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Oil crops and supply chain in Asia
La filière oléagineuse en Asie

Dossier

State and trends of oil crops production in China

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Abstract – This paper attempts to present a full picture of current situation and future trends of Chinese oil crop production. The total oil crop production remained broadly constant during 2011–2014. The top three oil crops are soybean, peanut and rapeseed, together accounting for more than 70% of total oil crop production. The area under cultivation and the production of peanuts will keep steadily increasing because most Chinese like its pleasant roasted flavor. Because of their high content in polyunsaturated fatty acids and the natural minor functional components in their oils, more attention is being paid to sunflower seed and rice bran. The diminishing availability of arable land and concern over the security of edible oil supplies is driving both a change in cultivation structure of crops and improvements in the efficiency of oilseed production in China.

Keywords: Oil crops / soybean / peanut / rapeseed / China

Résumé – État des lieux et tendances de la production oléagineuse en Chine. Cet article propose un tableau complet de l'état actuel et des tendances futures de la production de cultures oléagineuses en Chine. La production totale des cultures oléagineuses dans ce pays affiche une stabilité au cours de la période 2011–2014. En Chine, le soja, l'arachide et le colza sont les trois principales cultures oléagineuses, représentant à elles seules plus de 70 % de la production totale de cultures oléagineuses. L'espace dédié à la culture ainsi que la production de l'arachide continueront de croître car la plupart des Chinois en apprécient la saveur grillée. Les graines de tournesol et le son de riz deviennent le centre de davantage d'attention en raison de la teneur élevée en acides gras polyinsaturés et des composants fonctionnels mineurs naturels contenus dans leurs huiles. La diminution des terres arables et la préoccupation quant à la sécurité de l'approvisionnement en huiles alimentaires conduisent à changer la structure des plantations des cultures et à améliorer l'efficacité de production des oléagineux en Chine.

Mots clés : Cultures oléagineuses / soja / arachide / colza / Chine

Total oil crops market share

Though total oil crop production remained broadly constant during 2011–2014, the total area under cultivation fell from 27.02 million hectare (Mha) to 24.90 Mha, implying an increase in average yield (Wu, 2013). In northern China, soybean is the main oil crop. Its planted area and total production has declined during the last five years: by 2014, soybean's market share was 20.2%, a fall of 3.7% compared with 2011. Rapeseed cultivation and market share are increasing year by year, from 27.3% and 22.2% in 2010 to 30.5%, 24.6% respectively in 2014. The share of oil-crop land under peanut cultivation has slightly increased, and the production has followed a steady upward trend in the last four years (see Tabs. 1–3).

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Soybean

China ranks as the 4th leading soybean producing nation, accounting for 8% of the total global production. 70% of the soybean is for edible oil use, with the remainder for food and soybean protein purpose, etc. Chinese domestic soybeans are all non-genetically modified. The primary soybean producing region is Heilongjiang province, located in the northeastern part of the country, 5.85 million tons (Mt) of soybeans were produced in Heilongjiang in 2011, accounting for 40% of the country's entire soybean production (Tab. 4 and Fig. 1). However, the scale and total production have been decreasing year on year mainly in response to cheap soybean imports. Small scale farm size and poor agronomic techniques also resulted in soybean yield decrease, and these factors are unlikely

Table 1. Oilseed cultivation areas in China (Mha).

Year	Soybean	Peanut	Rapeseed	Cottonseed	Sunflower seed	Flaxseed	Sesame seed	Total
2010	8.52	4.53	7.37	4.85	0.98	0.32	0.45	27.02
2011	7.89	4.58	7.35	5.03	0.94	0.32	0.44	26.55
2012	7.17	4.64	7.43	4.69	0.89	0.32	0.44	25.58
2013	6.79	4.63	7.53	4.35	0.93	0.31	0.42	24.96
2014	6.80	4.60	7.59	4.22	0.95	0.31	0.43	24.90

Source: National Bureau of Statistics of China (www.stats.gov.cn).

Table 2. Oilseeds production in China (Mt).

