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Overview of Production of Major Tropical Crops in Asian Countries in 2014

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Abstract On the basis of the FAO data, this paper analyzed the production, area harvested and yield of ten major tropical crops such as natural rubber, cassava and oil palm in Asian countries in 2014, in order to provide the basic data for international cooperation researches of tropical crops.

Key words Tropical crops, Asian countries, Overview of production, International cooperation

1 Introduction

With small area of tropical area, China relies on import of most of tropical agricultural products. The tropical area is large in the world. Tropical crops are mainly distributed in Southeast Asia and South Asia, Central Africa and West Africa, and the Amazon River basin in South America^[1].

The tropical regions of Asia are mainly distributed in Southeast Asian and South Asian countries, and Southeast Asian countries are important production bases of tropical crops. Association of Southeast Asian Nations (ASEAN) countries are main importers of China's tropical agricultural products. In 2014, China's import of natural rubber from Thailand, Indonesia, Malaysia and Vietnam accounted for 62.3%, 13.9%, 11.9% and 7.2% (95.2% in total) of China's total natural rubber import^[2]. Since 2001, the cassava starch imported from ASEAN has been accounting for more than 75% of China's total import. In 2010, the cassava starch imported from ASEAN countries accounted for 99.67% of China's total import^[3]. There are many similarities in natural conditions, types of tropical crops, and tropical agricultural production between the ASEAN countries and South China, the experience of ASEAN countries can provide reference for China.

2 Overview of production

2.1 Natural rubber In 2014, the total rubber production in Asia reached 11.895 million tons, accounting for 89.81% of the world's total rubber production. In terms of production, the top three countries in Asia were Thailand, Indonesia and Vietnam, accounting for 38.22%, 26.51% and 8.08% respectively of the total production of rubber in Asia. The total harvested area of rubber in Asian countries was 9.9757 million ha, the top three countries were Indonesia, Thailand and Malaysia, accounting for

36.15%, 29.23% and 10.68% of the harvested area in Asia respectively. The yield of rubber was the highest in the Philippines, India and Vietnam, accounting for 2081.2 kg/ha, 2065.9 kg/ha, and 1696.5 kg/ha, and the average yield was 1192.4 kg/ha in Asian countries. The rubber production of Asian countries was listed in Table 1.

Table 1 Rubber production of Asian countries in 2014

Country or region	Production 10 ⁴ t	Area harvested 10 ⁴ ha	Yield kg/ha
Thailand	454.63	291.58	1559.20
Indonesia	315.31	360.63	874.30
Vietnam	96.11	56.65	1696.50
India	94.00	45.50	2065.90
Mainland China	84.02	67.81	1238.90
Malaysia	66.86	106.56	627.40
Philippines	45.31	21.77	2081.20
Burma	19.49	25.56	762.50
Sri Lanka	11.31	13.40	843.90
Cambodia	1.84	1.80	1026.80
Bangladesh	0.59	5.88	100.80
Brunei	0.03	0.41	63.60

Note: data were selected from FAO database, the same below.

2.2 Cassava In 2014, the total cassava production in Asia reached 89.8334 million ton, accounting for 33.49% of the world's total cassava production. In terms of production, the top three countries in Asia were Thailand, Indonesia and Vietnam, accounting for 33.42%, 26.09% and 11.37% respectively of the total production of cassava in Asia. The total area harvested of cassava in Asian countries was 4.1002 million ha, the top three countries were Thailand, Indonesia, and Vietnam, accounting for 32.90%, 24.47% and 13.48% of the area harvested in Asia respectively. The yield of cassava was the highest in India, Laos, and Cambodia, accounting for 35.66 t/ha, 26.95 t/ha, and 25.24 t/ha, and the average yield was 21.91 t/ha in Asian countries. The cassava production in Asian countries was listed in Table 2.

