

CHINA
AGRICULTURE
YEARBOOK

1995

CHINA AGRICULTURE PRESS

CHINA AGRICULTURE YEARBOOK

1995

(English Edition)

CHINA AGRICULTURE PRESS

中国农业年鉴 1995

(英文版)

*

中国农业出版社出版发行

(北京市朝阳区农展馆北路 2 号 邮政编码:100026)

1996 年 2 月第 1 版 1996 年 2 月北京第 1 次印刷

定价:120 元

ISBN 7-109-04359-2/Z·398

EDITORIAL BOARD OF CHINA AGRICULTURE YEARBOOK

Chairmen:

Liu Jiang

Minister, Ministry of Agriculture

He Kang

Deputy Director, China National Agricultural Regionalization Committee

Vice Chairman:

Wu Yixia

Vice Minister, Ministry of Agriculture

Members (The names are listed according to the number of strokes of the Chinese surnames):

Ma Shiqing

Deputy Director, Department of Science and Technology, Ministry of Agriculture

Deng Shangshi

Deputy Director, Department of Rural Water Conservancy and Soil Conservation, Ministry of
Water Resources

Wang Tao

Director, ABT Research and Development Centre, Chinese Academy of Forestry

Wang Lianzheng

President, Chinese Academy of Agricultural Sciences

Wang Yuzhao

Deputy President, the Research Centre for Economy of the State Council

Shi Yuanchun

President, China Agricultural University

Sun Heling

Director, Department of Finance, Ministry of Agriculture

Wu Xiang

Deputy President, Former Research Centre for Rural Development of the State Council

Xiao Wanjun

Deputy Director, the Policy Research Office of the Central Committee of the Communist Party
of China

Ying Yuelian

Deputy Director, Department of General Administration, Ministry of Agriculture

Chen Jiyuan

Director, Institute of Rural Development, Chinese Academy of Social Sciences

Chen Xiwen

Director, Department of Rural Development, Development Research Centre of the State Council

Zhang Xinmin

Director, Department of Rural Socio-Economic Statistics, State Statistical Bureau

He Guangyuan

Minister, Ministry of Machine-Building Industry

Li Changjian

Vice Minister, Member of the Leading Party Group of the Ministry of Forestry

Li Changjie

Director, Department of Farm Mechanization Administration, Ministry of Agriculture

Li Jingyi

Deputy Director, Department of Education, Ministry of Agriculture

Yang Yongzhe

Deputy President, the Research Office of the State Council

Zheng Zhong

Deputy President, Former Research Centre for Rural Development of the State Council

Zhou Wenzhi

Vice Minister, Ministry of Water Resources

Zhuo Youzhan

Director, Bureau of Fisheries, Ministry of Agriculture

Jin Shanbao

Honorary President, Chinese Academy of Agricultural Sciences

Zong Jinyao

Deputy Director, Department of Township Enterprises, Ministry of Agriculture

He Renrui

Editor-in-Chief, Editorial Department of China Agriculture Yearbook

Luo Yousheng

Director, Department of Policy, Reform and Law, Ministry of Agriculture

Jiang Yongtao

Director, Department of General Planning, Ministry of Agriculture

Zhao Chuanyin

Director, East China Sea Fisheries Research Institute

Xu Jing

Director, Department of General Administration, Ministry of Agriculture

Xu Guohong

Director, Department of Guidance to Rural Cooperative Economy, Ministry of Agriculture

Jia Youling

Director, Department of Animal Husbandry and Health, Ministry of Agriculture

Jia Zihe

Director, Centre of Media, Ministry of Forestry

Tao Dinglai

Professor, Senior Engineer, Chinese Academy of Agricultural Engineering Research and Planning

Lu Zhongmin

Chairman, China Association of Agricultural-Machinery Manufacturers

Cui Shi'an

Director, Department of Agriculture, Ministry of Agriculture

Xie Hua

Vice Chairman, Former Rural Policy Research Office, Secretariat of the Central Committee of the Communist Party of China

