Sustainability of Agriculture in China

Shu Gang*

China is one of the oldest agricultural countries in the world. In China, agriculture is not just a line of business or a kind of career, it is a way of life—the base on which the family and community are structured and the foundation on which governments are established. The importance of agriculture for the Chinese is illustrated by the Chinese calendar. The Chinese calendar is based on lunar cycles and the important dates coincide with requirements of farm practices: the right dates for sowing seeds in spring; time of irrigation, fertilization, and weeding in summer; harvesting in autumn; and storage in winter.

Chinese literature containing detailed descriptions about agricultural principles and cultural methods date before 600 A.D., with Che Ming Yaw Su being one of the earliest agricultural science books found in the world. Many principles introduced in these documents, such as cultivation according to seasonality and cropping according to locality, are ecologically sound and applicable today.

Knowledge about agriculture, however, didn’t free China from the suffering and struggle of hunger caused by natural and political disasters. Modern history attests that this once superior civilization has been repeatedly assaulted and abused by the military might of both Eastern and Western powers and corrupted and humiliated by warlords and political movements within China itself. Chinese folk songs and their lyrics often express the grief and sorrow of such times. From generations of hardship came the saying “food is heaven.”

After thousands of years of development, the most important of all China’s pressing needs is still that of feeding its people. Nevertheless, China has done a remarkable job of feeding its billion in the last 10 years. The record-breaking 400-plus million metric tons of grain produced in 1984 represented a 100 million ton increase over 1978’s record and was matched only by 1989’s harvest. The apparent leveling-off phenomenon which occurred in the last five years is now referred to by the government as a time of stagnation.

Looking toward the future and knowing the population is still growing and will surely reach by the year 2000, the following questions may be asked:

1. Can China repeat its success of the early 1980s in the 1990s, i.e., further increase grain output by another 100 million metric tons? This increase would be necessary to maintain the current standard of living for an increased population.

2. Can China adequately provide employment for about 758 million rural laborers, who will be available by the year 2000? This question is obviously important for its implications to the economic and political stability of China.

This paper attempts to provide an assessment of whether or not China can meet the challenges implied in the above questions.

A BRIEF REVIEW

China is the third largest country in the world according to land area. It covers 2.42 billion acres of land of which only 10% is arable. It has an extremely diverse landscape and a wide range of temperature and rainfall distributions. Although China ranks sixth in the world in terms of annual rainfall, the distribution is uneven. In an average year, 10% of all land endures the stress of either drought or flood.

Figure 1 shows grain production in China for three different years: 1952, 1978, and 1987. Note that grain sowing area decreased while total grain production increased due to increased yields. The average growth rate for the last 10 years has been 4.1% per year for yield and 3.2% per year for total production. These rates of growth are the highest recorded anywhere in the world for this period.

While grain production is impressive, the pressure of population growth is also great. China has five times the arable land of the USA, but has five times the people to feed. On average, there are two acres for every American and only 0.2 acres for every Chinese. The population growth rate has been 1.3% per year for the last 10 years. It is anticipated that...