2.3 Oil palm In 2014, the total area harvested of oil palm in Asia reached 12.9079 million ha, the total production of oil palm

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fruit was 236.3009 million ton, accounting for 86.05% of total production of the world oil palm fruit. The countries with the production from high to low were Indonesia, Malaysia, Thailand, Mainland China, and the Philippines, accounting for 53.61%, 40.65%, 5.26%, 0.29% and 0.19% of the total production of Asian oil palm fruits, and the harvested area of oil palm accounted for 57.55%, 36.33%, 5.30%, 0.39% and 0.43% of the Asian total oil palm harvested area. The yield of oil palm fruit was the highest (20.49 t/ha) in Malaysia, and the average yield of Asian countries was 18.31 t/ha. The oil palm production in Asian countries was listed in Table 3.

Table 2 Cassava production of Asian countries in 2014

Country or region	Production 10 ⁴ t	Area harvested 10 ⁴ ha	Yield t/ha
Thailand	3002.21	134.90	22.26
Indonesia	2343.64	100.35	23.35
Vietnam	1020.99	55.28	18.47
Cambodia	832.51	32.98	25.24
India	813.94	22.83	35.66
Mainland China	464.65	28.57	16.26
Philippines	254.03	21.68	11.72
Laos	162.98	6.05	26.95
Burma	48.50	3.91	12.41
Sri Lanka	30.15	2.38	12.68
Malaysia	5.19	0.31	17.02
East Timor	2.95	0.73	4.04

Table 3 Oil palm production of Asian countries in 2014

Country or region	Production 10 ⁴ t	Area harvested 10 ⁴ ha	Yield t/ha
Indonesia	12668.41	742.88	17.05
Malaysia	9606.68	468.93	20.49
Thailand	1243.45	68.42	18.17
Mainland China	67.81	5.06	13.41
Philippines	43.74	5.51	7.94

2.4 Banana In 2014, the total harvested area of banana in Asia was 2.1328 million ha, and the production was 63.6651 million ton, accounting for 55.78% of the world's total banana production. The top three countries and regions in Asia were India, Mainland China and the Philippines, accounting for 46.69%, 18.52% and 13.96% respectively of the total banana production in Asia, with the area harvested accounting for 37.63%, 18.38% and 20.76% of the total area harvested in Asia. The yield was the highest in Israel, Indonesia and Turkey, 53.09 t/ha, 51.19 t/ha and 47.10 t/ha, respectively, while the average yield in Asia was 29.85 t/ha. The banana production in Asian countries was listed in Table 4.

2.5 Coconut In 2014, the total area harvested of coconut in Asia was 9.6479 million ha, and the production was 50.419 million ton, accounting for 83.32% of the world's total coconut production. The top three countries and regions in Asia were Indonesia, Philippines and India, accounting for 36.30%, 29.15% and 21.97% respectively of the total coconut production in Asia, with the area harvested accounting for 31.35%, 36.30% and 22.18%

of the total area harvested in Asia. The yield of coconut was the highest in Burma, Vietnam, and China Taiwan, accounting for 10.61 t/ha, 9.87 t/ha, and 9.81 t/ha, and the average yield was 5.23 t/ha in Asian countries. The coconut production in Asian countries was listed in Table 5.

Table 4 Banana production of Asian countries in 2014

Country or region	Production 10 ⁴ t	Area harvested 10 ⁴ ha	Yield t/ha
India	2972.46	80.26	37.04
Mainland China	1179.19	39.20	30.08
Philippines	888.49	44.28	20.07
Indonesia	686.26	13.41	51.19
Vietnam	185.76	11.44	16.23
Thailand	139.82	3.68	37.97
Bangladesh	77.02	4.61	16.69
Laos	50.86	2.29	22.19
Malaysia	30.31	2.89	10.48
Taiwan, China	29.99	1.33	22.56
Turkey	25.20	0.54	47.10
Nepal	20.82	1.29	16.19
Israel	12.69	0.24	53.09
Yemen	12.50	1.00	12.56
Cambodia	12.33	2.77	4.45
Iraq	12.16	0.42	29.15
Pakistan	11.88	2.79	4.26
Lebanon	8.56	0.28	31.05
Oman	5.00	0.37	13.49
Jordan	3.75	0.09	43.09

