze China's beef and sesame's consumption market and import demand. ③ Field research: FECC invited relevant Chinese enterprises interested in the value chain of beef cattle and sesame industry in Ethiopia to join the delegation to share their preliminary

research results and identify the detailed needs from field research. In May and November 2019, FECC went to Ethiopia to investigate the main links of beef cattle and sesame industry value chain. For the two delegations, 10 experts, 12 enterprises and 2 international institutions were invited. In 17 days, the groups carried out 52 research non-stop and collected rich first-hand materials. ⑤ Combined with desk research and field investigation, analysis of the development potential, international competitiveness, and constraints of the value chain of beef cattle and sesame industry in Ethiopia. 6. Cooperation prospects and suggestions for Chinese public and private sectors participating in the development of beef cattle industry and sesame industry value chain in Ethiopia.



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中国 - 埃塞肉牛产业 价值链合作研究



埃塞俄比亚的增长与转型计划二期（GTP II）为畜牧业发展制定了宏伟目标：计划在2025年之前成为非洲排名第一的畜牧业出口国，大幅提升在全球的畜牧产品竞争力，其中肉牛业是优先发展的子行业之一。

截至目前，埃塞与中国在畜牧业方面的相关合作除皮革制品业外还比较有限，两国间没有牛肉贸易，但两国在畜牧业方面仍存在扩大合作的机会。埃塞拥有世界排名第五的牛群存栏量，具有良好的发展潜力；而中国拥有畜牧业产业化发展的丰富经验，并且将持续保持全球第一大牛肉进口市场的位置。

根据ATA前期的研究，埃塞俄比亚目前的牛肉主要销往中东，出口附加值极低，且附加值分散在整个价值链，商业运作受限，出口量小。埃塞希望采用更具战略性和综合性的方法来解决价值链断裂问题，最终可以服务于未来庞大且不断增长的东亚/东南亚市场。通过引入经验丰富特别是那些与小农户以包容模式合作的私营部门参与牛肉生产，以及引入改善检验和检疫标准等有助于提高行业一体化程度的关键干预措施，支持埃塞在畜牧业发展方面取得成绩，而中国是具备提供一揽子支持措施的国家之一。

1 埃塞肉牛产业价值链文献回顾

畜牧业在埃塞经济中占有重要地位，占国内生产总值的20%^①、占农业国内生产总值的50%，提供了16%~19%的外汇收入来源。畜牧业不仅具有非货币社会价值，而且是储存和积累财富的最有吸引力的资产。

埃塞家畜中45%为牛，拥有非洲最大和世界第五大牛群。2016年埃塞牛存栏量近6000万头，占全球牛存栏量的5%。尽管拥有庞大的活牛数量，但埃塞在2016年仅出口牛肉2.8万吨，占全球牛肉出口量的0.3%，在世界上仅排名第33位。

为了增加市场供应，埃塞于2016年制定的畜牧业总体规划（LMP）提出到2020年将红肉产量提高52%。但肉牛生产系统不足以实现其目标，必须引进和制定创新性干预措施，通过市场商业化机制提升生产率、增加牛肉供给，并采取吸引外商直接投资该领域。

本章根据ATA提供的相关文件和统计数据对埃塞肉牛产业价值链发展的现状、政府目标和主要制约因素进行简要回顾。

1.1 埃塞肉牛产业发展处于初级阶段

1.1.1 肉牛生产系统

埃塞的牛以农户分散养殖为主，主要有两个畜牧生产系统：①高原农作物-畜牧混合生产系统，该系统占地约为埃塞国土面积的40%，海拔超过1500米，3500万~4000万头牛，每户平均2~5头，其中役用牛占40%~50%，奶牛占25%，役用牛中的公牛经过4~5年劳动后当作产肉动物出售。埃塞高原地区牲畜多为家畜，饲料以农作物秸秆和天然牧草为主，疾病流行率较低，供水相对充足。②低地畜牧生产系统，该系统占地约为埃塞国土面积的60%，海拔低于1500米，有1000万~2000万头牛，每户平均10~15头，70%的母牛以乳用为主，公牛常被卖到高原地区用于耕作。

1.1.2 品种和繁育

埃塞大约有27个本地牛种，以及很少的几个外来牛种，如弗里斯牛、荷斯坦牛、娟姗牛和西门塔尔牛等。埃塞本地的博朗（Boran）牛在生长、繁殖、产奶量和胴体性状方面均优于其他本地牛种，肉质优良，饲料转化效率高。

埃塞本地品种牛的生产力因品种和管理方法而异，与其他国家在类似农业气候条件下成长的改良品种相比存在很大差距。提高家畜生产力和肉品质量的关键是提高遗传资源投入，如改良的配种公牛和青年母牛、遗传物质（精液）和液氮。目前，这些投入对农村养殖户来说明显不足。另外，自然和人工育种成功率很低，并缺乏管理措施。国家建立了肉牛品种改良中心和育种场，开展品种改良研究，并将改良后的牛分配给养殖户，但养殖户对其关注度有限。

1.1.3 饲料和育肥

埃塞动物饲养成本不断增加，在近7年增加了2倍。粮食作物竞争、牧场保护意识不足和季节性降水短缺造成牧草供应变动，低地的牧区和农牧区、高原的天然牧场过度放牧和管理不善，面粉、榨油副产品等农副产品和混合饲料短缺及价格偏高，最终导致区域间

