

西藏农业概论

胡颂杰 主编



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总结经验

继续开来

江村罗布

九三年十月

注：江村罗布同志现任西藏自治区人民政府主席。

序 一

西藏自和平解放以来，特别是民主改革以后，社会生产力得到解放，有力地促进了西藏自治区农牧业生产的发展，从而也促进了各项事业的发展，西藏的面貌发生了根本性的变化。

中国共产党十一届三中全会以后，随着党的工作重点的转移，党中央和国务院在人力、技术、资金、交通等方面继续大力支持与扶持西藏，并实行更加放宽的特殊政策。西藏各族人民特别是农牧业战线的干部、群众和科技人员艰苦卓绝的奋战，使西藏农牧业和全国农牧业一样得到了长足、持续、稳定的发展。《西藏农业概论》一书正是在此基础上编著成功的。

《西藏农业概论》科学地分析和评价了西藏独特的农业自然生态环境条件和经济条件；实事求是地反映了西藏农业的战略地位、发展历程和阶段性成就；客观地总结、评价了西藏传统农业的经验和历史作用；系统地介绍了西藏农作制度的演变，土壤肥料、种质资源的研究、利用状况，主要农作物、绿肥、果茶、蔬菜等的生产情况和栽培技术要点，翔实地记述了农作物品种改良、种子经营管理、植物保护等各方面的工作进展情况以及取得的成绩；对西藏的农业机械化事业、农垦事业、农田水利事业、农村能源、农区畜牧业等方面的发展也进行了全面总结；对西藏农业今后如何进一步发展进行了科学论证并提出了建议。

本书内容丰富，资料翔实，集历史性、综合性、科学理论性、技术资料性和生产实践性于一体，是西藏农业方面较系统、较全面、实用性较强的一部农业专著。这部著作的出版问世，不仅为西藏农业的发展提供了技术资料 and 可供借鉴的历史经验，对客观认识西藏的农业自然生态特点和经济特点，按照西藏的自然规律和客观经济规律发展农牧业生产，都具有重要的指导作用。我相信不仅在西藏农牧业战线上工作的各级领导和科技人员都能够在阅读中吸取有益的知识，内地的同志也会从农业这个重要方面去认识和了解西藏。

《西藏农业概论》的主编胡颂杰同志和参与编写的其他同志，都是在西藏长期从事农业工作的领导、科研和技术推广人员，他们在发展西藏农业生产的实践中，取得了丰硕的成果，积累了丰富的经验，填补了若干高原农业科学的空白，作出了重要的贡献。本

书是他们运用理论与实践相结合的科学方法，总结了他们在长期实践中所积累起来的研究成果和心得，并吸收全自治区农业生产上有益的成功经验编著而成的。可以说，这部著作是西藏农业科技工作者长期勤奋、刻苦实践的结晶，是西藏40年来农业生产科学的总结。

我作为一位在西藏战斗、工作了几十年的老战士，对西藏的人民群众乃至一草一木都有着极为深厚的感情。我现在虽然身在内地，但对西藏的发展和变化仍然倾心关注。所以，当胡颂杰同志提出要我为本书写序时，我以极其高兴的心情欣然应允，并为能在晚年为本书写序而感到欣慰和荣幸。在《西藏农业概论》即将出版问世之际，我谨以一位“老西藏”的身份，并代表在西藏战斗、工作过的所有老同志对本书的出版表示衷心的祝贺，并对在本书起草、编辑和审稿过程中付出辛勤劳动的同志致以最诚挚的谢忱，向继续战斗在西藏农牧业战线的干部、群众、科技人员致以亲切的问候！

阴法唐

1993年6月9日

注：阴法唐同志原任中国共产党西藏自治区委员会书记。

Preface I

Peaceful liberation and democratic reforms of Tibet liberated the social productivity and promoted the development of agriculture, animal husbandry and other undertakings. The face of Tibet changed tremendously.

Since the 3rd Plenary Session of 11th Central Committee of the Chinese Communist Party, the work emphases have been shifted. owing to the continuous supports from the Party Central Committee and the State Council in manpower, technology, fund and communications, and arduous efforts paid by the people of various nationalities, especially the cadres, masses, and scientific and technological workers, agriculture and animal husbandry in Tibet develop stably. And the book, "An Introduction to Agriculture of Tibet" is written exactly on this fact.

