

Production and trade trend of oils and oilseeds in BRICS countries

ZHANG Hong

(COFCO Corporation, Beijing 100020, China)

Abstract: In order to promote agricultural production and trade cooperation among BRICS countries, and ensure the security and stability of the oils and oilseeds industrial and supply chains in China and the world, the production, consumption, trade trend, and cooperation potential of oils and oilseeds in BRICS countries were expounded, and relevant policy recommendations were put forward. Most of the BRICS countries are major agricultural producers, and they are also important agricultural product consumption markets in the world. In 2023/2024, the production and consumption of oilseeds in BRICS countries account for nearly half of the world's total; the production of vegetable oils exceeds a quarter of the world's total, and the consumption of vegetable oils accounts for 40% of the world's total. In 2023/2024, the import and export volume of oilseeds exceeds half of the world's total; vegetable oil imports account for 40% of the world's total, and exports account for about one tenth of the world's total. China's imports of oilseeds and oils from BRICS countries account for 68% and 29% of its global imports in 2023, respectively. BRICS countries are rich in agricultural land resources, have great potential for oils and oilseeds production, obvious complementary advantages in trade structure, and huge space for future cooperation. It is suggested that Brazil should be included in the "Belt and Road" co-construction category to promote the continuous deepening of agricultural cooperation between China and Brazil. It is suggested to explore regional agricultural trade agreements among BRICS countries, promote currency settlement and exchange among BRICS countries, and enhance the facilitation and stability of BRICS trade. It is suggested that China should increase its investment in BRICS countries and export advanced technology and management experience to benefit local agricultural development and achieve a mutually beneficial and win-win situation.

Key words: BRICS countries; oils and oilseeds; production and consumption; trade trend; agricultural potential

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In 2006, the ministers for foreign affairs of Brazil, Russia, India, and China held their first meeting on the sidelines of the United Nations General Assembly, opening the prelude to BRICS cooperation. In June 2009, BRICS leaders held their first meeting in Yekaterinburg, Russia, to upgrade BRICS cooperation to the summit level. In 2011, South Africa officially joined the BRICS countries, and the BRICS countries were expanded to five countries, with the English name being BRICS (BRICS refers to the initials of Brazil, Russia, India, China, and South Africa). On January 1, 2024, Saudi Arabia, Egypt, the United Arab

Emirates, Iran, and Ethiopia became full members of the BRICS countries. So far, BRICS has expanded its membership to ten countries. Since its establishment, the BRICS mechanism has followed the principles of openness, transparency, solidarity, mutual assistance, deepening cooperation and seeking common development and the BRICS spirit of "openness, inclusiveness, cooperation and win-win". The foundation of BRICS cooperation has been increasingly consolidated and the areas of cooperation have been gradually expanded. It has become a constructive force to promote world economic growth, improve global governance, and promote the democratization of international relations. Its influence and attraction have been continuously enhanced.

As an international cooperation mechanism represented by emerging economies and developing countries, BRICS countries have a total population of

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Author: ZHANG Hong (1975), Female, Intermediate economist, Master, Research field: International cooperation and agriculture (E-mail) hongzhang@cofco.com.

3.59 billion, accounting for 45% of the world's total population (calculated according to the population statistics of the Food and Agriculture Organization of the United Nations in 2021). The total GDP of BRICS is 26.8 trillion US dollars, accounting for about 27% of the world's total GDP (calculated according to the GDP statistics of the World Bank in 2022). BRICS countries, including major agricultural countries in the world, are also important agricultural products consumption markets in the world. In 2023/2024, the grains output (including grains and soybean) of BRICS countries totaled 1.41 billion tons, and the consumption was also 1.41 billion tons, accounting for 45% and 46% of the world's total respectively (grains include maize, wheat, rice, barley and sorghum, according to United States Department of Agriculture (USDA) statistics), which played an important role. Among them, Brazil has surpassed the United States to become the world's largest exporter of agricultural products, and its exports of soybeans, maize, sugar, and meat rank first in the world. Russia is the world's largest exporter of wheat, and its barley and edible vegetable oil also occupy an important position. India is the world's biggest exporter of rice and the second biggest exporter of sugar. In recent years, the production potential of soybean and maize in South Africa has also been released. BRICS countries are rich in agricultural resources and have obvious complementary advantages in production and trade.