^① 本章的数据资料主要来源于ATA提供的相关内部文件，详见参考文献。

饲养和育肥不均，制约了生产力发展。此外，畜牧业现代饲养技术知识和管理实践的不足，也是影响肉牛饲养效益的重要因素。

在埃塞，牛群育肥由传统小农户、小型育肥场和主要以出口为导向的大型育肥企业进行。育肥场对于牛源的数量和红肉的质量都发挥了调节和缓解市场牛源波动的作用。随着出口活畜的需求和埃塞国内市场对红肉的需求不断增加，这一模式正在迅速发展，育肥场在初级市场以低价收购架子牛或淘汰牛，然后通过高能量饲料饲喂使育肥牛增加附加价值，以便在利润更高的市场上销售。育肥场通过市场代理商或中小型贸易商即牛贩购买活牛，偶尔也从合作社购买。育肥场一般购买体重小于200千克的架子牛，所有用于出口的公牛都养在育肥场，直到它们的体重达到300千克的最低出栏标准。育肥场经常用租来的车运输活牛。受到经济能力的限制，承运商只能活动在一个狭窄的地理区域内；而饲料、水、土地等生产投入和信贷的缺乏，正在成为阻碍育肥场建设速度的因素。

目前全国每年经过育肥的牛数量不足100万头，占总头数的1.7%。埃塞的畜牧业发展规划提出，到2030年经过育肥饲养的牛只数量计划达到600万头以上。为了达到这个目标，需要大规模扩大育肥牛群的规模，将中小型肉牛专业养殖场的数量从2014年的3万个增加到2021年的57.7万个。

1.1.4 疫苗和兽药

埃塞农业部的畜牧资源部门负责疫苗和兽药的检疫服务和质量控制，并负责通过联邦研究机构和地方兽药实验室开展研究和疾病监测。虽然政府预算不足以满足从国内和国际采购药品的年度需求，但是政府机构仍是动物保健产品分销的主要机构。

位于Bishoftu市的国家兽医研究所(NVI)生产了23种针对不同细菌和病毒性疾病的疫苗。然而，其目前的生产能力尚不能满足此类疫苗的现实需求。目前政府已经不直接进口兽药，而是通过招标方式从私营企业批量购买当地制造或进口的兽药、设备和化学品，分发给各州管理部门。在政府的监管下，私营进口商在为小型养殖户进口、分发和供应兽药、设备和化学品方面发挥了重要作用。

缺乏规模性、系统性的动物免疫是扩大外国市场的主要障碍之一。埃塞有乡村级（最低的行政单位）的季节性传染病防疫项目，并主要为出口畜群打疫苗，无法根治疫病暴发，达不到世界动物卫生组织(OIE)规定的两年无疫病的出口标准。

1.1.5 营销和交易

埃塞的活畜交易市场有三个层次：①村级市场，这是一级市场，也是主要的市场，一般每周出售的牛少于500头。②集中市场，这是二级市场，每周牛的成交量为500~1000头。这些市场由中间商（贸易商和代理商，也称牛贩）主导，但也服务于当地屠宰户。③终端市场，一般位于大城市中心，主要是由中大型交易公司主导。这三个层次的市场组织比较混乱、分散，有各种类型的买家、卖家、中间商参与其中。市场之间的基础设施建设非常薄弱，大部分地区向市场供应动物的路程都非常艰难。

在大多数家畜市场，除了目视观察外，没有销售和购买动物的客观标准。多个中间商从小农户采购活畜的系统，使埃塞很难以具有竞争力的价格向出口市场提供优质肉类。

1.1.6 屠宰和加工

埃塞的肉类加工业正在崛起，城市屠宰场、出口屠宰场、肉贩、餐馆/酒店在其中发

挥着重要作用（图1-1）。商业化屠宰场是此环节的主要参与者，他们从商人那里购买活畜，或者直接通过市场代理商购买。大多数屠宰场是为达到出口目的而建立，但也有地方屠宰场为肉贩和国内零售商提供服务。

由于进口国的严格监管，埃塞几乎所有的红肉出口都需要通过正规渠道完成。自从有活畜出口和后院屠宰以来，约一半的牛在屠宰场外被屠宰。活畜和肉类的正规出口推动了在各地建立屠宰场和育肥设施的进展。屠宰场与育肥设施的地点选择又会受到饲料供应、航空运输、销售终端的距离临近市场以及家畜徒步行走路线距离屠宰场的距离等因素的影响。在大多数情况下，屠宰场收到顾客的订单后才进行屠宰。基于订单的屠宰场无法使其满负荷运转，当前屠宰场的平均产能仅约为设计能力的34%。大部分屠宰场缺乏现代化技术规程和标准化设施，缺乏生产半加工或深加工肉制品的能力，可生产的产品规格种类有限，肉品的品质难以保障。