This book has scientifically analyzed and evaluated the agroecological environment and economic conditions, and described the history, strategic position and achievements of agriculture in Tibet. It has objectively summed up the experience and historical effect of traditional agriculture. It has also presented the evolution of farming systems, the study and utilization of soil, fertilizer and germplasm and the essentials of cultivating practices for main crops, green manures, fruits, tea and vegetables. The progress and achievements in improving crop varieties, management and administration of seeds, and plant protection have also recorded in this book. Simultaneously, it has described the development of agricultural mechanization, reclamation and cultivation of wasteland, farmland water conservancy and rural energy. Some very good suggestions for further developing the agriculture of Tibet have been proposed.

This book has substantial contents, and full and accurate data, it has gathered the historicity, scientific theory, technological data, and practicality into an integral whole. It is a systematic monograph that reflects the agriculture in Tibet. This book provides a good deal of technological data and historic experience. It will play important guiding roles not only in understanding the agroecological and economical characters of Tibet, but also in developing agriculture according to the natural and economic laws. I believe that the leaders, experts and technicians who are engaged in agriculture and stock raising in Tibet may absorb useful knowledge and comrades living in the inland may better recognize Tibet from the aspects of farming and raising from this book. Comrade Hu Songjie, the chief compiler of this book, and other compilers are all the leaders, experts and technicians engaged in the agricultural line of Tibet for a long period. They have scored a lot of successes in practice of agricultural production and accumulated rich experience in the field of highland agriculture. They have greatly contributed to the development of agriculture in Tibet.

They have summarized their research successes and gains in this book. Therefore, this book is a crystallization of collective wisdom and a scientific summary of agricultural production of Tibet in the past 40 years.

I am an old fighter fought and worked in Tibet for dozens years. So, I cherish a deep love for the people and even every tree and bush in Tibet. Although I live in inland now, I am still interesting in the development and progress of Tibet. When Comrade Hu Songjie wanted me to write a preface for this book, I readily agreed with cheerful mind. I am gratified and honoured to write the preface at old age. I would like to take this opportunity to extend my cordial greetings for the publication of this book in the name of "an old Tibetan" and all comrades who worked in Tibet, and to express my heartfelt thanks to the comrades who hard worked in writing, edition and examination for the manuscript. I would like to send my respects to the cadres, masses and scientific workers who are working in the line of agriculture and animal husbandry in Tibet.

Yin Fatang

June 9, 1993

Remark: Comrade Yin Fatang is the former Secretary of the Party Committee of Tibet Autonomous Region

序 二

胡颂杰同志主编的《西藏农业概论》出版了，这是我们西藏农业战线上值得称道的一件大好事，我承邀为此书作序，深感荣幸！

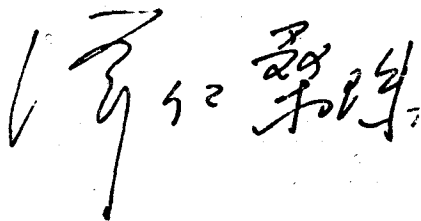
西藏农业具有悠久的历史，在国民经济中占有非常重要的地位。但是，在旧西藏，由于受封建农奴制度的束缚，农业生产长期处于缓慢发展甚至停滞的状态。1959年民主改革后，生产关系发生了变化，人民当家作了主人，中国共产党和人民政府十分重视发展西藏的农业生产。首先，制定了一系列发展农业生产的方针政策和措施，并从财力、物力等方面给予大力扶持。同时，在自治区党委和政府领导下，全自治区开展了大规模的治山治水、植树造林、兴修水利、改良土壤等的群众活动，从各方面改善生产条件，并逐步推广现代科学技术，提高了科学种田、科学养畜的技术水平，促进了农业生产的不断发展。特别是1980年和1984年中央两次召开西藏工作座谈会，制定了一系列特殊政策和灵活措施，在全自治区实施休养生息的政策，为西藏农牧业的发展注入了活力，使农区、牧区充满了生机。这些政策和措施是：免征农牧业税，取消农畜土特产品计划收购和派购，在坚持土地、草场、森林公有制的前提下，实行“土地归户使用，自主经营，长期不变”和“牲畜归户，私有私养，自主经营，长期不变”的政策；进一步加强了对农业的领导，增加了投入，不断改善生产条件，大力推广科学技术，进行农业技术改造；较大幅度地提高粮食等农畜产品的收购价格，增加了农牧民的收入，从而促进了农牧业生产的全面发展，粮食产量连年获得丰收。1992年农业总产值为22.45亿元，比1952年增长14.7倍；粮食总产为65.7万吨，比1952年增长3.23倍；农牧民人均纯收入490元，大多数群众的温饱问题基本得到解决，取得了历史性的进步。