Dong Qingsong

Director, Department of International Cooperation, Ministry of Agriculture

Dong Qichang

Director, General Administration Office, Ministry of Forestry

Wen Kegang

Deputy Administrator, China Meteorological Administration

Zeng Yuzhuang

Director, Bureau of State Farms and Land Reclamation, Ministry of Agriculture

Miao Jianping

Director, Research Centre for Rural Economy, Ministry of Agriculture

Cai Shenglin

Director, China Agriculture Press

EDITOR'S NOTES

1. China Agriculture Yearbook is a reference book reflecting the conditions of agriculture, forestry, animal husbandry, fisheries, township enterprises, land reclamation, farm machinery, water conservancy, meteorology, etc. It has been published both in Chinese and English since 1985.

2. The English edition bases itself mainly on the Chinese edition of China Agriculture Yearbook 1995 and is supplemented by a few entries and special columns.

3. The English Edition of the Yearbook 1995 does not include the information from Taiwan Province unless specially stated.

CONTENTS

1. General Surveys

Crop Farming	3
Forestry	6
Animal Husbandry	9
Feed Industry	11
Fisheries	12
Township Enterprises	15
State Farms and Land Reclamation	17
Farm Mechanization	21
Farm Machinery Industry	24
Farm Chemicals Industry	27
Water Conservancy	28
Meteorology	32
Agricultural Environmental Protection and Rural Energy	34

2. Rural Economic Policies

Collective Land Use Right Transfer with Compensation	41
Develop Appropriate-Scaled Agriculture	44
Auction of "Four Wastes"	46
Measures to Support Commodity Grain or Cotton Counties	48
High-Yield, High-Quality and High-Efficiency Agricultural Demonstration Zones	50
Vegetable Basket Project Fruitful	52
Township Enterprise Demonstration District	53
East-West Cooperation in Developing Township Enterprises	56
Control of Farm Capital Goods Market Strengthened	58
Price of Aquatic Products Stable and Market Brisk	59
Export of Agricultural Products	62
Investment in Agriculture	65
Agricultural Capital Construction and Fixed Assets Investment	68
Support to Agriculture by Financial Departments	72
Agricultural Development Bank of China	74
Agricultural Projects Financed by the State Natural Sciences Foundation	75

3. Rural Export-Oriented Economy

Rural Export-Oriented Economy	81
China's Fisheries and the World	83
Township Enterprises in Central, Western China Go International	84
Land Reclamation Enterprises Strive to Be Foreign Market-Oriented	87
Export-Oriented Economy Spurs Development of Township Enterprises in Suburban Beijing	89
Jiangxi Develops Land of Red Soil with World Bank Loans	91
Fujian Strives to Build a Foreign Market-Oriented Rural Economy	92

4. Agricultural Science and Technology

Agricultural Projects Under State "863" Programme	97
Evaluation and Demonstration of Agriculture Projects in the "Climbing Programme"	100
Scientific Research in Service of Farm Production	103
Popularization of Agricultural Technology	108
Summarization of Fisheries Science and Technology	112
Achievements in Scientific Research	
Research and Application of the Light and Temperature Action Model	
Concerning Fertility Transformation in Photoperiod (temperature)-	
Sensitive Genic Male-Sterile Rice	115
Breeding, Extension and Use of the New Wheat Cultivar Xi'an 8	116
Development of New Wheat Germplasms with Heterogenous Cytoplasm	116
Breeding and Utilization of Male-Sterile Dual-Use Lines of Hot Pepper	117
Breeding of New Sweet Pepper Cultivars Zhongjiao 4 and Zhongjiao 5 with Good Quality, Disease Resistance and High Productivity	117
Insect Tolerance of Transgenic <i>Populus nigra</i> Plants	118
The Extension of ABT Root-Growth Powder	119
The Manufacture of High Molecular Materials-Polyester Polyhydric Using Rosin Derivatives as Monomeric Unit	120
Rattanpalm (<i>Calamus</i> L.)	120
The Integrated Benefits of Soil and Water Conservation Forest System on the Loess Plateau	121
Breeding of Italian Bee Zhejiang Agricultural University No.1	122
Clustering Study on the Breeds of Chinese Yellow Cattle	122
The Research on Using Plant Growth Regulator TA Milk Powder in Laminaria and Laver (porphyra) Culture	123
The Marine Living and Fisheries Resource within Islands Water Area in Guangdong Province	124