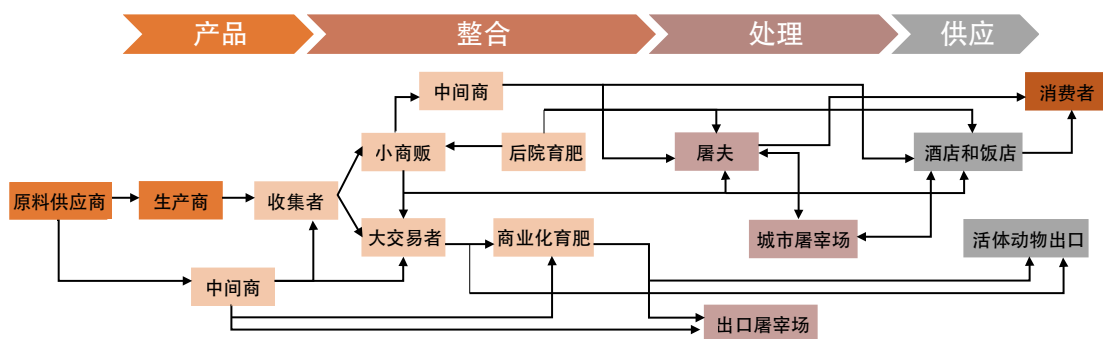


图1-1 埃塞家畜市场流程图

1.1.7 需求和市场

埃塞国内牛肉市场正在缓慢扩大。1993—2011年，人均牛肉年消费量保持在约5千克，但随着人口增长，牛肉消费总量年均增长率为3.2%。2014年牛肉价格比2005年高出约50%。2017年首都亚的斯亚贝巴市每千克优质、高端、中端和低端牛肉的价格分别为9.8美元、8.2美元、6.5美元和4.4美元。埃塞的国内红肉消费量较低的主要原因是肉品的市场售价高，低收入家庭难以负担；此外，埃塞东正教每年超过200天斋戒也影响了肉类的消费量。随着国民收入水平的提高，消费者将会消费更多的肉类，这一趋势将适用于埃塞。

埃塞牛肉出口占全球出口总额的比例很小，不足1%。主要有以下五个原因：①低出栏率（2013年为6%，中国为35%）；②大量活牛卖给了不规范的屠宰场或以非正规渠道出售；③大多数牧民只在有需要时出售牛，更倾向于维持牛群规模；④缺乏认证和国际标准；⑤出口市场因疫病和品质、成本等因素，国际竞争力不强。

埃塞的活畜出口受到进口国因疾病暴发而实施禁令的制约，最大的活畜出口国市场为苏丹、索马里、埃及、吉布提、沙特阿拉伯、也门和阿拉伯联合酋长国等。在红肉方面，埃塞的主要出口市场为中东。

1.2 主要瓶颈和SWOT分析

从对生产质量、数量和价格竞争力的影响角度考察，埃塞肉牛产业价值链中的主要

瓶颈包括如下几项：①相关政策支持、监管执法较弱。②由于成本高昂和高品质饲料的短缺，优质饲料投资不足。③缺少有效防疫，动物健康难以保障。④畜牧业市场导向型的生产经验不足。⑤由于市场发育不完善，中间商参与度很高。⑥下游市场联系薄弱。⑦运输基础设施有限导致肉质差。⑧中间商过多导致农民获取的利润空间很少。政府希望一旦解决了关键的价值链限制，埃塞就有机会成为3个核心市场的重要参与者：当务之急为中东市场；中期机会在东亚和东南亚市场；长期机会在高速增长的非洲市场。

相关研究对埃塞肉牛产业价值链进行了SWOT分析（表1-1）。

表1-1 埃塞肉牛产业价值链SWOT分析

优势

- 畜牧业具有经济意义和创造就业机会的潜力；
- 拥有养牛和小型反刍动物养殖传统，也具有红肉的消费习惯；
- 政府制定了具有宏大愿景的畜牧业总体规划（LMP），并通过建立综合农业产业园区来实现农业部门的愿景；
- 已建立国家和地区层面的动物健康诊断中心；
- 已建立国家和地区层面的畜牧研究机构，开展相关技术研究，提高畜牧生产率；
- 已建立国家和地区层面的畜牧部门推广机构，并投入运行；
- 已建立国家兽医机构，可以生产多种活畜的疫苗；
- 各类大学和职业技术学院开始建成并培养农业方面的专业人才；
- 已有机构和项目/发展伙伴支持畜牧业领域，如已建立检疫站、育肥场、屠宰场和肉类加工公司。

弱点

- 政府对畜牧业的支持能力较弱；
- 在一些地区，由于人口压力、耕种面积扩大和土地退化，可用土地面积正在减少，缺乏土地利用政策；
- 本地品种牲畜的生产力很低，没有完善的可持续育种计划（包括国家数据库和有效的记录系统）；
- 牧草和饲料的质量与数量不足，进出口受限；
- 对畜牧业发展的研究基础差（例如育种和饲养技术薄弱等）；
- 动物管理不善，对现代畜牧业的了解有限；
- 供给动物的水主要来自溪流、湖泊等雨水集聚；
- 动物疫苗接种体系不健全，缺乏定期的随访和检查（没有动物检疫体系）。此外，影响经济重要性的动物疾病的发病率很高；
- 公共动物卫生服务和推广服务体系薄弱（如缺乏兽医诊所和专业推广人员），并且其提供的服务与生产者的需求和知识不相称；
- 在防疫服务方面，私营部门参与不足，主要仅涉及兽药和设备的销售；
- 非正规渠道交易在国内和出口市场仍占主导地位；
- 大多数生产者与加工商没有建立起很好的联系，且缺乏对商品化市场的激励；
- 在许多地区，生产不是以商业为导向，小型养殖户只是为了眼前的现金需求或为了处理非生产性动物而出售动物，因此，用于屠宰加工的优质动物供应能力有限；
- 在肉牛产业价值链的所有节点上的技术和资本投入均不足，并且获得信贷和金融服务的机会有限；
- 在国内市场，人均红肉消费量非常低。