Year	Soybean	Peanut	Rapeseed	Cottonseed	Sunflower seed	Sesame	Camellia seed	Flaxseed	Total
2011	14.485	16.046	13.425	11.860	2.313	0.606	1.480	0.359	60.574
2012	13.011	16.691	14.007	12.305	2.323	0.639	1.728	0.391	61.095
2013	11.951	16.972	14.458	11.338	2.423	0.624	1.777	0.399	59.942
2014	12.154	16.482	14.772	11.090	2.492	0.629	2.023	0.387	60.029

Source: China National Grain and Oils Information Center (www.agri.cn).

Table 3. Yield per unit area of oilseeds (kg/ha).

Year	Soybean	Peanut	Rapeseed	Sunflower seed	Sesame	Flaxseed
2011	1791	3502	1827	2459	1385	1113
2012	1814	3598	1884	2614	1463	1228
2013	1759	3663	1919	2606	1490	1273
2014	1787	3579	1946	2626	1467	1262

Source: National Bureau of Statistics of China (www.stats.gov.cn).

Table 4. Oilseed production in Mt in top three provinces (2014).

crop	Ranking			
	1	2	3	Total national output output
soybean	Heilongjiang (4.45 MT)	Inner Mongolia (1.15 MT)	Anhui (0.96 MT)	12.15 MT
peanut	Henan (4.71 MT)	Shandong (3.31 MT)	Hebei (1.29 MT)	16.48 MT
rapeseed	Hubei (2.58 MT)	Sichuan (2.33 MT)	Hunan (2.02 MT)	14.77 MT
cottonseed	Xinjiang (2.48 MT)	Shandong (0.72 MT)	Hebei (0.57 MT)	11.09 MT
sesame	Henan (0.22 MT)	Hubei (0.21 MT)	Anhui (0.16 MT)	0.63 MT
sunflower	Inner Mongolia (0.99 MT)	Xinjiang (0.44 MT)	Jilin (0.29 MT)	2.49 MT

Source: Bureau of Statistics of each Chinese province.

to change in the near future (Zhu, 2013). It has been estimated that in Heilongjiang province the profit on soybean per hectare was 1590 RMB/ha, far below corn (4140 RMB/ha) and rice (6000 RMB/ha) (OECD, 2013). In general, the rapid growth of domestic demand and the aforementioned reasons could lead to a heavy reliance on imported seeds. If the current situation is any guide, soybean cultivation and production will continue to decrease in the future.

Rapeseed

China is the world's largest rapeseed producing country and biggest consumer of rapeseed oil. Total production accounts for 30% of global production. Unlike soybean, 95% of rapeseed is used for crushing. The rapeseed cultivation area is mainly distributed across the Yangtze River valley (Tab. 4 and Fig. 2). Rapeseed is grown in winter in these places in order to avoid disturbing the usual cultivation of grain and cotton. Rapeseed cultivation can improve land utilization, thereby providing a valuable social and economic benefit. For these reasons, rapeseed cultivation and production are likely to increase steadily in the future years.

Peanut

Peanut is a traditional oil crop in China. In 2014, the total planted area was 4.60 Mha, accounting for 18% of the total cultivation area devoted to oil crops. Peanut production accounted for 27% of the country's total oil crop production and 40.8% of global peanut production. Peanut has broad utilization possibilities in China: 50% goes to crushing and the remainder for food use; roasted, boiled and candied peanut

