

China's Agricultural Success: the Role of Herbicides

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China recorded consecutive record crop harvests in the six years from 2004 to 2009. The increase in crop production is largely due to unprecedented gains in productivity. China has performed the miracle of achieving self-sufficiency in the world's most populous country, where cultivatable land is very limited. Figure 1 shows the dramatic increase in yields since the late 1970s for major field crops in China. Along with policy reform and infrastructure construction, agricultural technology is considered a key factor in driving this remarkable achievement [1].

One of the main new technologies adopted by Chinese farmers in recent decades has been the use of chemical herbicides to control weed infestations. In the past, farmers weeded by hand. Since the late 1970s, with rural economic development, rapid expansion of industries and development of commerce, which caused an outflow of the farming population to industry as well as a corresponding increase in wages, chemical weed control became more attractive to farmers [2]. From 1978 to 1990, with encouragement and promotion from the research and extension sectors, more and more Chinese farmers started adopting herbicides to control weeds [3]. The herbicide application areas of crop fields have steadily increased from less than one million hectares in the early 1970s to more than 70 million hectares in 2005 [2] (Figure 2). The application of herbicides in China has increased to 72,800 tons in 2007 from 1,067 tons in 1970 [4]. Herbicides are used on approximately 75% of the rice acres, 55% of the wheat acres, 44% of the maize acres, 50% of the cotton acres and 61% of the soybean acres [3].

Herbicides have contributed to increased crop yields in China by improving weed control and by facilitating the adoption of high yielding dwarf rice plants that are less competitive with weeds. Herbicides have made it possible for farmers to control weeds even with the large decline of traditional hand laborers who have moved from rural to urban industrial areas.

References

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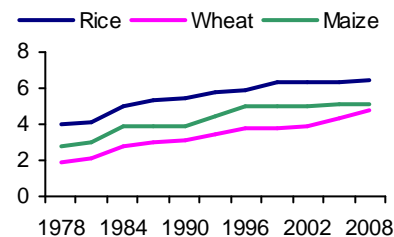


Figure 1: Crop Yields, China (Ton/Ha)

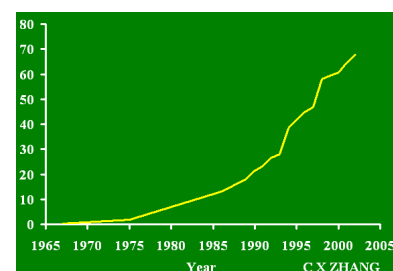


Figure 2: Herbicide Use, China (Million Ha)



Hand weeding in China



Weedy maize field in China



Herbicide spraying, China