机遇

- 与其他国家相比，埃塞经济持续增长，积极的经济前景有利于对畜牧业的投资；
- 有大量的家畜（牛和猪）存栏量，而且高原和低地地区有良好的牛羊生产潜力；
- 有多个本地品种牛可用于品种改良；
- 有相对廉价的劳动力，尽管大多数是无技能的工人；
- 人口增长和日益提高的城市化水平（城市中心新兴的中产阶级消费者群体），将有利于消费更多的红肉；
- 出口市场对博朗牛的需求量很大。

威胁

- 气候变化导致可供肉牛养殖地区的气候条件不稳定；
- 由于季节、空间和文化因素，活畜的供需关系不匹配；
- 进口国的质量要求和食品安全标准经常导致拒绝和禁止活畜（和肉类产品）进口；
- 生产率低的牲畜数量快速增加会带来一定的环境污染风险。

1.3 政府的发展目标和行动

1.3.1 畜牧业发展战略

埃塞增长和转型计划（GTP）包含了农业转型议程（TAD），采取系列干预措施促进埃塞农业部门转型。其中畜牧业发展计划的目标包括：减少国民贫困，实现更好的粮食安全，促进国民收入增长，增加出口和外汇收入，以及有助于减缓和适应气候变化。红肉的发展愿景是：满足由于人口快速增长、城市化进程增加和收入增加而产生的国内红肉消费需求，并增加活畜和肉类出口以创造外汇收入。

埃塞畜牧业总体规划提出了投资干预措施，如更好的遗传、饲料和健康服务，政策支持措施，通过提高主要家畜价值链的生产力和总产量来帮助实现GTP II的目标。

针对畜牧业转型，埃塞政府在以下四个领域提出了明确的可交付目标。

(1) 畜牧遗传改良：①建立国家系统和制度安排，用以领导和协调家畜遗传评估和改良以及投入交付计划；②加强私营部门在畜牧遗传改良和投入品交付方面的作用。

(2) 畜牧饲料和饲养：①为可持续生产创造有利环境，提供充足、优质和价格合理的饲料和牧草，并使免费放牧合理化；②改善牧区和农牧区的饲料和饮水安全。

(3) 动物健康：①降低不同生产系统中幼龄和成年动物的死亡率；②加强和支持建立国家和地区兽医实验室的创新动物卫生服务和诊断能力及质量管理体系，以加强疾病预防和控制。

(4) 畜牧市场：①加强高效和有效家畜销售系统的有利环境；②加强和发展畜牧业和产品市场基础设施及市场联系，以增强国内和出口市场能力。

1.3.2 农业产业园区

埃塞国家发展战略优先考虑发展综合农业产业园区。综合农业产业园区是一个由独立企业组成的地理集群，集中了产业运营和增长所需的基础设施、公用事业与服务条件，还可以与全球农业价值链建立联系。埃塞选择了四个农业产业增长走廊，正试点建立四个综合农业产业园区（详见附件2）。

奥罗米亚地区拥有埃塞全国最大的牛群，阿姆哈拉居次位。FAO曾于2017年协助埃塞政府为奥罗米亚中东部设计了一份综合农业产业园区的商业方案，计划到2020年通过提高商业化小型养殖户和育肥场的生产能力，增加优质牛源供应，通过畜牧市场渠道的正规化和商业化建设，促进奥罗米亚中东部试点综合农业产业园区农产品采购区的活畜和红肉价值链的快速和可持续增长，最终向国内市场 and 出口市场提供安全优质的红肉产品供应。

1.3.3 相关国际发展合作项目

埃塞政府积极吸引国际发展合作项目支持本国发展。在2018—2024年期间，国际发展项目预计将在埃塞畜牧业中投入至少1.97亿美元用于建立干预措施。其中89%来自世界银行的畜牧业和渔业部门发展项目（LFSDP）。该项目侧重于三个部分：①将更具生产力的农民与市场联系起来；②加强国家机构和计划；③项目协调、监测和评估以及知识管理。重点发展四种产品：红肉、乳制品、禽类和鱼类，计划覆盖奥罗米亚（Oromia）、阿姆哈拉（Amhara）、南方州（SNNPR）、提格雷（Tigray）、本尚谷勒古马兹（Benishangul Gumuz）、甘贝拉（Gambella）6个州的58个县，超过120万个家庭将从项目中受益。

Part I

Research on China-Ethiopia Beef Cattle Industry Value Chain Cooperation



The Growth and Transformation Plan II 2020 sets ambitious targets for the livestock sector: Ethiopia plans to become the first livestock exporter in Africa by 2025, and significantly increase the competitiveness of its livestock products worldwide. In particular, beef cattle industry is one of the preferential developmental industries.

