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5.1 Evolution of rapeseed production in China

Rapeseed in China: an important crop

Rapeseed is the second largest oil-bearing crop in China. At the same time, China is a major global rapeseed producer as well as a major rapeseed consumer. Since 1981, rapeseed output reached four million t, ranking China number one in global rapeseed production.

Rapeseed is produced as a spring crop as well as a winter crop. However, with a share of about 90 % in acreage and output, winter rapeseed is by far the most important variant of the crop.

Regional distribution of rapeseed

At present, in addition to Beijing, Tianjin, Liaoning and Hainan, rapeseed is planted in 27 other provinces or regions.

Winter rapeseed areas include North China, Guanzhong, the middle and lower parts of the Yangtze River region as well as Sichuan Basin, the Yunnan-Guizhou Plateau and South China coastal areas. Among them, the Yangtze valley is the most important rapeseed producing region of China. Spring rapeseed is mainly grown in China's western plateau comprising the provinces Qinghai, Inner Mongolia, Gansu and Xinjiang (see Figure 5.1.1) also in the northwest of China there is a region with significant spring rapeseed.

In total in 2007 there was rapeseed acreage of 5.6 million ha. Out of this total production, the four most important provinces are Hubei, Anhui, Jiangsu and Sichuan. They are located in the Yangtze River Basin and they account for about 50 % of the total Chinese production. Respective provinces are highlighted in Figure 5.1.1.

Acreage in top four provinces

In order to focus on the hot spots, the subsequent analysis is primarily looking at these four provinces. Their rapeseed acreage was in the range of 2.7 to 3.7 million ha from 2000 to 2007. In 2006 the acreage dropped by 2.4 % compared to 2005; in 2007 another decrease of 6.2 % occurred.

But still rapeseed acreage of these provinces accounts for about half of total rapeseed acreage during the previous eight years (see Table 5.1.2).

As can be seen in Table 5.1.2 as well, this continuity in the share of the key regions is caused by the fact that the national acreage in rapeseed went down from 7.3 million ha in 2005 to 5.6 million ha in 2007 as well which equals a decrease of about 23 %.

The share of rapeseed acreage in total arable land use in these key provinces was rather stable from 2000 to 2004. From 2004 onward a decline was to be observed, especially in 2006 and 2007. Figure 5.1.3 discloses the evolution of the individual trends of the provinces.

Share of rapeseed in the regions

In Hubei the share of rapeseed acreage was the highest of the four provinces, reaching almost 17 % in the peak season 2004. Although the share declined over the past few years, rapeseed still accounts for about 13 % of the total acreage of Hubei and therefore remains to be the highest proportion in the four provinces.

In Anhui the share of rapeseed acreage was almost stable from 2000 to 2005, but it decreased sharply after 2005. Sichuan evolved differently because from 2000 to 2007 the share of rapeseed acreage was almost flat at around 8 % to 9 %.

In Jiangsu a similar situation can be found, only in 2007 the acreage was reduced significantly. From Figure 5.1.3 it appears that regions with a relatively high share in the previous years experienced a sharp decline after 2004, while regions with only lower shares in the beginning of the period analyzed were either stable or just saw a moderate decline.