This paper describes the production and consumption of oils and oilseeds in BRICS countries (According to the statistical caliber of the market and trade database of the USDA, the oilseeds varieties referred to in this paper include copra, cottonseed, palm kernel, peanut, rapeseed, soybean and sunflower seed, and the oils (referred to vegetable oils) include coconut oil, cottonseed oil, olive oil, palm oil, palm kernel oil, peanut oil, rapeseed oil, soybean oil, and sunflower seed oil), analyzes the current situation and trend of oils and oilseeds trade in BRICS countries, and predicts the future agricultural resource potential and trade development space of BRICS countries. The purpose of this paper is to give full play to the role of BRICS countries mechanism, promote BRICS countries agricultural production and trade cooperation, and ensure the safety and stability of China and the global oil and oilseeds industrial and supply chains.

1 Production and consumption of oils and oilseeds in BRICS countries

1.1 Production of oilseeds

The oilseeds production of BRICS countries in

2023/2024 (market year, the same below) is shown in Table 1.

Table 1 Oilseeds production in BRICS countries in 2023/2024

Oilseeds	Production/Million tons		Percentage/%
	BRICS	World	
Soybean	196.18	396.85	49
Rapeseed	32.71	88.07	37
Cottonseed	26.69	41.66	64
Peanut	26.18	50.46	52
Sunflower seed	19.74	54.91	36
Copra	0.94	6.03	16
Palm kernel	0.24	20.71	1
Total	302.67	658.68	46

Note: Data from PSD Online of USDA as of April 2024, the same below

It can be seen from Table 1 that the output of oilseeds in BRICS countries is expected to maintain a historical sub-high level of 303 million tons in 2023/2024, an increase of 61 million tons or 25% compared with five years ago, accounting for 46% of the global total output. Among them, soybean, rapeseed, cottonseed, peanut, and sunflower seed production is higher, especially soybean production accounts for 65% of the oilseeds production in BRICS countries.

Soybean production in BRICS countries has increased steadily in the past five years, increasing by 43 million tons or 28% compared with five years ago (global soybean production increased by 9% in the same period), accounting for 49% of world's total production. Among them, Brazil's soybean production is expected to decrease slightly by 7 million tons to 155 million tons due to adverse weather, less precipitation, declining yield per unit area, and other factors in 2023/2024, but still the second highest in history, with an increase of 34.5 million tons or 29% over five years ago, accounting for 39% of global soybean production. It has been ranked first in the world since it surpassed the United States four years ago. The significant increase of soybean production in Brazil is mainly due to the simultaneous increase of planting area and yield per unit area level. In the past five years, the planting area of Brazil soybean has increased by 10 million hectares to 45.9 million hectares, an increase of 28%, accounting for 33% of the global soybean planting area. The average yield per unit area level of Brazil soybean in the past five years is 3.42 tons per hectare, which is slightly higher than that in the United States and 22% higher than the world average. China is the second largest soybean producer in BRICS countries, with soybean production expected

to reach 20.84 million tons in 2023/2024, a record high, an increase of 4.87 million tons or 31% over five years ago, accounting for 5% of global soybean production, ranking fourth in the world. The increase in soybean production in China is mainly affected by the increase in planting area, which increased by 2.06 million hectares to 10.47 million hectares in the past five years, with an increase of 24%. The increase in yield per unit area is limited, with an average yield per unit area of 1.96 tons per hectare in the past five years, which is 30% lower than the global average. Other BRICS countries have less soybean production. It is estimated that the soybean production of India, Russia, and South Africa in 2023/2024 will be 11 million tons, 6.8 million tons, and 2.14 million tons respectively, and the total output of the three countries will be about 20 million tons, slightly lower than that of China.

Rapeseed production in BRICS countries has increased significantly in the past five years, and it is expected to reach a record high of 32.71 million tons in 2023/2024, an increase of 9.4 million tons or 40% compared with five years ago, accounting for 37% of global rapeseed production. China and India are the main producers of rapeseed, with output of 15.4 million tons and 12.5 million tons respectively, accounting for 17% and 14% of global output, ranking third and fourth in the world.