To date, the cooperation between Ethiopia and China in the livestock sector is relatively limited except leather production. There is no beef trade between the two countries, but there are still opportunities to expand cooperation in animal husbandry. Ethiopia has the fifth largest cattle inventory in the world and has great development potential; China has rich experience in the development of animal husbandry industrialization, and will remain the largest beef import market in the world.

According to the previous research of ATA, the added value of beef export in Ethiopia is very low, and is distributed across the value chain. The commercial operation is limited, the export volume is small, and exports mainly go to the Middle East. Ethiopia hopes to adopt a more strategic and comprehensive approach to solve the problem of value chain rupture, and ultimately serve the huge and growing East/Southeast Asian market in the future. Through the introduction of experienced private sector participation in beef production, especially those cooperating with smallholder farmers in an inclusive model, and the introduction of improved inspection and quarantine standards, and key intervention measures to improve the level of industry integration, we hope to support Ethiopia's achievements in animal husbandry development. China is one of the countries with support measure packages.

1 Literature review of Ethiopia's beef cattle industry value chain

The livestock sector occupies an important place in the Ethiopian economy, contributing 20%^① of total GDP and 50% of the agricultural GDP and it is estimated to contribute 16%-19% of foreign exchange earnings to Ethiopia. The sector not only hold non-monetary social value, but are the most attractive asset for storing and accumulating wealth.

In Ethiopia, about 45% of the total livestock is cattle. Ethiopia has the largest cattle herd in Africa and the 5th largest in the world, nearly 60 million heads, 5% of global population in 2016. Despite its huge livestock population, Ethiopia only exported 28,000 tonnes in 2016, which contributes 0.3% of global beef exports and ranks only 33rd in the world.

To increase market supply, the Livestock Master Plan (LMP) sets the target to increase red meat production by 52% by 2020. However, the current production is inadequate to meet the target and innovative interventions must be developed and introduced to improve productivity and thereby increase supply of beef through commercialization, including attracting the FDI into the sector.

This chapter gives a quick review on the performance status, government's targets and main constrains in Ethiopia's beef cattle industry value chain development based on related documents and statistical data provided by the ATA.

1.1 Ethiopia's beef cattle industry is in the primary development stage

1.1.1 Cattle production systems

Cattle are mainly raised by the farmer households freely in Ethiopia. There are two main livestock production systems prevalent in Ethiopia: ① Highland crop-livestock mixed production system, with about 35-40 million cattle, and 2-5 cattle herd size per household. This system covers about 40% of the countries land area and located at an altitude above 1,500 meter above sea level. Cattle in the highlands is mainly produced for draught power (40%-50%) with dairy cows making up 25%. After 4 to 5 years of providing draught service, bulls are then sold for beef. The large number of animals in the highland areas of Ethiopia is livestock, using crop residues and natural pasture as feed, less disease prevalence, and relatively adequate water supply. ② Lowland livestock production system, with about 10-20 million cattle, and 10-15 cattle herd size per household. This system covers about 60% of the total land and located in an altitude below 1,500 meter above sea level. About 70% of cows are dairy breeds, and bulls are often sold to highland areas used for draught purposes.

① Data in this chapter mainly comes from relevant internal documents provided by ATA. See references for details.

1.1.2 Breeds and breeding

There are about 27 indigenous and a few exotic cattle breeds (e.g., Friesian, Holstein, Jersey and Simmental) in Ethiopia. The Ethiopian indigenous Boran cattle breed is comparatively superior in terms of growth, reproduction, and carcass traits than other indigenous cattle breeds. Boran breed produces high quality beef and has high feed conversion efficiency.

Productivity of Ethiopia's indigenous cattle breeds varies depending on breed type and management in general. However, productivity of these cattle falls far behind improved breeds in similar agro-climatic conditions in other countries. Improved genetics inputs, such as improved bulls and heifers supply, and improved genetic material (semen) and liquid nitrogen supply are key towards enhancing cattle productivity and quality of meat. At present, the supply and availability of these inputs to rural producers is inadequate. Besides, the success rate of breeding (natural and AI) and management practice is very low. The beef cattle breed improvement centers and breeding farms of the country are established to conduct research on breed improvement and distribute improved breeds to farmers and breeders. However, breeders pay limited attention to this direction.

1.1.3 Feeds and fattening

The cost of animal feed is constantly on the rise, almost doubling in the past 7 years. Seasonal dynamics of forage availability due to seasonality of rainfalls limited land allocation for improved forage production due to competition with food crops and lack of awareness, and overgrazing and poor management of the natural pasture in the highlands and rangelands in the lowland pastoral and agro pastoral areas, shortage and high price of agro-industrial by-products (e.g., flour mill and oil extraction by-products) and compound feeds from agro-processing industries lead to uneven animal feeding and fattening across regions, and thus restraining production capacity development. Moreover, the lack of modern feeding technology and management practices in livestock sector is also an important factor that affect feeding.