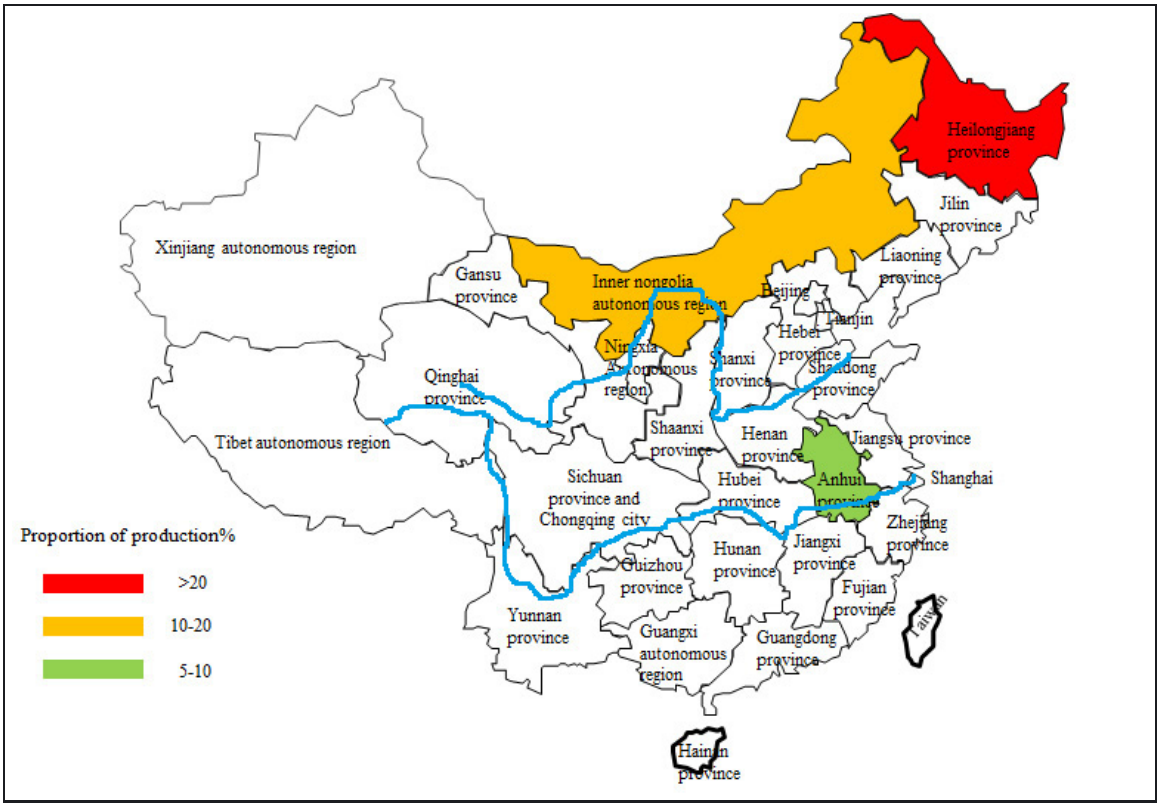

Fig. 1. Distribution of soybean production in China (data based on last 3 years average production) (Source: Bureau of Statistics of each Chinese province).

