

Program Description of Training Course on Hybrid Maize Comprehensive Technology for Developing Countries

Name	Training Course on Hybrid Maize Comprehensive Technology for Developing Countries		
Organizer	Yuan Longping High-tech Agriculture Co.,Ltd.		
Time	June 23 th ~July 20 th , 2022	Language	English
Invited Countries	Developing Countries	Number of Participants	25
Purpose	<p>This training aims to 1) make an introduction to China's national conditions and culture , 2) focus on introducing the comprehensive technology of hybrid maize, 3) Share the successful experience of China's agricultural development to provide reference for the development of corn industry in the developing countries and the participants can put forward corresponding suggestions based on what they have learned and combined with the actual situation of their own countries., and 4) promote mutual exchanges and improve the capability of the participants , and strengthen the cooperation between China and developing countries in the field of hybrid maize production.</p>		
Requirements for Participants	Professional Background	--Area or specialty: working and specialty in agriculture fields --Position: Government officials, researchers and technicians in related agriculture fields	
	Age	Not exceed the statutory retirement age in participant's own country	
	Health Condition	Be in good health and capable of attending online courses as scheduled	
	Language Proficiency	Capable of listening, speaking, reading and writing in English	
	Others	Participants have access to software such as the Zoom or VooV Meeting. The organizer will provide guidance and technical assistance remotely.	
Training Content	<p>1. Training objectives</p> <p>The training aims to strengthen cooperation and exchanges between China and developing countries in the field of agriculture and maize industry development. It will last for 28 days, with English as the working language. The training will be conducted through online lectures, exchange meetings, online visual visits and visual practices, and well-known industry experts and scholars and representatives of agricultural high-tech enterprises of China will be invited to give lectures. The training program will introduce the world maize production and trade and the current situation and development trend of China's agriculture, and will focus on sharing advanced agricultural technologies such as China's comprehensive hybrid maize technology, and will conduct specific practical cases to inspire trainees to think about relevant initiatives to improve maize research and production in developing countries.</p> <p>2. Main training courses and the outline in brief</p> <p>(1) China's national conditions and achievements in reform and opening up: Introduction to China's development status of Politics, economy, society, culture,etc and China's successful experience in reform and opening up.</p> <p>(2) Experiences of daily prevention and control of the COVID-19 epidemic: Introduction to the successful experiences of daily prevention and control of the he COVID-19 epidemic in China and related countermeasures</p> <p>(3) Overview of China's agricultural development: main achievements and basic experience of</p>		

China's agricultural development, future countermeasures for China's agricultural development, China's grain production and other related agricultural policies, etc.

(4) Maize breeding objectives: Basis and principles for setting breeding objectives and main objectives of maize breeding.

(5) Research and application of maize germplasm resources: excavation and utilization of maize germplasm resources, helping trainees learn about maize germplasm utilization.

(6) Maize major trait inheritance and target breeding: Introducing the relationship between maize traits and targets to help trainees learn about the utilization and selection of maize variety resources.

(7) Selection and breeding of maize inbred lines and their hybrids: Selection and breeding of maize inbred lines and specific breeding techniques and methods.

(8) Maize population improvement: introducing how to improve existing traits in maize.

(9) Application of male sterile lines in maize: Application of sterile lines in maize.

(10) Maize mutation breeding: technology related to maize mutation breeding.

(11) Standards and procedures of maize variety validation: relevant regulations and standards of maize variety validation in China.

(12) Hybrid maize seed production: Introducing hybrid maize seed production technology.

(13) Hybrid maize seed quality inspection: hybrid water maize seed quality inspection process and related technology.

(14) Integrated control of hybrid maize diseases, insects and weeds: Introduction to diseases, insect pests, weeds and corresponding prevention and control techniques for maize production and management.

(15) High-yield supporting cultivation techniques of summer maize in temperate and warm-temperate zones: introducing high-yielding supporting cultivation techniques of summer maize in temperate and warm-temperate zones, as well as production and management techniques under different climatic conditions.

(16) High-yield supporting cultivation techniques for low and medium yielding fields of maize: Introducing techniques related to maize cultivation and production management under poor soil and ecological conditions.

(17) Maize processing and storage technology: introducing maize processing and storage technology.

(18) Maize high-yield cultivation and farming techniques: Knowledge of maize group structure and light energy utilization and maize mineral nutrition and reasonable fertilization; scientific basis of reasonable dense planting; maize water physiology and water management, as well as key techniques of maize cultivation such as land preparation, seed preparation, sowing and field management.

(19) Tropical and subtropical maize high-yield cultivation technology: Key techniques of open field direct seed maize cultivation and maize film cover high-yield early maturity cultivation.

(20) The key technology of maize yield increase under drought conditions: High yield cultivation technology of dry land maize in early maturity area and the cultivation technology of maize full-film double-ridge rain-gathering furrow sowing.

(21) Biological basis of maize cultivation: Morphological characteristics and construction of maize organs, as well as the homeostasis relationships of maize organs and knowledge of maize growth and development and ecological conditions.