In Ethiopia, cattle fattening is conducted by smallholder farmers (traditional), small and large-scale feedlots where the latter is mostly export-oriented. Feedlots play intermediary role by smoothing out market fluctuations in both volume of cattle and quality of red meat. This model is growing rapidly due to growing opportunities presented both by the export demand for live animals and by the domestic market for red meat. Feedlots buy cattle at a low price in primary markets and then add value to it through supplementary feeding, in order to sell animals in markets that are more profitable. Feedlots purchase animals through market agents or from small- and medium-scale traders (cattle vendors) and, occasionally, from cooperatives. Feedlots usually buy cattle that weight less than 200 kg and all bulls meant for export stay in the feedlot until they meet at least the minimum weight standard of 300 kg. Feedlots often use rented vehicles to transport the animals. Constrained by their financial capacity, their operations are limited to a small geographic area; lack of access to production inputs (e.g., feed, water, land) and to credit are

hindering the expansion of fattening facilities.

Currently, less than 1M slaughtered cattle are actually from feedlot accounting for 1.7%. Ethiopia's livestock master plan plans to funnel more than six million cattle from feedlots by 2030. Achieving this goal will require a massive increase in the fattened herd size. The number of small and medium specialized cattle feedlots needs to be increased from 30,000 head in 2014 to 577,000 head in 2021.

1.1.4 Vaccines and veterinary drugs

The Livestock Resource Sector of the Federal Ministry of Agriculture is responsible for quarantine services and quality control of vaccines and veterinary drugs, and also responsible for research and disease monitoring through federal research institutions and regional veterinary laboratories. Although the government budget is insufficient to meet the annual demand for domestic and international drug purchases, government agencies are still the main provider of animal health product distribution.

The National Veterinary Institute (NVI) in Bishoftu produces 23 kinds of different vaccines against various bacterial and viral diseases. However, its current production capacity does not meet the actual demand of such vaccines. At present, the Federal government no longer imports veterinary drugs by itself. Instead, it purchases veterinary drugs, equipment and chemicals (imported and locally manufactured) in bulk from private companies through tendering, and distributes them to various regional states. Private importers are import to distribute and supply veterinary drugs, equipment and chemicals to small holder farmers under the supervision of the government.

The lack of large-scale and systematic animal immunization is one of the major impediments in expanding foreign markets. There are vaccination programs at Kebele level (lowest administration unit in Ethiopia) for seasonal diseases in Ethiopia, and the programs mainly target at vaccinating exporting herds. Diseases outbreaks cannot be rooted out, and the two-year disease free OIE export standards cannot be met.

1.1.5 Marketing and trade

Ethiopia's live animal market functions at three levels: ① primary markets are those at the village level, with generally less than 500 head sold per week. ② Secondary markets have a turnover of 500-1,000 head of animals per week. These markets are dominated by intermediaries (traders and agents, or "cattle vendors") but also serve local butchers. ③ Terminal markets are those located in large urban centers. These are dominated by medium- and large-scale trading companies. The three levels markets are poorly organized and scattered, with various types of buyers, sellers and intermediaries participating in them. Access to infrastructure between the markets is poor. Livestock supplied to the market in most cases are trekked.

In most livestock markets, there is no objective standard for selling and buying animals except

visual observation. The current system of sourcing animals from smallholder producers through multiple brokers makes it difficult to supply high quality meat at a competitive price to export markets.

1.1.6 Slaughtering and processing

The meat processing industry is on the rise in Ethiopia. City slaughterhouses and export abattoirs, butchers and restaurants/hotels play a major role (Figure 1-1). Commercial slaughtering facilities are the main actors in the processing link. They source live animals from traders or directly through their market agents. Most abattoirs are established for export purposes but there are local slaughterhouses that provide service to butchers and retailers for domestic consumption.