Cottonseed production in BRICS countries has been basically stable in the past five years, with an estimated output of 26.69 million tons in 2023/2024, an increase of 1.3 million tons or 5% compared with five years ago, accounting for 64% of global cottonseed production. India and China are the main producers of cottonseed, with output of 10.83 million tons and 10.78 million tons respectively, both accounting for 26% of global output, ranking first and second in the world.

Peanut production in BRICS countries has increased slightly in the past five years. It is estimated that the production of peanut in 2023/2024 will be 26.18 million tons, an increase of 3.5 million tons or 15% compared with five years ago, accounting for 52% of global production. China and India are the main peanut producers, with output of 18.6 million tons and 6.4 million tons respectively, accounting for 37% and 13% of global output, ranking first and second in the world.

Sunflower seed production in BRICS countries has increased significantly in the past five years, with an estimated output of 19.74 million tons in 2023/2024, an increase of 3.52 million tons or 22% compared with

five years ago, accounting for 36% of global sunflower seed production. Russia is the main producer of sunflower seed, producing 17.1 million tons, accounting for 31% of global production, ranking first in the world.

1.2 Consumption of oilseeds

The oilseeds consumption of BRICS countries in 2023/2024 is shown in Table 2.

Table 2 Oilseeds consumption in BRICS countries in 2023/2024

Oilseeds	Consumption/Million tons		Percentage/%
	BRICS	World	
Soybean	205.10	381.90	54
Rapeseed	36.64	87.70	42
Cottonseed	27.30	41.45	66
Peanut	25.33	50.01	51
Sunflower seed	19.62	55.93	35
Copra	0.93	6.01	15
Palm kernel	0.24	20.78	1
Total	315.16	643.77	49

As can be seen from Table 2, the total oilseeds consumption of BRICS countries is expected to reach a record high of 315 million tons in 2023/2024, an increase of 51 million tons or 19% compared with five years ago, accounting for 49% of the total global oilseed consumption. Among them, the consumption of soybean, rapeseed, cottonseed, peanut and sunflower seed is relatively high, which is basically consistent with the situation of oilseeds production. In particular, soybean consumption accounts for 65% of the total oilseeds consumption in BRICS countries.

Soybean consumption in BRICS countries has continued to grow in the past five years, and it is expected to reach a record high of 205.1 million tons in 2023/2024, an increase of 33 million tons or 19% compared with five years ago (global soybean consumption increased by 10% during the same period), accounting for 54% of global soybean consumption. Among them, China is the world's largest soybean consumer, with soybean consumption expected to reach a record high of 120 million tons in 2023/2024, an increase of 17.9 million tons or 17% compared with five years ago, accounting for 32% of global soybean consumption. 80% of China's soybean consumption is used in the crushing industry. In the past five years, the crushing volume of China soybean has increased from 85 million tons to 98 million tons to meet the growing domestic demand for edible oils and livestock. The remaining 20% of the consumption is used for food and feed, with a volume of 22.5 million

tons. Brazil is the third largest soybean consumer in the world, and soybean consumption is expected to remain at a historical high of 56.75 million tons in 2023/2024, an increase of 11.31 million tons or 25% compared with five years ago, accounting for 15% of global soybean consumption. 93% of Brazil's soybean consumption is used in the crushing industry, which has increased from 42.5 million tons to 53 million tons in the past five years, mainly due to the strong demand of livestock for soybean meal and the increase in the proportion of biodiesel from soybean oil in fuel. Soybean consumption in India and Russia is 13 million tons and 6 million tons respectively, and more than 80% of the consumption is used in the crushing industry. Soybean consumption in Egypt, Iran and South Africa is between 2 million and 3 million tons respectively, which is seldom eaten or fed directly, and most of them are used for crushing.

Rapeseed consumption in BRICS countries has increased significantly in the past five years. It is estimated that the consumption of rapeseed in 2023/2024 will reach a record high of 36.64 million tons, an increase of 9.7 million tons or 36% compared with five years ago, accounting for 42% of global rapeseed consumption. China and India are the main consumers of rapeseed, with consumption of 19.3 million tons and 12.25 million tons respectively, accounting for 22% and 14% of global consumption, ranking second and third in the world.