(22) Overview of world maize production and trade: Significance of increasing maize production, overview of world maize production and trade, and production development in major maize producing countries in recent years.

3. Online virtual visits and field practice

(1) Cultivated maize classification online virtual practice: through practice, the trainees are

expected to master the types of corn seed endosperm texture and the presence of lemma shell. Eight categories of cultivated maize are to be introduced. Introducing common hybrid maize, glutinous maize, sweet maize, sweet glutinous maize seeds, plants (such as seedling plants of sweet maize are relatively small) and cob morphological characteristics.

(2) Online virtual practice - observing maize hybrid dominance: It is an experiment aimed to make the trainees intuitively understand the hybrid dominance in morphological and physiological performance, and master a variety of calculation methods of hybrid dominance. Observing field growth of maize inbred lines and hybrid lines under the same growing conditions; measuring yield traits of maize inbred lines and hybrid lines.

(3) Online virtual practice on bagging of maize inbred lines and second cycle-line breeding: The practice is aimed to enable trainees to master the construction methods of bagging of maize inbred lines and second cycle-line breeding, the application in breeding, as well as the advantages and shortcomings of the second cycle lines

(4) Online virtual practice on breeding population construction methods and population improvement: (1). The practicum will enable trainees to understand the main ways of population improvement and the construction methods of breeding population. (2).Focus on mastering the method of mixed selection for population improvement

(5) Online virtual practice on pest awareness and investigation methods: Introduction to the main pest species affecting corn and the morphological characteristics of pests and symptoms of corn damage; the main disease species affecting corn and symptoms of corn damage. The practicum will enable trainees to master the identification and investigation methods of the main pests and diseases in maize fields, and to have a preliminary knowledge of pest and disease control measures.

(6) Online virtual practice on field de-hybridization: Introducing the de-hybridization techniques for inbred line reproduction, hybrid seed production and field production respectively. The practicum will enable the trainees to master the identification of corn weeds and learn to remove them quickly.

(7) Online virtual practice on land preparation, sowing, and thinning out: introducing techniques of land preparation, sowing, seeding, thinning out and fertilization Through lectures and practice, trainees will master basic land preparation, seeding, seedling thinning out and fertilization skills.

(8) Online virtual practice on maize real-time harvesting: 1) Introducing signs of maize maturity: appearance of black layer, bracts withering, hardening of kernels, etc. 2) the principle of selecting suitable varieties according to local conditions; 3) introduction of common harvesting methods, including machine harvesting of ears, seeds and manual harvesting; 4) introduction of operation methods of 1-2 types of harvesting machines; 5) organizing harvesting practice for trainees. The practicum is aimed to equip trainees with basic maturity skills in real time through lecture and practice.

(9) Online tour to Yuan Longping High-tech Agriculture Gansu Maize Production Base to learn about important technical aspects of corn seed production, processing and storage.

4. Brief introduction of lecturers and professors

(1) Prof. Huang Yongming, former deputy inspector of Hunan Provincial Agriculture Committee, expert of the United Nations Food Program (WFP, UN), with the state professional title of senior economist. He has mainly engaged in agricultural technology promotion, agricultural policies research, agricultural education and research, and has served as visiting scholar or executed agricultural projects in countries such as Israel and Ethiopia and International Rice Research Institute(IRRI) in the Philippines.

(2) Prof. Zhao Zhengwen, the former director of Hunan Crop Research Institute, a second-tier researcher, enjoying the State Council allowance, has won the Hunan Science and Technology Progress Award for many times. His main research areas are: 1. soybean, corn genetic breeding. He

has developed Xiangchun Bean 14 and other 8 new varieties of high quality, high yield, disease resistance and 3 maize inbred line; 2. efficient cultivation technology and extension applications of corn and soybean. He has presided over the National Soybean Breeding Research Project and the National Important New Soybean Variety Promotion Project undertaken by the Institute. He was a member of the soybean variety validation committee of the Ministry of Agriculture for 2 consecutive terms, and participated in the evaluation of the National Science and Technology Award once.

(3) Prof. Luo Hongbing, professor and doctoral supervisor of Hunan Agricultural University, director of Hunan Maize Engineering Technology Research Center, chief expert of Hunan Dry Grain Industry Technology System. He is mainly engaged in the research of maize genetic breeding and supporting cultivation technology, having presided over or participated in more than 20 scientific research projects. He has bred 10 new maize varieties and 3 maize sterile lines. He has worked as a postdoctoral researcher at the Department of Nuclear Science and Technology, Institute of Nuclear Physics, China Academy of Atomic Energy Sciences and the Department of Horticulture, Hunan Agricultural University. He has studied at the Crop Science Laboratory, Hokkaido University, Japan, and participated in the 2018 training class on maize breeding and cultivation technology for agricultural production technology in Mozambique sponsored by the Ministry of Agriculture.