The Structural Safety Analysis of Intake Tower Group and Aseismatic Model	
Test of Orifice Outlet Tower for Xiaolangdi Project	125
New Technology in Design of Tidal Barrage on Suzhou River	125
Report on Comprehensive Utilization of Yangtze River Basin	126

5. Agricultural Education

Reform of Agricultural Education System	131
The Implementation of the "Green Certificate Project"	134
Sichuan Agricultural University	136
Zhejiang Rural Technical Teacher's College Ningbo Agricultural School	137
Taizhou Agricultural School	138
Basic Statistics of Agricultural Institutions of Higher Learning, 1994	140
Basic Statistics of Agricultural Secondary Specialized Schools, 1994	147

6. Introduction Cooperation of Agriculture

Introduction and Utilization of Foreign Capital in Agriculture	151
Summary of Foreign Affairs in Forestry	157
International Activities in the Water Resources Sector	158
Summary of Meteorological Foreign Affairs	161
Major Foreign Activities in Agricultural Sector	163
Exchange of Forestry Delegations	167
Major Foreign Activities in the Water Resources Sector	168
Signature of IFAD-Financed Project for Qinghai Province	170
Sino-Israeli Demonstration Farm	171
Sino-Israeli International Agricultural Training Centre	172
The Forest Resources Development and Protection Project	172
European Union-China's Dairy Development Project	173
APEC's Fisheries Working Group	174
Sino-US Joint Enforcement in Respect of Driftnet Fishing Vessel on the High Seas of North Pacific Ocean	175
Establishment of International Centre for Small Hydro Power	176
Water and Soil Conservation over Loess Plateau	177
Xiaolangdi Project on the Yellow River	178
The Project Funded by the Institutional Development Fund from the World Bank	178
National Flood Control Dispatching System (Phase I)	179
Sino-Japanese Cooperation Project for Polder and Drainage Improvement in Guangdong	180
Water Supply for Dalian City	181
China-ROK Cooperative Study for Development of Upper Fenhe River in Shanxi	181
International Symposium on the Law of Cooperatives	182

7. Natural Disasters to Agriculture

Natural Disasters in Agriculture	187
Plant Diseases, Pests and Rodent Damages	191
Forest Diseases and Pests	195

8. Chronicle of Agricultural Events

Chronicle of Agricultural Events, 1994	203
--	-----

9. Statistics of Agricultural Economy, 1994

Agricultural and Non-Agricultural Population by Province, 1994	211
Cultivated Land Areas by Province, 1994	212
Rural Primary Organization by Province, 1994	214
Number of Labour Force of Townships and Villages by Province, 1994	215
Total Output Value of Rural Non-Agricultural Trades by Province, 1994 (Calculated at 1994 current prices)	217
Total Output Value of Agriculture, Forestry, Animal Husbandry and Fisheries by Province, 1994 (Calculated at 1994 current prices)	218
Total Output Value of Agriculture, Forestry, Animal Husbandry and Fisheries by Province, 1994 (Calculated at 1990 constant prices)	219
Average Yield of Major Farm Crops Per Capita by Province, 1994	220
Average Yield of Meat, Eggs, Milk and Aquatic Products Per Capita by Province, 1994	221
Output and Sown Areas of Major Farm Crops, 1994	222
Sown Areas and Multiple Cropping Index of Farm Crops by Province, 1994	223
Sown Areas and Yields of Major Farm Crops by Province, 1994	224
Areas of Tea Gardens and Orchards by Province, 1994	245
Output of Tea by Province, 1994	246
Output of Fruits by Province, 1994	247
Planted Areas and Output of Major Tropical and Subtropical Crops, 1994	249
Number of Units with Ownership by the Whole People in Forestry by Province, 1994	251
Number of State and Workers of Forestry by Province, 1994 (Year-end figure)	252
Afforestation Area of Different Forest Types by Province, 1994	253
National Forestry Production by Province, 1994	254
Output of Timber, Bamboo, Sawn Lumber and Plywood by Province, 1994	255
Output of Fibreboard, Shaving Board, Resin, Tannin Extract and Shellac by Province, 1994	256
Output of Forest Products by Province, 1994	257