但是，西藏农业生产的物质和技术基础还很薄弱，生产水平还不高，粮食也并不宽裕，随着经济的发展和人民食物结构的变化，对粮食的要求愈来愈高。农业是我区国民经济的大头，如果农业出了问题，整个自治区经济发展就要受到严重影响，改革也就难以继续深入发展。因此，我们必须把发展农业作为一个全局性的问题来对待，要下大决心，采取坚决有力的措施，确保我区农业的持续稳定发展。

西藏自和平解放以来，农业的发展取得了举世瞩目的成就，并积累了极其丰富的成

功经验，但走过的路程是艰难曲折的。这些经验和教训在《西藏农业概论》一书中，以翔实的历史资料，作了客观的记载和科学的分析。本书的撰写者胡颂杰同志和其他同志在西藏长期从事农业领导工作和科研、技术推广工作，他们在发展西藏农业生产上作出了辉煌的成绩，在长期的生产和科学实践中积累了丰富的经验和宝贵的资料。因此完全可以这样说：《西藏农业概论》一书，是西藏农业40年的科学总结，是为西藏农业奋斗不息的所有同志的智慧和劳动的结晶。作为西藏农业战线的后来人，我要向胡颂杰同志和所有为这本书的顺利出版作出过贡献的同志表示深深的谢意！

《西藏农业概论》的出版，不仅有助于我们系统研究西藏农业发展史、客观地认识西藏农业自然生态特点和社会经济条件及特点，而且对于按照西藏的自然规律和客观经济规律发展全区农牧业生产，具有重要的应用价值和指导作用。我希望这本书能够成为西藏农业部门同志们案头必备的书籍。

A large, stylized handwritten signature in black ink, reading '泽仁桑珠' (Ze Ren Sanyu).

1993年10月7日

注：泽仁桑珠同志是西藏自治区主管农业的副主席。

Preface II

The book "An Introduction to Agriculture of Tibet" chiefly compiled by comrade Hu Songjie, is published. It is a praiseworthy event. I am honoured at the invitation of the authors to write a preface for this book.

The agriculture of Tibet has a long history and important place in the national economy. However, in the former Tibet, the agricultural production developed slowly even stopped for a long time because of the trammels of feudal serfdom. Since democratic reform in 1959, the relations of production have varied greatly, the people are the master in their own affairs. The Chinese Communist Party and the Central Government attach great importance to the development of agricultural production of Tibet. Firstly, a series of policies, guiding principles and measures have been formulated and great supports in financial and material resources have been given. Meanwhile, under the leadership of the Party Committee and the People's Government of Tibet Autonomous Region, extensive mass activities including reclamation and cultivation of the barren hills and regulation of rivers and watercourses, tree planting and afforestation, building the irrigation works and improving soil etc. in whole autonomous region improved the technical levels of scientific farming and raising, therefore, agricultural production developed continuously. On the two Work Forums of Tibet called by the Central Party Committee in 1980 and 1984, respectively, a series of particular policies and flexible measures were drawn up, the policy of rest and build up strength was put into effect, which poured the vitality into agricultural production and the agricultural and pastoral areas were full of vigour. These policies include: exemption from the agricultural and stock-raising taxes; cancelling the planned and assigned procurement of agricultural, animal, local and special products; under the presupposition of public ownership of land, meadow and forest, farmers have the rights to use land and to own the animals privately for a long term; further strengthening the leadership to agriculture; increasing investment; improving productive conditions continuously; popularizing scientific knowledge and technology to enhance the technical innovation of agriculture; raising the purchasing prices of grain, agricultural and livestock products. Thus the income of farmers and herdsmen increases day by day, as a result, agricultural production develops in an all-round way, and the output of grain increases year by year. Up to 1992, the total output value of agriculture has reached 2.245 billion Yuan, which is 15.7 times of that in 1952, total grain yield has reached 657 thousand tons, 4.23 times of that in 1952; per capita net income of farmers and herdsmen has been 490 Yuan. The majority of the people have enough to dress warmly and to eat their fill. This is a historic progress.