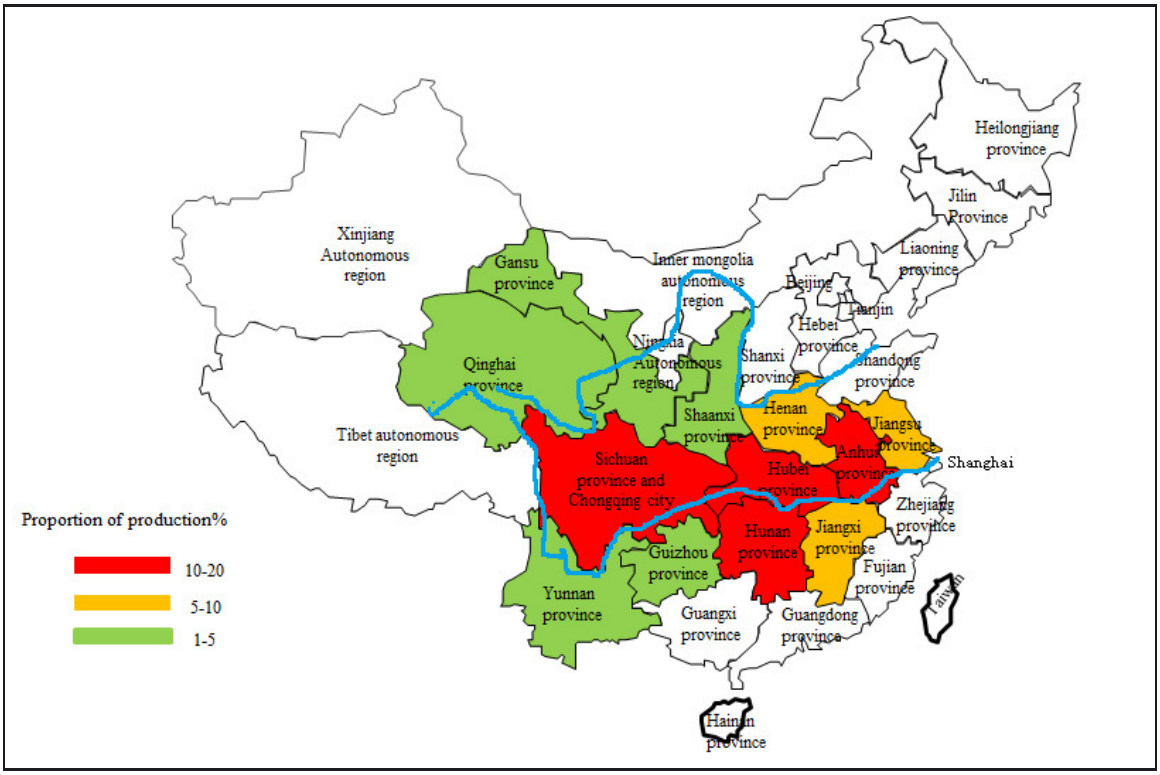

Fig. 2. Distribution of rapeseed production in China (data based on last 3 years' average production) (Source: Bureau of Statistics of each Chinese province).

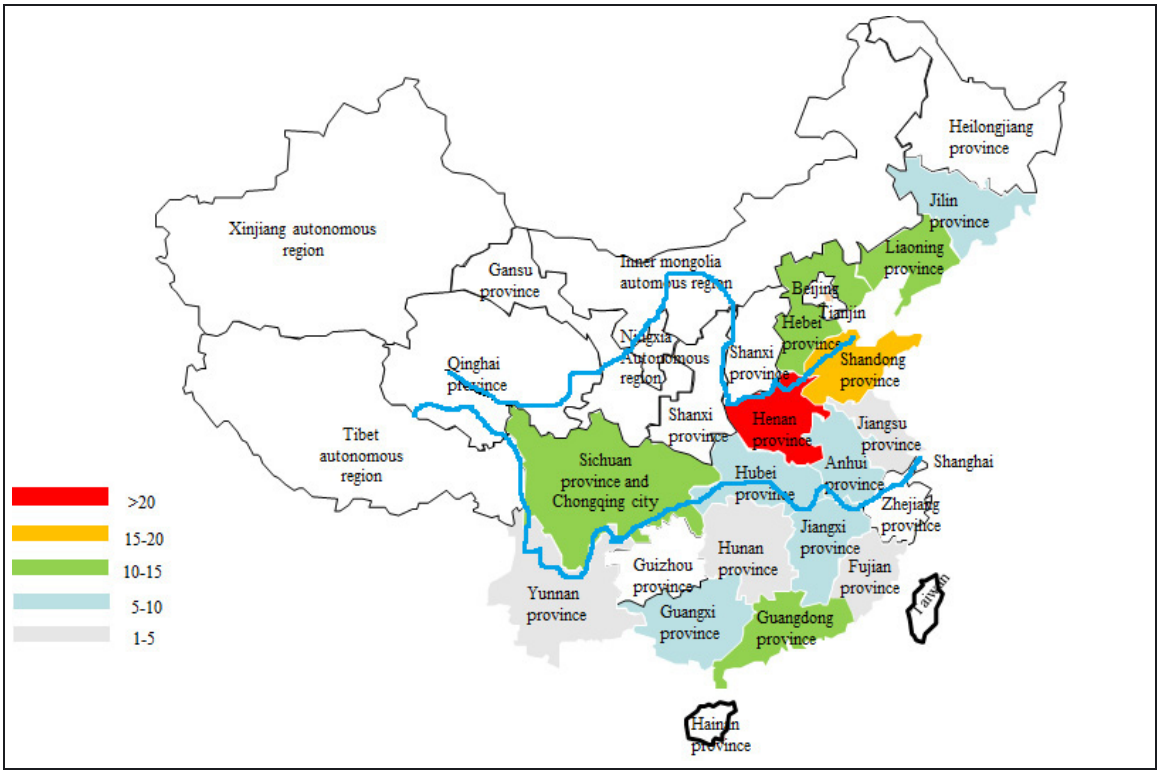

Fig. 3. Distribution of peanut production in China (data based on last 3 years average production) (Source: Bureau of Statistics of each Chinese province

Table 5. Rice cultivation area and production in China.

	2010	2011	2012	2013	2014
Cultivated area (Mha)	29.87	30.06	30.30	30.31	30.31
Production (Mt)	195.8	201.0	204.3	203.6	206.5

Source: National Bureau of Statistics of China (www.stats.gov.cn).

are popular food items. Strong domestic demand and favorable prices make peanut a favorite crop for farmers. Shandong and Henan are the two main peanut producing provinces in China (Tab. 4 and Fig. 3).