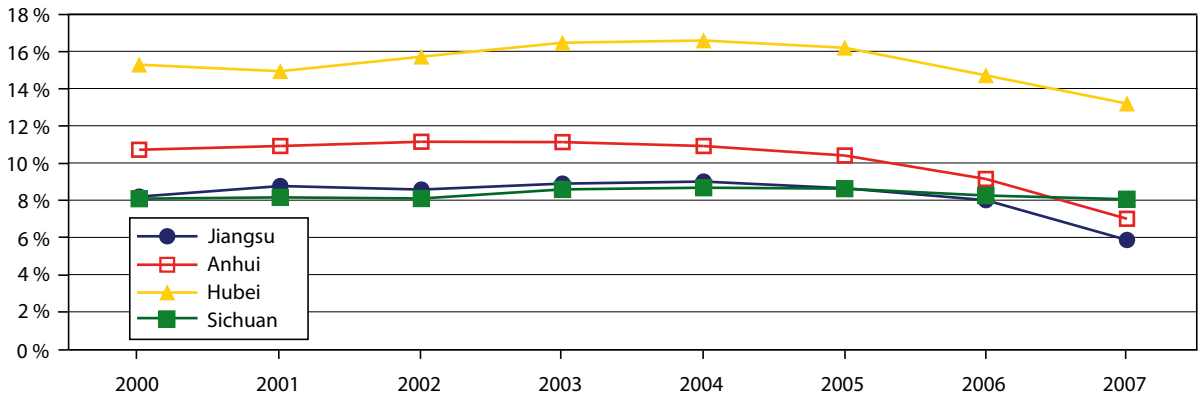
5.1.1 Rapeseed production in China

5.1.2 Rapeseed acreage of the four main Chinese provinces (1,000 ha)

	2000	2001	2002	2003	2004	2005	2006	2007
Jiangsu	651	681	668	683	690	661	609	434
Anhui	965	953	1,002	1,015	1,003	954	836	620
Hubei	1,159	1,118	1,155	1,175	1,186	1,179	1,081	927
Sichuan	777	780	773	806	814	817	797	747
Sub-Total	3,551	3,532	3,599	3,678	3,694	3,610	3,323	2,729
National	7,494	7,095	7,143	7,221	7,271	7,278	5,984	5,642
Share	47%	50%	50%	51%	51%	50%	56%	48%

Source: China Statistical Yearbook; own calculations

5.1.3 Share of rapeseed acreage in total arable land in selected Chinese provinces



5.1 Evolution of rapeseed production in China

Rapeseed yields increased

Between 2000 and 2007 rapeseed yields continuously increased with an annual growth rate of about 3.1 % (see Figure 5.1.4). This increase took place in the four provinces analyzed here as well as in the rest of China. But since the initial levels were low in both provinces the current yield level is still rather low. 2 t/ha and 1.5 t/ha are the usual levels in semi-arid locations while in Western Europe much more is harvested.

From Figure 5.1.4 it can be concluded that in the period looked at here the growth in yields was fairly constant. Hence it seems likely that in the future there is room for further growth. Also, because from Europe it is well known that with rapeseed – provided climatic conditions and agronomical treatment are optimized – much higher yields in the range of 3 to more than 4 t/ha are possible. Whether the currently used varieties allow such growth or not remains to be seen. In case their yield potential is limited, the question arises, whether (adapted) European varieties offer better growth potential.

Cause for decrease in rapeseed acreage?

Given the very dynamic growth in rapeseed acreage in the first part of the period analyzed, the question upraises: "What might have been the cause for that development?" As has been demonstrated it's not yields because they increased significantly over time.

One of the most likely reasons is the evolution of the gross margins compared to other crops that are a relevant alternative to growers. Of course this is only a relevant option assuming that growers are in fact free to make choices.

Based on expert knowledge and some agronomical considerations, wheat seems to be a relevant alternative crop to most growers in the regions analyzed here. Hence, as an example in Figure 5.1.5 and Figure 5.1.6 the evolution of gross margins for rapeseed and wheat in Hubei and Anhui are demonstrated.

In both provinces the gross margins in wheat improved dramatically relative to rapeseed. While in Hubei from 2000 to 2003 rapeseed was a much more attractive crop, from 2004 to 2006 wheat was performing much better. A similar development can be seen in Anhui.

Conclusions and outlook

Given the relatively strong increase in rapeseed yields the major reduction in Chinese acreage is very remarkable. As has been demonstrated, relative to wheat, evolution of gross margins was not very positive. This most likely is one of the reasons why farmers moved away from rapeseed in recent years.

One other potential cause for that is the fact, that rapeseed is a rather labor intensive crop. As explained in the ***agri benchmark*** Cash Crop Report 2008, rapeseed is transplanted by hand. Given the strong increase in overall wage rates, the opportunity cost for labor increased over time, causing farmers to quit rapeseed production in order to get rid of that burden. Respective economic research by the authors of this article is underway and will be published.