Cottonseed consumption in BRICS countries has been basically stable in the past five years. It is estimated that the cottonseed consumption in 2023/2024 will be 27.3 million tons, an increase of 1.89 million tons or 7% compared with five years ago, accounting for 66% of the global cottonseed consumption. China and India are the main consumers of cottonseed, with consumption of 11.28 million tons and 10.83 million tons respectively, accounting for 27% and 26% of global consumption, ranking first and second in the world.

Peanut consumption in BRICS countries has increased slightly in the past five years. It is estimated that peanut consumption in 2023/2024 will be 25.33 million tons, an increase of 2.53 million tons or 11% compared with five years ago, accounting for 51% of global peanut consumption. China and India are the main peanut consumers, with consumption of 18.8 million tons and 5.6 million tons respectively, accounting for 38% and 11% of global consumption, ranking first and second in the world.

Sunflower seed consumption in BRICS countries has increased significantly in the past five years. It is estimated that the consumption of sunflower seed in 2023/2024 will reach a record high of 19.62 million tons, an increase of 3.82 million tons or 24% compared with five years ago, accounting for 35% of global sunflower seed consumption. Russia is the main consumer of sunflower seed, with consumption of 17 million tons, accounting for 30% of global consumption, ranking first in the world.

1.3 Production of vegetable oils

The production of vegetable oils in BRICS countries in 2023/2024 is shown in Table 3.

Table 3 Vegetable oils production in BRICS countries in 2023/2024

Vegetable oils	Production/Million tons		Percentage/%
	BRICS	World	
Soybean oil	32.31	61.68	52
Rapeseed oil	13.42	33.79	40
Sunflower seed oil	7.43	21.66	34
Peanut oil	4.38	6.14	71
Cottonseed oil	3.44	4.95	70
Palm oil	0.89	79.46	1
Coconut oil	0.57	3.77	15
Palm kernel oil	0.11	9.10	1
Olive oil	0.01	2.29	0
Total	62.56	222.85	28

It can be seen from Table 3 that the total output of vegetable oils in BRICS countries is expected to reach a record level of 62.56 million tons in 2023/2024, an increase of 10.66 million tons or 21% compared with five years ago, accounting for 28% of the global total output. Among them, the output of soybean oil, rapeseed oil, sunflower seed oil, peanut oil, and cottonseed oil is higher. The soybean oil output of BRICS countries is 32.31 million tons, accounting for 52% of the global output. China and Brazil are the main producers of soybean oil, with the output of 17.56 million tons and 10.21 million tons respectively, accounting for 28% and 17% of the global output, ranking first and third in the world. The output of rapeseed oil in BRICS countries is 13.42 million tons, accounting for 40% of the global output. China, India, and Russia are the main producers of rapeseed oil, with the output of 7.29 million tons, 4.15 million tons and 1.33 million tons respectively, accounting for 22%, 12%, and 4% of the global output, ranking second, fourth and fifth in the world. BRICS countries produce 7.43 million tons of sunflower seed oil, accounting for 34% of global production.

Russia is the main producer of sunflower seed oil, with an output of 6.82 million tons, accounting for 31% of global production, ranking first in the world. The output of peanut oil in BRICS countries is 4.38 million tons, accounting for 71% of the global output. China and India are the main producers of peanut oil, with output of 3.07 million tons and 1.16 million tons respectively, accounting for 50% and 19% of the global output, ranking first and second in the world. The output of cottonseed oil in BRICS countries is 3.44 million tons, accounting for 70% of the global output. China, India, and Brazil are the main producers of cottonseed oil, with the output of 1.35 million tons, 1.33 million tons, and 720 thousand tons respectively, accounting for 27%, 27%, and 15% of the global output, ranking first, second and third in the world.

1.4 Consumption of vegetable oils

Vegetable oils consumption in BRICS countries in 2023/2024 is shown in Table 4.