Other oil crops (sunflower, sesame, rice bran)

Sunflower seed oil is regarded as a premium edible oil for its high content of unsaturated fatty acids and natural tocopherols. In 2014, the total area in China under sunflower cultivation was 0.95 Mha, and total production reached 2.49 Mt. Sunflower likes a sunny, warm and dry summer during the seeds' ripening. It is therefore mainly planted in western China: Inner Mongolia and Xinjiang accounted for 40% and 20% respectively of the total production. Sunflower seeds can be classified into two kinds: one is for oil crushing only, with high oil content and dark appearance, the other is bigger with white and black color, and usually serves as a popular snack. In China 50–55% of the sunflower seeds are used for crushing, the remainder for food use (or example bread, bread sticks, and some health snacks).

The use of sesame oil for seasoning in China has been a tradition for centuries. China has for years been one of the largest sesame producing countries: it normally accounts for 10% of the world's total cultivated area; production accounts for 15% of the global total. Sesame production varies according to weather and policies, but the total annual production was kept between 0.6 Mt to 0.64 Mt in 2011–2014.

China is the world biggest producer of rice, with an annual output of about 200 Mt (http://www.chinagrain.gov.cn). As a by-product of rice processing, rice bran production capacity was about 13 Mt (Tab. 5). Rice bran has a high oil content (20%).

Future trends of oil crops production in China

Changes in dietary habits, urbanization and rising per-capita income have led to a more than one million ton increase in demand for vegetable oil in 2015 compared with 2014. About 60% of Chinese edible oil comes from imported oils

Table 6. Oils consumed as food (Mt) in China.

	Soybean oil	Rapeseed oil	Palm oil	Peanut oil	Cottonseed seed oil	Others	Total
2008	9.0	4.2	4.7	1.8	1.3	1.4	22.4
2009	9.7	4.5	4.6	2.0	1.2	1.6	23.6
2010	10.0	5.5	4.4	2.3	1.2	1.8	25.3
2011	10.8	5.5	4.4	2.4	1.3	1.9	26.3
2012	11.4	5.5	4.7	2.5	1.3	2.1	27.6
2013	12.0	5.8	4.7	2.6	1.3	2.2	28.6
2014	12.5	6.3	4.6	2.7	1.3	2.3	29.7

Source: China National Grain and Oils Information Center (www.agri.cn).

Table 7. Main imports (Mt) of oilseeds in 2008–2014.

	2008	2009	2010	2011	2012	2013	2014
Soybean	37.4	42.6	54.8	52.6	58.4	63.4	71.4
Rapeseed	1.3	3.3	1.6	1.3	2.9	3.7	5.1
Other seeds	0.3	0.5	0.6	0.9	1.0	0.8	1.0
Total Volume	39.0	46.3	57.0	54.8	62.3	67.8	77.5

Source: China National Grain and Oils Information Center (www.agri.cn).

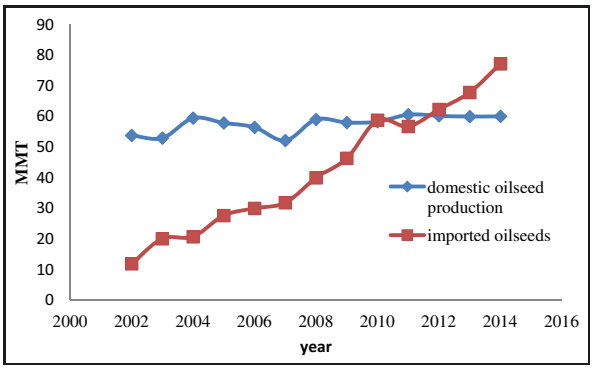

Fig. 4. Comparison of domestic oilseeds production and imported oilseeds (Source: National Bureau of Statistics of China (www.stats.gov.cn).

and oilseeds (Tabs. 6 and 7 and Fig. 4). That situation and trend are unlikely to change in the near future. China will promote the stable development of grain production, and guarantee national food security by enhancing the productivity of the main grain production areas, and by improving yield, quality and efficiency (Li, 2004). Diminutions in the share of arable land and concern for the security of edible oil supplies is driving a change in structure of land use and improvements in the efficiency of oilseed production in China.

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