Table 5 Coconut production of Asian countries in 2014

Country or region	Production 10 ⁴ t	Area harvested 10 ⁴ ha	Yield t/ha
Indonesia	1830.00	302.50	6.05
Philippines	1469.63	350.20	4.20
India	1107.89	214.00	5.18
Sri Lanka	239.53	39.48	6.07
Vietnam	137.44	13.92	9.87
Thailand	100.03	20.71	4.83
Malaysia	59.51	8.81	6.76
Burma	50.92	4.80	10.61
Mainland China	28.44	2.98	9.55
Bangladesh	7.67	4.06	1.89
Cambodia	6.21	1.37	4.54
Taiwan, China	2.33	0.24	9.81
Pakistan	1.00	0.15	6.72
East Timor	0.97	1.49	0.65
Nepal	0.23	0.04	6.09
Maldives	0.04	0.01	4.27
Brunei	0.04	0.02	1.75

2.6 Sisal In 2014, the total area harvested of sisal in Asia was 2989 ha, and the production was 14062 t, accounting for 5.68% of the world's total sisal production. The countries with the production from high to low were China, Indonesia, Thailand and China Taiwan, and the Philippines, accounting for 97.33%,

2.56% , 0.09% , and 0.03% of the total production of Asian sisal, and the area harvested of sisal accounted for 88.36% , 10.37% , 1.20% , and 0.10% of the Asian total sisal area harvested. The yield of sisal was the highest (5.18 t/ha) in Mainland China, and the average yield of Asian countries was 4.70 t/ha. The sisal production in Asian countries was listed in Table 6.

Table 6 Sisal production of Asian countries in 2014

Country or region	Production 10 ⁴ t	Area harvested 10 ⁴ ha	Yield t/ha
Mainland China	13687	2641	5.18
Indonesia	360	310	1.16
Thailand	12	36	0.33
Taiwan, China	4	3	1.30

2.7 Sugarcane In 2014, the total area harvested of sugarcane in Asia was 11.0323 million ha, and the production was 748.4051 million ton, accounting for 39.72% of the world's total sugarcane production. The top three countries and regions in Asia were India, Mainland China and the Thailand, accounting for 47.05% , 16.78% and 13.86% respectively of the total sugarcane production in Asia, with the area harvested accounting for 45.43% , 15.96% and 12.26% of the total area harvested in Asia. The yield of sugarcane was the highest in Thailand, Iran and Mainland China, respectively 76.64 t/ha, 73.88 t/ha, and 71.35 t/ha, the average yield was 67.84 t/ha in Asian countries. The sugarcane production in Asian countries was listed in Table 7.

Table 7 Sugarcane production of Asian countries in 2014

Country or region	Production 10 ⁴ t	Area harvested 10 ⁴ ha	Yield t/ha
India	35214.20	501.20	70.26
Mainland China	12561.13	176.05	71.35
Thailand	10369.70	135.30	76.64
Pakistan	6282.65	114.05	55.09
Indonesia	2860.00	47.27	60.51
Philippines	2502.99	43.20	57.94
Vietnam	1982.29	30.50	65.00
Burma	1112.84	17.64	63.09
Iran	691.98	9.37	73.88
Bangladesh	450.80	10.72	42.04
Nepal	299.80	6.57	45.65
Laos	184.05	3.41	54.02
Japan	115.90	2.29	50.61
Sri Lanka	96.04	2.09	46.06
Taiwan, China	54.22	0.79	68.30
Cambodia	51.02	2.34	21.79

2.8 Coffee In 2014, the total area harvested of coffee in Asia was 2.5868 million ha, and the production was 2.754 million ton, accounting for 31.33% of the world's total coffee production. The top three countries and regions in Asia were Vietnam, Indonesia and India, accounting for 51.07% , 23.38% and 11.06% respectively of the total coffee production in Asia, with the area harvested

accounting for 22.77% , 47.57% and 14.74% of the total area harvested in Asia. The yield of coffee was the highest in Mainland China, Vietnam and Malaysia, respectively 2.57 t/ha, 2.39 t/ha, and 2.20 t/ha, the average yield was 1.06 t/ha in Asian countries. The coffee production in Asian countries was listed in Table 8.