However, the material and technological basis of agriculture in Tibet are still very weak, the productivity is also low, no enough grain meet the need of the people with the development of economy and the change of food structure. Agriculture is the foundation of national economy in Tibet. Any problem in agriculture would seriously affect the development of economy of whole region. Therefore, we must treat agriculture as a matter of overall importance and try our all best to ensure its stable development.

Since peaceful liberation of Tibet, world famous successes in the development of agriculture have been achieved and a lot of successful experiences have been accumulated, but the course of development is difficult and tortuous. The experiences and lessons have been objectively recorded in this book base on a lot of full and actual data. Comrade Hu Songjie and other writers are the leaders, experts and popularizers who have worked in the agricultural line in Tibet for a long period and achieved a number of brilliant successes, they have also accumulated a large quantity of data in their productive practice. It is not too much to say, this book, "an Introduction to Agriculture of Tibet", is a comprehensive summary of agricultural development of Tibet for the past 40 years and the crystallization of wisdom of above mentioned persons. As a successor, I would like to express my heartfelt thanks to all comrades who worked for this book. I believe that the publication of this book would help us to study systematically the developmental history of agriculture and to understand the characters of agroecology and social economical conditions. It also has important use value and guiding effect in the development of farming and stockraising production in the light of objective economic laws. I hope this book will become an indispensable tool for the comrades who are working in Tibet.

Zeren Sangzhu

October 7, 1993

Remark: Zeren Sangzhu is the Vice Chairman of the People's Government of Tibet Autonomous Region in charge of agriculture.

前 言

西藏农业具有悠久的历史。西藏人民世代居住在这块以“世界屋脊”著称的土地上，勤劳耕耘，不懈种作，积累了丰富的生产经验，形成了具有西藏特色的传统农业技术。西藏和平解放以后，在社会进步、农牧业发展过程中，老一代和新一代农牧科技工作者，在自治区党委和人民政府的领导下，和农牧战线的干部、群众一起，继承和发展了传统农业技术，开创了西藏农牧业发展的新纪元。为了总结解放以来西藏农业所取得的巨大成就和经验，提出未来发展的设想，我们特编著了这本《西藏农业概论》，奉献给西藏人民。

在本书编著过程中，我们坚持理论联系实际，把传统农业经验与现代农业技术、自然科学与社会科学结合起来，实事求是地回顾了西藏农业所走过的历程，总结成就，分析正反两方面的经验，力求把《西藏农业概论》写成集科学性、历史性、资料性、实用性于一体的农业科学专著。

本书从着手编写到出版问世，历经四个寒暑：

1990年6月，由胡颂杰同志主持，在西藏自治区农业科学研究所召开了第一次编写会议，正式成立《西藏农业概论》编辑委员会。同年10月召开了编辑委员会会议，审议通过了编写提纲并着手组织编写。

1991年12月，召开第一次审稿会议，对已经写成的初稿，逐章进行审议，提出了许多宝贵的修改意见。

1993年元月，召开第二次审稿会议，与会同志认为，有的章节还须继续修改补充，但多数章节基本成熟，决定同年3月份由几位同志到成都进行统稿、定稿工作。

1993年3月，统稿工作在成都开始进行。在统稿期间，召开了两次有农牧战线的老领导、老同志参加的座谈会。第一次座谈会，大家对编写本书的意义、内容和结构等方面提了许多具有指导意义的意见，为充实、完善本书的内容起了重要作用。第二次座谈会，着重讨论了第二章西藏农业发展历程、成就及基本经验和战略设想。会上提出了许多原则性的指导意见，并决定将战略设想改写为一章（第二十一章）。

书稿经初步统稿以后，打印分送自治区党政的有关领导同志审阅，同时送自治区农委及有关业务部门征求意见。有关的业务章节，分别寄送曾在西藏工作过的科技人员，请他们审阅修改。基本上做到了集思广益，力求避免片面之见。

《西藏农业概论》主要论述种植业。全书共21章，主要内容以40年来西藏在农业生产、科研方面所取得的成果和经验为依据，论述了独特的高原农业自然条件、农业生态、土壤肥料、农作物种质资源等方面的特点；分析了西藏社会经济条件、传统农业的内涵及农作制度的演变；总结了作物育种，种子管理与经营，大田作物与蔬菜、水果，茶叶的生产与栽培以及植物保护等方面工作的成就与经验；提出了较切合实际的种植业区划；对与农业有关的农田水利、农业机械、农垦事业、农区畜牧业等方面的发展情况也进行了总结，提出了发展意见，农村能源与农业发展关系密切，从西