Table 4 Vegetable oils consumption in BRICS countries in 2023/2024

Vegetable oils	Consumption/Million tons		Percentage/%
	BRICS	World	
Soybean oil	33.78	60.86	56
Rapeseed oil	13.47	33.46	40
Sunflower seed oil	8.77	20.28	43
Peanut oil	4.33	6.04	72
Cottonseed oil	3.39	4.92	69
Palm oil	20.20	77.61	26
Coconut oil	0.81	3.68	22
Palm kernel oil	1.38	8.97	15
Olive oil	0.16	2.34	7
Total	86.30	218.15	40

As can be seen from Table 4, the vegetable oils consumption of BRICS countries is expected to reach a record level of 86.3 million tons in 2023/2024, an increase of 7.2 million tons or 9% compared with five years ago, accounting for 40% of the total global consumption. Among them, the consumption of soybean oil, palm oil, rapeseed oil, sunflower seed oil, peanut oil, and cottonseed oil is higher. The consumption of soybean oil in BRICS countries is 33.78 million tons, accounting for 56% of the global consumption. China, Brazil, and India are the main consumers of soybean oil, with the consumption of 17.8 million tons, 8.43 million tons, and 5.15 million tons respectively, accounting for 29%, 14%, and 8% of the global consumption, ranking first, third and fourth in the world. BRICS countries consume 20.2 million tons of palm oil, accounting for 26% of global

consumption. India and China are the main consumers of palm oil, with consumption of 9.55 million tons and 6.2 million tons respectively, accounting for 12% and 8% of global consumption, ranking second and third in the world. BRICS countries consume 13.47 million tons of rapeseed oil, accounting for 40% of global consumption. China and India are the main consumers of rapeseed oil, with consumption of 9 million tons and 4.08 million tons respectively, accounting for 27% and 12% of global consumption, ranking second and third in the world. Sunflower seed oil consumption in BRICS countries is 8.77 million tons, accounting for 43% of global consumption. India, Russia, and China are the main consumers of sunflower seed oil, with consumption of 2.7 million tons, 2.53 million tons, and 1.76 million tons respectively, accounting for 13%, 12%, and 9% of global consumption, ranking second, third and fourth in the world. The consumption of peanut oil in BRICS countries is 4.33 million tons, accounting for 72% of the global consumption. China and India are the main consumers of peanut oil, with consumption of 3.26 million tons and 1.06 million tons respectively, accounting for 54% and 18% of the global consumption, ranking first and second in the world. The consumption of cottonseed oil in BRICS countries is 3.39 million tons, accounting for 69% of the global consumption. China, India, and Brazil are the main consumers of cottonseed oil, with the consumption of 1.35 million tons, 1.3 million tons, and 700 thousand tons respectively, accounting for 27%, 26%, and 14% of the global consumption, ranking first, second and third in the world.

2 Trade trend of oils and oilseeds in BRICS countries

2.1 Import and export of oilseeds

The oilseeds trade of BRICS countries in 2023/2024 is shown in Table 5.

Table 5 Import and export of oilseeds in BRICS countries in 2023/2024

Oilseeds	Import/ Million tons		Percentage/ %	Export/ Million tons		Percentage/ %
	BRICS	World		BRICS	World	
Soybean	113.78	170.78	67	104.70	173.61	60
Rapeseed	4.47	16.06	28	0.75	17.07	4
Cottonseed	0.64	1.18	54	0.03	1.42	2
Peanut	1.01	4.06	25	1.85	4.60	40
Sunflower seed	0.48	3.00	16	0.88	2.77	32
Copra	0.01	0.09	11	0.02	0.12	17
Palm kernel	0.001	0.15	1	-	0.05	0
Total	120.39	195.32	62	108.22	199.64	54

It can be seen from Table 5 that the import volume of oilseeds in BRICS countries is expected to reach the historical second highest level of 120 million tons in 2023/2024, an increase of 23.35 million tons or 24% compared with five years ago, accounting for 62% of the global import volume. Among them, soybean imports account for 95% of the oilseeds imports of BRICS countries. Oilseeds exports from BRICS countries are expected to hit a record high of 108 million tons in 2023/2024, an increase of 29.08 million tons or 37% compared with five years ago, accounting for 54% of global exports. Among them, soybean exports account for 97% of the oilseeds exports of BRICS countries.