Output of Major Livestock Products	259
Number of Slaughtered Livestock and Poultry by Province, 1994	260
Total Output of Meat by Province, 1994	262
Output of Major Livestock Products by Province, 1994	264
Number of Domestic Animals, 1994 (Year-end figure)	266
Number of Domestic Animals by Province, 1994 (Year-end figure)	267
Organizations of Fishermen by Province, 1994	273
Output of Freshwater and Seawater Aquatic Products by Province, 1994	274
Output of Marine Fishing by Province, 1994	275
Areas of Seawater Fish Culture by Province, 1994	276
Areas of Freshwater Fish Culture by Province, 1994	278
Per Hectare Yield Lever of Freshwater Fish Culture by Province, 1994	279
Motor Fishing Boats by Province, 1994 (Year-end figure)	280
Non-Motor Fishing Boats by Province, 1994 (Year-end figure)	281
Number of Enterprises Run by Townships and Villages by Province, 1994	282
Number of Persons of Enterprises Run by Townships and Villages by Province, 1994	284
Township Enterprises Output Value by Province, 1994 (Calculated at 1994 current prices)	286
Township Enterprises Output Value by Province, 1994 (Calculated at 1990 constant prices)	287
Major Economic Targets of Township and Village Enterprises by Province, 1994	288
Output of Major Products of Township Enterprises by Province, 1994	291
Delivery Total of Export Products of Township Enterprises by Province, 1994	294
Basic Indicators of State Farms and Land Reclamation by Province, 1994	296
Major Economic Targets of State Farms and Land Reclamation by Province, 1994 (Calculated at 1994 current prices)	297
Planted Area and Output of Major Tropical and Subtropical Crops in State Farms and Land Reclamation by Province, 1994	298
Gross Industrial and Agricultural Output Value of State Farms and Land Reclamation by Province, 1994 (Calculated at 1990 constant prices)	300
Sown Area and Output of Farm Crops in State Farms and Land Reclamation	301
Planted Areas and Output of Fruits and Tea in State Farms and Land Reclamation by Province, 1994	302
Major Output of State Farms and Land Reclamation Industrial Enterprises by Province, 1994	303
Major Agricultural Machinery by Province, 1994 (Year-end figure)	306
Farmland Under Irrigation by Province, 1994	315
Capacity of Reservoirs by Province, 1994	317

Permanent Mechanical and Electrical, Electric Motor and Internal-Combustion

Engine Irrigation and Drainage Pumping Station by Province, 1994	319
Areas with Waterlogging Prevention Measures by Province, 1994	320
Water and Soil Erosion Areas and Its Controlled Areas by Province, 1994	321
Annual Average Temperature in Major Cities, 1994	322
Annual Precipitation in Major Cities, 1994	324
Annual Sunshine Hours in Major Cities, 1994	326
Level of Agricultural Modernization	328
Rural Power Consumption, Generation and Farmland Irrigation by Province, 1994	329
Consumption of Chemical Fertilizer for Agriculture by Province, 1994	
(At effective basis)	330
Basic Indicators of Rural Households Surveyed	331
Net Income Per Capita in Farmer's Household and Its Sources	332
Average Net Income Per Capita of Farmers by Province, 1994	333
Living Expenditure Per Capita of Farmers by Province, 1994	334
Living Expenditure Per Capita of Farmers in Cash by Province, 1994	336
Per Capita Consumption of Major Foods of Farmers by Province, 1994	338
Possession of Principal Durable Consumer Goods Per 100 Farmers by	
Province, 1994	340

GENERAL SURVEYS

1

Crop Farming

1994 was a good year for agriculture, with the added value in this sector reaching 823.1 billion yuan or 3.5 percent more than in 1993. The per unit yield of grain was high; cotton production ended the successive reduction and assumed the trend of rehabilitative growth; and the total output of oil-bearing crops, fruits, silk worm cocoons and vegetables chalked up historical highs. Good harvests were recorded in all crops except grain, sugar-bearing crops, flue-cured tobacco, jute and huish dogbane and tea.