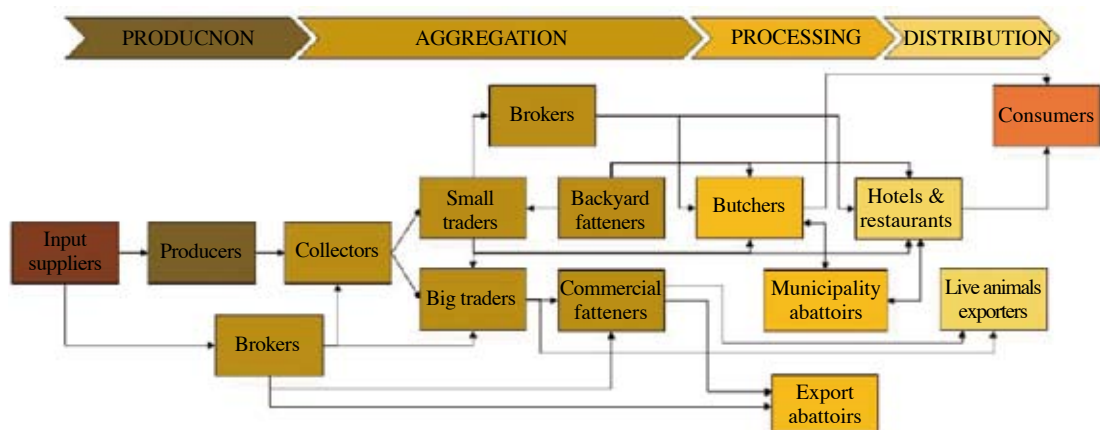


Figure 1-1 Livestock market channel in Ethiopia

Virtually all of Ethiopia’s red meat exports pass through formal channels due to the strict regulation of importing countries. Around half of all cattle are slaughtered outside of abattoirs since live exports and backyard slaughter emerged. The formal export of live animals and meat has promoted the establishment of slaughter and fattening facilities at various locations. Such locations are affected by feed supply, air transportation, proximity to markets, and the livestock walking distance to slaughterhouses. In most cases, the slaughtering is done when slaughterhouses receive and order from their customers. This order-based slaughtering does not allow the abattoirs to operate at full capacity and estimated operating abattoirs are at 34% capacity on average. Most slaughterhouses and abattoirs lack modern technologies and standardized facilities, and lack the ability to produce semi processed or deep processed meat products. The product specifications and varieties are limited, and the meat quality is hardly guaranteed.

1.1.7 Demand and markets

Ethiopia’s domestic market for beef is growing. The average per capita consumption of beef remained approximately 5 kilogram per year from 1993 to 2011, but as population grows, total beef consumption in Ethiopia grew at an annual average rate of 3.2%. Beef price has change about

50% higher in 2014 than in 2005. The price per kilogram for superior, high grade, moderate, fair and low-quality beef in Addis Abbaba in 2017 was USD 9.8, USD 8.2, USD 6.5 and USD 4.4 respectively. Ethiopia's domestic red meat consumption is reported to be low due to high prices, which are unaffordable for low-income households; in addition, long fasting periods of the Ethiopian Orthodox Church (over 200 days per year) contributes to the low consumption of meat. As countries become wealthier, people will consume more meat. This trend will apply to Ethiopia.

Ethiopia's share in the global beef exports was barely 1%, which is mainly caused by the following reasons: ① low offtake rates (6% in 2013; China was 35%). ② large numbers of animals sold live, bypassing abattoirs and through illegal cross border trade. ③ most pastoralists only sell in time of need, and prefer to build herd size. ④ lack of certifications and international standards. ⑤ export market is not highly competitive in international markets due to factors such as disease, quality and cost. ⑥ low productivity which is due to low genetic potential indigenous cattle for functional traits, shortage of access for quality and affordable feeds; prevalence of disease, lack of awareness improved management etc. ⑦ Lack of policy support to incentivize producers (e.g., land use) and other actors involved in beef value chain.

Live animal exports from Ethiopia are subject to periodic interruptions from bans imposed by importing countries due to disease outbreaks. Top export markets of live animal are Sudan, Somalia, Egypt, Djibouti, Saudi Arabia, Yemen and the United Arab Emirates. In regard to red meat, the Middle East dominates Ethiopia's export markets.

1.2 Major bottlenecks and SWOT analysis

In terms of production quality, quantity and price competitiveness, main bottlenecks in beef cattle industry value chain are as follows: ① Relevant policy support, supervision and law enforcement are weak. ② Due to high cost and shortage of high-quality feed, the investment on high-quality feed is insufficient. ③ Lack of effective epidemic disease prevention made animal health difficult to be guaranteed. ④ Lack of experience market-oriented livestock production. ⑤ Due to the imperfect development of the market, the intermediaries are highly involved. ⑥ The downstream market links are weak. ⑦ Limited transportation infrastructure leads to poor meat quality. ⑧ An oversupply of intermediaries left farmers with little value. The government hopes that once the key value chain constraints are solved, Ethiopia will have the opportunity to become an important participant in three core markets: the Middle East market as the top priority; East Asia and Southeast Asia as the mid-term; fast-growing African market as the long-term aim.

The overview of the SWOT analysis for the cattle value chain is as follows (Table 1-1).

Table 1-1 Beef value chain SWOT analysis

STRENGTHS

- The livestock sector has economic relevance and potential for employment creation;
- There is an existing culture of cattle and small ruminants rearing, as well as of consumption of red meat;
- Government has an ambitious Master Plan for the livestock sector and a clear vision for transforming the agricultural sector through the creation of Integrated Agro-Industrial Parks;
- National & Regional Centers for Animal Health Diagnosis have been established;
- National and Regional livestock research institutions and centers have been established to develop knowledge and technologies relevant to improve livestock productivity.
- National and regional livestock sector extension system established and operational
- National veterinary institution able to produce vaccines for various live animals have been established;
- A number of Universities and Technical and Vocational Colleges established and producing agricultural graduates
- There are existing institutions and projects/development partners supporting the livestock sector, e.g., quarantine stations, feedlots, slaughterhouses/abattoirs and meat processing companies have been established.