Table 8 Coffee production of Asian countries in 2014

Country or region	Production 10 ⁴ t	Area harvested 10 ⁴ ha	Yield t/ha
Vietnam	140.65	58.90	2.39
Indonesia	64.39	123.05	0.52
India	30.45	38.13	0.80
Mainland China	11.81	4.59	2.57
Laos	11.36	7.03	1.62
Philippines	7.55	11.75	0.64
Thailand	3.80	4.18	0.91
Yemen	2.04	3.53	0.58
East Timor	1.03	4.92	0.21
Burma	0.84	1.16	0.72
Malaysia	0.82	0.37	2.20
Sri Lanka	0.61	0.83	0.73
Nepal	0.04	0.19	0.23
Cambodia	0.04	0.05	0.80

2.9 Cocoa In 2014, the total area harvested of cocoa in Asia was 1.8304 million ha, and the production was 753600 t, accounting for 16.93% of the world's total cocoa production. Among them, Indonesia had the highest production and the largest area harvested, accounting for 96.65% and 94.37% of the total production and total area harvested in Asia. The cocoa production in Asian countries was listed in Table 9.

Table 9 Cocoa production of Asian countries in 2014

Country or region	Production t	Area harvested ha	Yield kg/ha
Indonesia	728400	1727400	421.7
India	15000	71000	211.3
Philippines	5428	12035	451.0
Malaysia	2665	16102	165.5
Sri Lanka	1812	2174	833.5
East Timor	163	1624	100.3

2.10 Pepper In 2014, the total area harvested of pepper in Asia was 0.4166 million ha, and the production was 0.3854 million ton, accounting for 83.24% of the world's total pepper production. The top three countries and regions in Asia were Vietnam, Indonesia and India, accounting for 39.38% , 22.68% and 13.23% respectively of the total pepper production in Asia, with the area harvested accounting for 14.05% , 39.05% and 29.76% of the total area harvested in Asia. The yield of pepper was the highest in Cambodia, Thailand and Malaysia, respectively 6557.1 kg/ha, 2849.5 kg/ha, and 2640.7 kg/ha, the average yield was 925 kg/ha in Asian countries. The pepper production in Asian countries was listed in Table 10.

Table 10 Pepper production of Asian countries in 2014

Country or region	Production t	Area harvested ha	Yield kg/ha
Vietnam	151761	58527	2593.0
Indonesia	87400	162700	537.2
India	51000	124000	411.3
Mainland China	32677	18059	1809.5
Sri Lanka	27847	39650	702.3
Malaysia	27500	10414	2640.7
Cambodia	2606	397	6557.1
Philippines	2563	1692	1515.4
Thailand	1174	412	2849.5
Tajikistan	200	100	2000.0
Uzbekistan	200	300	666.7
Kyrgyzstan	180	170	1058.8
Brunei	31	80	384.0

3 Conclusions

Indonesia, Thailand, Vietnam, India and China are major tropical crop producers in Asia. In 2014, Indonesia had the highest production of oil palm, cocoa, and coconut in Asia, and its pro-

duction of rubber, cassava, coffee and pepper ranked second in Asia, and its banana production ranked fourth in Asia. Thailand had the highest production of rubber and cassava in Asia, and its sugarcane production ranked third in Asia. Vietnam had the highest production of coffee and pepper in Asia, and its rubber and cassava production ranked third in Asia. India had the highest production of sugarcane and banana in Asia, and its pepper production ranked second, coffee and coconut production ranked third, and rubber production ranked fourth in Asia. China had the highest production of sisal in Asia.

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