(4) Prof. Chen Zihui, a second-tier researcher with Hunan Provincial Academy of Agricultural Sciences, Doctor of Science in Botany, Central South University. He has 35 years of scientific research and training experience in maize genetic breeding and cultivation technology, and has participated in China Aid training for nearly 10 years. Huang Dahui, chief trainer of Yuan Longping Hi-Tech International Training Institute, is an expert in international promotion of hybrid rice engineering technology, and has more than 20 years of experience in agricultural China-Aid projects, China-Aid training management and teaching.

(5) Prof. Huang Hulan, researcher with Hunan Provincial Academy of Agricultural Sciences, majoring in plant protection at Hunan Agricultural University, has 30 years of scientific research and training experience in maize and rape genetic breeding and cultivation technology, and has participated in China-Aid training for 8 years.

(6) Prof. Xie Jun, professor of Hunan University. She has rich experience in international exchanges and cooperation for decades. Prof. Xie has mainly engaged in English teaching and translation, Chinese culture and national conditions research, etc.

(7) Mr. Chen Xiaoliang, a senior agronomist, has nearly 30 years of experience in agricultural technology application demonstration and promotion. He has been abroad many times as the head of the expert group of China's agricultural technology aid projects, and has 20 years of experience in agricultural China-Aid projects, China-Aid training management and teaching.

(8) Mr. Xu Haiqing, deputy GM of Gansu Yuan Longping Hi-Tech Seed Company, agronomist, majoring in plant protection at Northwest Agriculture and Forestry University of Science and Technology. He has been engaged in the production and processing of corn hybrids for 21 years and has a wealth of experience. He has engaged in China-Aid training for 6 years.

(9) Prof. Tan Yanping, Associate Professor of Hunan Agricultural University, has ever been to San Francisco to teach Chinese as a foreign language for one year in 2006. She began to participate in the China Aid training program in 2008.

(10) Dr. Tan Chongqing, Deputy Director of the Institute of Clinical Pharmacy, Central South University, whose main research direction is the application of Chinese medicine. His lectures are mainly about the Chinese experience of prevention and control of the COVID-19 epidemic.

5. Materials to be prepared by the trainees

In order to facilitate exchanges with Chinese experts, please prepare materials related to the subject of the training of your country, such as: ① Introduction of your profession and your unit;

	<p>②Current status and existing problems of maize production in your country; ③The Cooperation between your country and other countries or international organizations in maize production ; ④The agricultural cooperation between your country and China; etc.</p> <p>Final test/assessment In the form of test questions or essays</p>		
Host City	Changsha City, Hunan Province	Cities of Virtual Tours	Zhangye City, Gansu Province ; Anxiang County, Hunan Province (subject to change)
Notes	<ol style="list-style-type: none"> 1. The training program will be held online, which requires participants to prepare necessary equipment and devices such as internet connection, computer, microphone, camera, etc. 2. Participants should be punctual and well-disciplined. The Certificate of Completion will be issued to those who meet all the requirements including good attendance records. 3. Participants should enter the virtual classroom in advance with the screen name “NAME + COUNTRY” identical to the passport information. 4. Participants should respect and maintain the confidentiality and security of the information and data concerning the Seminar. Course materials will be shared to participants after class, which shall not be made public or posted via social media. 5. Participants should prepare report for discussion session(s) as scheduled. 		
About the Organizer	<p>Yuan Longping High-tech Agriculture Co., Ltd. (hereafter Longping High-tech) is an international seed company named after the Academician Yuan Longping, the “Father of Hybrid Rice” and the honorary chairman of the Longping High-tech. CITIC Group is the controlling shareholder. Established in 1999 and listed in 2000, Longping High-tech ranks the 8th of seed industry around the world in terms of comprehensive strength. Longping High-tech was awarded as “China-aid Hybrid Rice Technology Training Center” by the Ministry of Commerce of China.</p> <p>Longping High-tech is mainly engaged in the seed business of hybrid rice, maize, vegetable, millet, edible sunflower, wheat, cotton and rape, and provides agricultural services such as new-type professional farmers training, precision planting, quality grain trading, field restoration and development, brand agriculture, agricultural finance, etc.. The company built a globalized commercial breeding system. With more than 10% of its operating income in R&D investment, Longping High-tech has established R&D centers in China, the Philippines, Pakistan, India, Brazil and USA, etc.. Its R&D and innovation capabilities of main crop seeds rank at the top level in the world.</p> <p>Seizing the opportunity provided by the Belt and Road Initiative, Longping High-tech makes full use of its leading position in rice and maize seed industries and promotes its international operations around the world with subsidiaries established in the Philippines, India and Timor-Leste and trade ties with more than 40 countries and regions. At the same time, Longping High-tech actively carries out international training programs and agricultural cooperation, and has trained nearly 10,000 agricultural talents from more than 100 countries in Asia, Africa and Latin America, the South Pacific Region. Besides, it has undertaken more than ten China-aid projects on technical cooperation, helping developing countries develop agriculture and solve food security with China’s advanced agricultural technology, and making a significant contribution to global food security.</p>		

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