From Dawn to Dawn: China’s Journey to Agricultural Self-Sufficiency


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Any scientist involved in agricultural research should read From Dawn to Dawn: China’s Journey to Agricultural Self-Sufficiency, which documents how a country (China) has become self-sufficient in agricultural production. Dr. Tso, a native of China who spent his career working for the USDA, describes the historical development of agriculture in China from its isolated period (1949–1972) through the dynamic 10-year period that started in 1974, when the first exchanges of agricultural delegations between the United States and China began, up to the mid-1980s, when China had transformed its agricultural production. Dr. Tso, a naturalized American citizen, was born in China in 1917 and received a Ph.D. in 1950 from Pennsylvania State University. He became a federal agency research scientist (in plant physiology) in 1952, and in 1984, he joined the National Program Staff of the Agricultural Research Service (ARS) of the USDA.

The first opening of modern China to the West began in 1971, when Henry Kissinger, the national security advisor to President Richard Nixon, made a secret trip to Beijing. In 1972, President Nixon visited China. President Nixon and Chairman Mao agreed in 1973 to open the door for U.S.–China scientific exchanges. As Dr. Tso notes, “In 1974, China was still in the midst of the Cultural Revolution that started in 1966. The Chinese higher education system was totally closed and most Chinese intellectuals were sent to the country side ‘to learn from the peasants.’ The 10-member U.S. agricultural science delegation, led by Dr. Sterling Wortman, visited China for four weeks during September and October” (p. 32). On the team was Dr. Norman Borlaug, called the Father of the Green Revolution, and Dr. Tso reports Dr. Borlaug’s reminiscences about his 1974 trip to China (p. 32–34). Borlaug had won the Nobel Peace Prize in 1970 for his work on developing high-yielding, semidwarf wheat plants in Mexico.

As Dr. Tso relates, “In the early 1940s, most of the population of Mexico suffered from poor nutrition or even hunger. That situation generated the establishment of a Cooperative Agricultural Program by the Rockefeller Foundation in cooperation with the Mexican government. In 1943, a team of dedicated scientists was assigned to this special project, with the aim ‘to develop improved plant varieties, especially corn and wheat, and to explore issues of soil improvement and crop management.’ The result was the development of high-yielding wheat varieties, which transformed Mexico from near starvation to self-sufficiency. These new varieties, with a wide range of ecologic adaptation and a broad spectrum of disease resistance, not only were valuable in increasing wheat production in Mexico and neighboring countries in the late 1950s but were even more valuable when introduced into Pakistan, India, Turkey, Iran, and other countries in the 1960s and 1970s.” (p. 3–4). (The center organized in Mexico is now called the Centro Internacional de Mejoramiento de Maíz y Trigo [CIMMYT] and is part of the Consultative Group of International Agricultural Research [CGIAR]. As of 2010, there are 15 CGIAR centers located in Benin, Colombia, India, Indonesia, Italy, Kenya (two centers), Malaysia, Mexico, Nigeria, Peru, the Philippines, Sri Lanka, Syria, and Washington, DC.) During this time (early 1940s to 1949), China was engaged in civil wars. In 1949, Mao took over (called the “liberation”), which resulted in the years of isolation until Kissinger made his secret trip to Beijing. Dr. Tso reports that the “liberation was seen as a revolution to free people from hunger, social injustice, and corruption and to improve the population’s education, welfare, and livelihood. The time-honored Chinese philosophy is ‘Food is the master of all people.’ Every dynasty or ruler with a plan for establishing national stability follows this philosophy” (p. 8). However, the restructuring of rural society was based on the USSR model. “In the general area of scientific research on agricultural production, there was obvious influence from the Soviet Union—‘learn from our Big Brother USSR’—such as the commune system, the agricultural education system, and the teaching of Lysenkoism. The commune system in the Soviet Union and China did not work well at all” (p. 8).