

21世纪水稻遗传育种展望

Prospects of Rice Genetics and Breeding for the 21st Century

—— 水稻遗传育种国际学术讨论会文集

Paper Collection of International Rice Genetics and Breeding Symposium

中国农学会

中国水稻研究所

国家杂交水稻工程技术研究中心

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前 言

水稻是全球重要的粮食作物之一，全世界种植水稻的国家和地区有 100 多个。中国是稻米生产大国，也是水稻科技，尤其是遗传育种开展较早，并取得突出成就的国家。以袁隆平先生为代表的中国水稻科技工作者对杂交水稻研究与应用的成功，使中国成为世界上第一个成功培育并应用杂交水稻的国家。据统计，1976 年至 1995 年，中国累计种植杂交水稻近 1.9 亿 hm^2 ，累计增产稻谷 2 800 多亿 kg 。中国科学家经过多年的努力，于 1996 年 6 月建成的水稻基因组物理图，它既能用于水稻育种，又能用于染色体测序，从而可在分子水平上解开水稻遗传之谜，为水稻遗传育种研究开辟了新途径。目前，国际上许多国家开展了以超级稻为目标的水稻遗传育种工作，并取得了一些重要进展，中国的水稻科技工作者在超级稻研究领域也取得可喜的进展。

为加强中国与国际组织和其他国家在水稻遗传育种中的学术交流，加快水稻育种的步伐，经中华人民共和国科学技术部批准，由中国农学会、中国水稻研究所、国家杂交水稻工程技术研究中心、中华农业科教基金会主办，国际水稻研究所、中华人民共和国农业部科技教育司、中国生物工程开发中心、中华人民共和国农业部水稻生物学重点实验室协办，于 1999 年 10 月 16~18 日在杭州召开水稻遗传育种国际学术讨论会。

本次会议共收到百余篇学术论文，本文集收录了从中筛选出的 76 篇具有较高学术水平与应用价值的论文，其内容涉及 21 世纪水稻遗传育种展望、生物技术与水稻遗传育种、高产优质多抗水稻育种、水稻杂种优势育种、水稻种质资源保护与利用、水稻遗传育种科技产业化等，共计 60 万字。由于时间关系，部分国外代表来不及及时提供论文全文，本文集只收集了其论文摘要，敬请谅解。

本书可供国内外专门从事水稻遗传育种的专家学者参考，也可供广大农业行政、科教、推广人员及大中专院校学生参阅。

本书在编辑过程中得到了出席会议的国内外专家和会议主办单位与协办单位的大力支持，在此一并致谢。

编著者
1999 年 9 月

Preface

Rice is one of important food crops on the earth. There are more than one hundred rice growing countries in the world. China is a country of mass rice production, where rice technology, especially rice genetics and breeding, developed fairly early and outstanding achievements has been obtained. The success in rice research and application made by the Chinese rice scientists and technicians with Mr. Yuan Longping as their representative has made China the first country in the world in successful breeding and application of hybrid rice. According to the statistics, from 1976 to 1995 the accumulated acreage of hybrid rice cultivation amounted to near 190 million hm^2 , and the accumulated output of paddy rice totaled 280 million tons and more. After many year's efforts, the Chinese scientists established physical map of rice genome in June of 1996, which can be applied both for rice breeding and chromosome sequence testing, thus found a clue to the mystery of rice inheritance at molecular level and carved out a new way for research on rice genetics and breeding. At present time rice genetics and breeding aimed at super rice has been developed in many countries of the world and some important progress has been made. The Chinese rice scientists have also made encouraging progress in this area.

In order to strengthen the academic exchange between China and other countries and international organizations in rice genetics and breeding so as to quicken steps in this area, the International Rice Genetics and Breeding Symposium will be held on 16 ~ 18 October, 1999 in Hangzhou city, Zhejiang Province, China. The Symposium is organized by China Association of Agricultural Science Societies, China National Rice Research Institute, China National Hybrid Rice Research and Development Center and China Agricultural Science, Technology and Education Foundation with the approval of the Ministry of Science and Technology of China. It is co-organized by International Rice Research Institute, Department of Science and Education of the Ministry of Agriculture of China, China Biological Engineering Development Center and Key Laboratory for Rice Biology for the Ministry of Agriculture of China.

The Symposium has received one hundred and more academic papers. 76 papers of higher academic and practical value has been selected and included in this Collection. These papers involve areas, such as prospect of rice genetics and breeding for 21st century, bio-technology and rice genetics and breeding, high-yield, quality and multi-resistant rice breeding, rice breeding with hybrid vigor, protection and utilization of rice germplasm resources, industrialization of science and technology in rice genetics and breeding and etc.

The Collection is of reference for specialists and scholars engaged in rice genetics and breeding in China and abroad. Personnel of agricultural administration, science, education and technical extension and students of universities and colleges can also be readers of the Collection.

In the process of edition and compilation of the Collection, valuable assistance has been received from specialists of China and abroad. Organizers and co-organizers of the Symposium have also provided great support. Heartfelt gratitude is expressed herewith to all of them.

Author
September, 1999

水稻遗传育种国际学术讨论会

主题：面向 21 世纪的水稻遗传育种

1999 年 10 月 16 ~ 18 日，中国·杭州

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Theme: Rice Genetics and Breeding towards the 21st Century

October 16 ~ 18, 1999, Hangzhou, China

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China National Rice Research Institute

China National Hybrid Rice Research and Development Center

China Agricultural Science, Technology and Education Foundation

Co-organized by:

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