WEAKNESSES

- Low support for livestock sector from the government
- In some areas, available land is decreasing due to demographic pressure, expansion of cultivations, land degradation and absence of land use policy;
- Productivity of indigenous livestock breeds is low and there is not a well-established and sustainable breeding program (including a national database and a functioning recording system);
- The quality and quantity of forage and manufactured feed is insufficient and access is limited;
- There is limited research on livestock development in general (e.g. breeding, feeding, etc.);
- Animals are not well managed and there is limited knowledge and skill of modern animal husbandry practices. In addition, watering of animals is predominantly from rain-based sources (streams, lakes, etc.);
- Vaccination of animals is not systematic and there is lack of periodic follow-ups and check-ups (no animal quarantine). Also, there is high incidence of animal diseases of economic importance;
- Public animal health services and extension services are weak and their offer is not proportionate to the demand and know-how of producers;
- Weak involvement of the private sector in the provision of clinical services (mostly engaged only in the sale of veterinary drugs and equipment);
- The informal channel is dominant on domestic and export markets. Most producers are not well connected to processors through formal business arrangements, and there is a lack of incentives toward market formalization;
- In many areas, production is not commercially-oriented and smallholder producers sell animals only to face immediate cash needs or to dispose of unproductive animals. Hence, there is limited supply of quality animals for processing;
- There is lack of working and investment capital and limited access to credit and financial services at all the nodes of the value chain;
- On the domestic market, the level of per capita consumption of red meat is very low.

OPPORTUNITIES

- The sustained growth and the positive economic outlook of Ethiopia are favorable to investments in the livestock sector, among others;
- There is a considerable livestock population (both cattle and swine) and both the highland and lowland areas have good cattle and sheep production potential;
- There are diverse and adaptive indigenous cattle and shoat breeds that can be used for genetic improvement;
- There is availability of relatively cheap labor, mostly unskilled;

(Continued)

- Population growth and the increasing urbanization (emerging middle-class segment of consumers in urban centers) will favor consumption of more red meat;
- There is a high demand for Boran cattle breed on the export market.

THREATS

- There are unreliable climatic conditions due to climate change;
- There is a mismatch between supply and demand of live animals due to seasonal, spatial and cultural factors;
- Quality requirements and food safety standards in importing countries often result in rejection and ban of live animals (and meat products);
- There is an environmental risk posed by an increased number of low producing livestock.

1.3 Government's development goals and actions

1.3.1 Livestock development strategies

Ethiopia launched the Agricultural Growth and Transformation Plan (GTP), taking a series of intervention measures to promote the transformation of the agricultural sector in the country. The GTP-II objectives for livestock include reduced poverty; better food security; contribution to national income growth; increased exports and foreign exchange earnings; and contribution to climate change mitigation and adaptation. Vision for red meat is that the projected domestic consumption requirements for red meat that arise due to rapidly growing population, increasing urbanization, and rising incomes will be met; and live animal and meat exports will be increased to generate foreign exchange earnings.

The Ethiopia livestock master plan sets out investment interventions, e.g., better genetics, feed and health services, which, together with complementary policy support, could help meet the GTP II targets by improving productivity and total production in the key livestock value chains.

There are clear deliverable objectives for livestock sector transformation in the following four areas: I. **Livestock genetic improvement:** ① Establishing a national system and institutional arrangement to lead and coordinate livestock genetic evaluation and improvement as well as input delivery schemes; ② Enhancing role of private sector in livestock genetic improvement and input delivery. II. **Livestock feeds and feeding:** ① Creating enabling environment for sustainable production and supply of adequate, quality and affordable feeds and fodder, and for rationalizing free grazing; ② Improving feed and water security in pastoral and agropastoral areas. III. **Animal health:** ① Reducing young and adult stock mortality in different production systems; ② Strengthening and supporting establishment of innovative animal health field services and diagnostic capacity and quality management system of national & regional veterinary laboratories to enhance disease prevention and control. IV. **Livestock market:** ① Strengthening the enabling environment for efficient and effective livestock marketing system; ② Strengthening and developing livestock and products market infrastructure and market link to enhance domestic and export markets.

1.3.2 Establishment of Agro-Industrial Parks

The development of Integrated Agro-Industrial Parks has been prioritized in Ethiopia's national development strategy. An Integrated Agro-Industrial Park is a geographic cluster of independent firms, clustering essential infrastructure, utilities and services required for business operations and growth. The Parks also enable links with global agricultural value chains. Four Agro-Industrial Growth corridors have been selected for piloting the establishment of four integrated Agro-Industrial parks (see the attachment 2).

Oromia region is the largest in terms of cattle population followed by Amhara region. FAO designed a business plan for Central-Eastern Oromia in 2017. The vision was to promote rapid and sustainable growth of the live animals and red meat value chain in the Agro-Commodities procurement Zone of the pilot Integrated Agro-Industrial Park in Central-Eastern Oromia through enhancement of production & productivity of commercially-oriented small holders and feedlots to increase the availability of quality cattle, and strengthening of commercialization through formalization of the livestock market channels and, ultimately, to distribute safe red meat to both domestic and export consumers by 2020.

1.3.3 Related international development cooperation programs

The Ethiopian government actively attracts international development cooperation programs to support its development. Over the 2018-2024 period, at least 197.2 million US dollars is expected to be invested across the livestock sector in development interventions by international development programs. Eighty nine percent of the amount comes from the World Bank Livestock & Fisheries Sector Development Project (LFSDP). The program will focus on three components: ① linking more productive farmers to markets; ② strengthening national institutions and programs; ③ project coordination, monitoring and evaluation, and knowledge management. There are 4 livestock commodities prioritized for this program. These are Red meat, Dairy, Poultry and Fisheries and Aquaculture. The program covers 58 woredas across six regional states (Oromia, Amhara, SNNPR, Tigray, Benishangul Gumuz and Gambella). More than 1.2 million households will benefit from this program.