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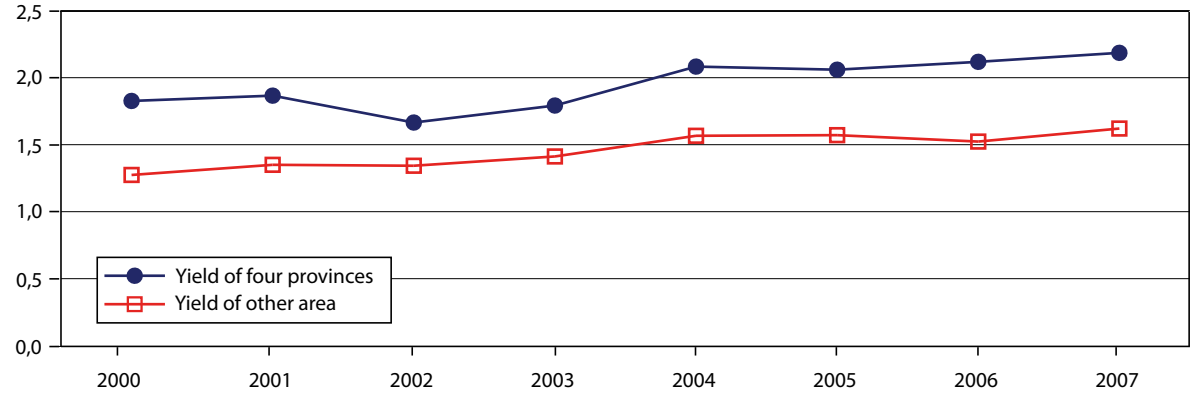
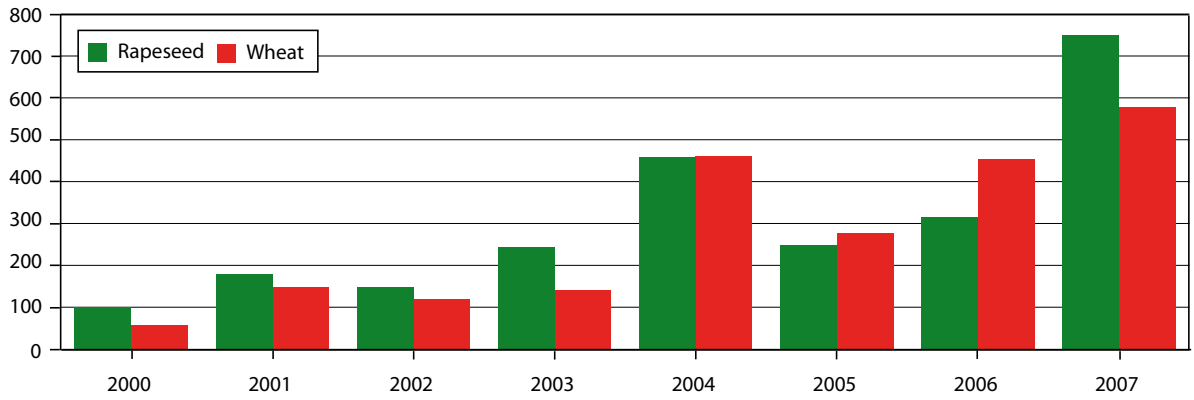
5.1.4 Average rapeseed yield in four provinces and rest of China (t/ha)



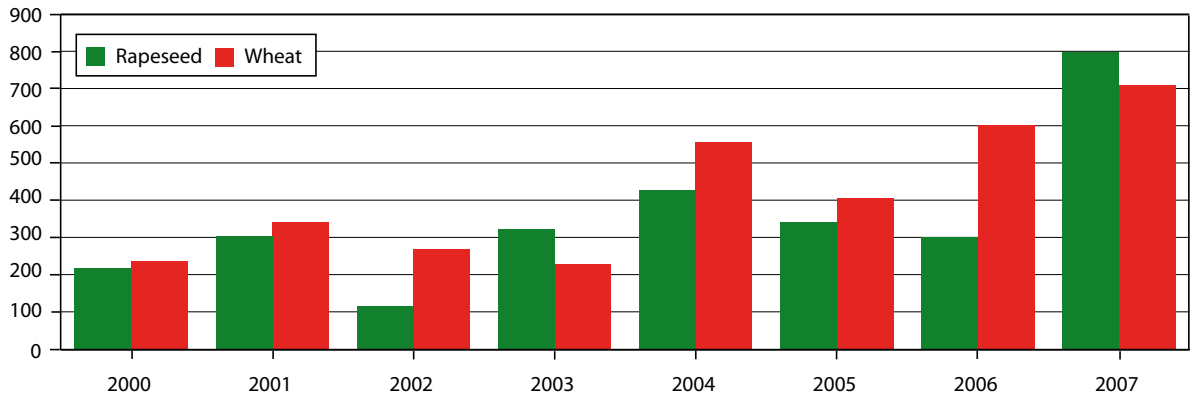
Source: China Statistical Yearbook; own calculations

5.1.5 Evolution of gross margins of rapeseed and wheat in Hubei (USD/ha)



Source: Compilation of National Cost-Benefit Data of Farm Products (Quanguo Nongchanpin Chenben Shouyi Ziliao Huibian); own calculations

5.1.6 Evolution of gross margins of rapeseed and wheat in Anhui (USD/ha)



Source: China Statistical Yearbook; own calculations