The total acreage sown to grain crops was 109.5438 million hectares, 1.1333 million hectares less than in 1993. The total output was 445.1020 million tons, 11.9 million tons less than in 1993, which itself was a good harvest. It was still the third best year in terms of per unit yield, next only to 1993 and 1990. Drops were recorded in the output of all early summer grains, early rice and autumn grains and in such crops as wheat, corn and rice, the three principal crops in the country, and in both south and north, with the north experiencing bigger drops than in the south. The biggest drop was recorded in wheat, which accounted for 72 percent of the total drop.

The main causes for the grain output drop was the reduction of grain sown acreage and the per-unit yield. Despite the sown acreage for cotton, oil-bearing crops, vegetables and fruits and other cash crops was expanded, the reduced grain acreage led to the drop in total output, which was estimated at 4.5 billion kilograms. Another factor was the serious natural adversi-

ty, which caused the reduction in per-mu (1/15 hectare) output, which was 271 kilograms in grain, 4.5 kilograms less than in 1993, or 7.5 billion kilograms in total.

Cotton sown acreage was 5 528 030 hectares, 13.7 percent more than in 1993. The output averaged 785 kilograms per hectare, about 2.5 kilograms more than in 1993. The expanded acreage and higher per unit output brought the total output of cotton up to 4 340 980 tons or 13.6 percent more than in 1993. The acreage of oil-bearing crops came to 12 081 010 hectares, 1 060 000 hectares more than in 1993, with the total output reaching 19 896 000 tons, growing 10 percent to hit an historical high. These included 7 492 000 tons of rape seeds, growing 7.5 percent, which was the second best year in history following 1992. The output of peanuts hit 9 682 000 tons, growing 14.4 percent over that of the previous year, which in itself was a big harvest year. The sown acreage for sugar-bearing crops was about 67 300 hectares more than in 1993 and the total output reached 73 452 000 tons, 3.7 percent less than in 1993. Among them, the output of sugarcane dropped 5.2 percent and sugar beet grew 4 percent. Production of vegetables, fruits, silk worm cocoons continued to grow rapidly. But the production of flue-cured tobacco, fibre crops and tea dropped. The aggregate of vegetables grew and the varieties were rich. The sown acreage for vegetables was 666 610 hectares and the total output reached 230 million tons, 17.5 million tons more than

in 1993. The production of fruits and silk worm cocoons rose 15.5 percent and 10.2 percent, respectively, over those of 1993.

In 1994, the central authorities strengthened leadership over agriculture and rural economic work, producing a series of reform measures. They included the raising of the prices for grain and cotton, extending the period for contracted land, establishment of grain production risk funds, giving support to the main grain producing regions and the economy in the central and western parts of the country, acceleration of the construction of "vegetable basket" projects and reforming of the circulation system for agricultural capital goods. These measures played a key role in mobilizing the initiatives of the farmers and in promoting the development of the rural economy as a whole. The purchasing prices of agricultural produce in 1994 was 39.9 percent higher than in 1993. The prices for rice, wheat, corn and soybeans ordered by the state were raised by 40 percent and the price of cotton, by 66.8 percent.

The total acreage of cash crops in 1994 was 31 733 300 hectares, 1.8 million hectares more than in 1993. Of these, the acreage of cotton increased by 680 000 hectares; that of oil-bearing crops, by 1.06 million hectares; that of vegetables, by 666 670 hectares. Big increases in acreage were also recorded in fruits and silk worm cocoons.

Fine quality agricultural products continued to grow rapidly. The acreage of fine quality special-purpose wheat reached one million hectares, 133 300 hectares more than in the previous year. The acreage of rape seeds of low erusic acid or low sulfurside and rape seeds of both low erusic acid and low sulfurside reached 1 066 670 hectares, 333 330 hectares more than in the

preceding year, with the acreage sown to rape of both low erusic acid and low sulfurside reaching 666 670 hectares, 106 670 hectares more than in the previous year. The acreage of peanuts was also expanded and the quality was better, suitable for export. The output of fine quality fruits reached 11.5 million tons, with its proportion in the total output increasing from 30 percent to about 35 percent.

Ten major techniques were popularized in the year. They included the fine strains of hybrid rice and hybrid corn, high-yield model cultivation techniques, intercropping multi-crops techniques, plastic film covering cultivation techniques, the comprehensive prevention and control of plant diseases, pests, weeds and rodents, rice seedling dryland nursing and sparse transplantation and transplantation by throwing, technique for ameliorating middle and low yielding fields, formula fertilization according to soil types, deep application of chemical fertilizers, additional application of trace-element fertilizers, seed screening and coating and precision and semi-precision drilling techniques, and dry farming and water efficient irrigation techniques. Thanks to the intensified application of such techniques, the areas of hybrid rice reached 15.6 million hectares, 333 330 hectares more than in the previous year, the areas of hybrid corn reached 18.67 million hectares, 360 000 hectares more than in 1993; the cotton acreage where plastic film covering technique was applied reached 75 percent of the total, 6 percentage points higher than in the previous year, and the areas under chemical control reached 70 percent. The acreage of peanuts covered by plastic films reached 480 000 hectares, 133 300 hectares more than in the preceding year.

The whole year witnessed the implementa-

tion of 13 items of "good harvest project", with the acreage for popularization reaching 4 965 300 hectares, yielding an additional 1.5 billion kilograms of grain, 110 million kilograms of cotton, 327 million kilograms of oil-bearing crops, 246 million kilograms of sugar-bearing crops and 220 million kilograms of vegetables. The annual added total output value reached 3.517 billion yuan and newly added net gains reached 2.7 billion yuan.

In general, the momentum for restructuring the crop culture was good in 1994. But the acreage for grain crops was reduced by a big margin, below the warning line of 110 million hectares. This affected, to varying degrees, the increase in total output and the balance between supply and demand.



The foreign muskmelon breeding ground of Pingdong Breeding Stock Research Farm in Taiwan Province.

photo by Li Houzhong

Through years of readjustments in the structure and distribution of plant culture, a pattern compatible with the development level of the national economy and agricultural production has taken shape, that is, the acreage of grains is 1.65 billion mu (15 mu is a hectare), cotton, 85 million to 90 million mu, oil-bearing crops, 180 million mu, sugar-bearing crops, 25

million mu and vegetables, 100 million mu. The plant structure readjustment in the future should be preconditioned by the maximum protection of arable land and on the basis of the steady increase in grain crop acreage.

1994 witnessed a strained situation in the supply and demand of grain, with the problem of agriculture lagging behind further revealed. The year saw the biggest rise in the prices of agricultural products, with that for grain rising by 50.7 percent and edible oils, by 64.1 percent. The causes for such situation was complicated and many-sided. It was associated with both the rise in the cost of agricultural production resulting from the acceleration of marketization of the economic structure and the rise in the general price level and with the lags in price control and disorderly circulation of agricultural products and the imperfection of the system for regulating the reserves. But most important of all is the lag in agricultural development. The growth in grain production slowed down while the demand grew rapidly, presenting a sharp contrast. It should be normal for the fluctuation in the grain output in 1994. But, due to the lower grain growth speed than in the early 1980s, especially since the beginning of 1990, grain production has been at a level of low speed development while the consumption has been increasing quite rapidly. Comparing 1994 with 1990, the grain for industrial use increased by 11.5 billion kilograms or at an annual growth rate of 20 percent. The grain used as feed increased by 16.5 billion kilograms or increasing by 6 percent. The population increased at an annual rate of 15 million, consuming additional 5 billion kilograms of food grain. At the same time, the increase in export and the rise in the consumption level of the people also increased