Soybean imports of BRICS countries have increased slightly in the past five years, and are expected to reach a record high of 114 million tons in 2023/2024, an increase of 22.16 million tons or 24% compared with five years ago, accounting for 67% of global soybean imports. China is the world's largest soybean importer, with imports exceeding 100 million tons for the first time in 2022/2023, and is expected to reach 105 million tons in 2023/2024, an increase of 22.5 million tons or 27% compared with five years ago. China's soybean imports account for 92% of BRICS imports and 61% of global imports. In 2023, China imported 102 million tons of soybeans, mainly from Brazil, the United States, Argentina, and Canada, etc. Among them, China imported 69.96 million tons of soybean from Brazil, accounting for 69% of the total imports. China also imported 1.57 million tons of soybean from Russia, Ethiopia, South Africa, and other BRICS countries in 2023, accounting for 2% of the total imports (data from the General Administration of Customs of China). In addition, Egypt, Iran, Russia, and other BRICS countries also imported a small amount of soybean, totaling 7 million tons, accounting for 6% of the soybean imports of BRICS countries. Soybean exports from BRICS countries have been increasing in the past five years, and are expected to reach a record high of 105 million tons in 2023/2024, an increase of 28.6 million tons or 38% compared with five years ago, accounting for 60% of global soybean exports. Brazil, the world's largest soybean exporter, is expected to export more than 100 million tons for the first time in 2023/2024, reaching 103 million tons, an increase of 28.11 million tons or 38% compared with five years ago. Brazilian soybean exports account for 98% of BRICS exports and 59% of global exports, mainly to China, Europe, Southeast Asia, and other places, with the most obvious complementarity with China in trade.

Rapeseed imports of BRICS countries have

fluctuated slightly in the past five years. It is estimated that the import volume in 2023/2024 will be 4.47 million tons, an increase of 420 thousand tons or 10% compared with five years ago, accounting for 28% of the global import volume of rapeseed. China is the world's second largest rapeseed importer, with imports remaining at a high level of 5.34 million tons in 2022/2023 and expected to fall to 3.4 million tons in 2023/2024. In 2023, China imported 5.49 million tons of rapeseed, mainly from Canada, Russia and other places, and 370 thousand tons from Russia, accounting for 7% of the total imports (data from the General Administration of Customs of China). In addition, the United Arab Emirates imported rapeseed from Australia, Canada, and other places in 2022, with an import volume of 1.03 million tons (data from the United Nations Comtrade database).

Cottonseed imports of BRICS countries have been increasing in the past five years. It is estimated that the import volume in 2023/2024 will be 640 thousand tons, accounting for 54% of the global cottonseed import volume. The import volume of China and Saudi Arabia will be 500 thousand tons and 120 thousand tons respectively. The BRICS countries hardly export cottonseed.

Peanut imports of BRICS countries have fluctuated slightly in the past five years. It is estimated that the import volume in 2023/2024 will be 1.01 million tons, accounting for 25% of the global peanut import volume. The import volume of China and Russia will be 750 thousand tons and 200 thousand tons, respectively. The peanut export volume of BRICS countries is basically stable. It is estimated that the export volume in 2023/2024 will be 1.85 million tons, accounting for 40% of the global peanut export volume; the export volume of India, China, and Brazil will be 800 thousand tons, 550 thousand tons, and 430 thousand tons, respectively.

Sunflower seed imports of BRICS countries have been basically stable in the past five years. It is estimated that the import volume in 2023/2024 will be 480 thousand tons, accounting for 16% of the global import volume of sunflower seed. China has the largest sunflower seed import volume, about 300 thousand tons. Sunflower seed export volume of BRICS countries fluctuates slightly. It is estimated that the export volume in 2023/2024 will be 880 thousand tons, accounting for 32% of the global sunflower seed export volume; the export volume of Russia and China will be 450 thousand tons and 420 thousand tons, respectively.

2.2 Import and export of vegetable oils

The vegetable oils trade of BRICS countries in 2023/2024 is shown in Table 6.

Table 6 Import and export of vegetable oils in BRICS countries in 2023/2024

Vegetable oils	Import/ Million tons		Percentage/ %	Export/ Million tons		Percentage/ %
	BRICS	World		BRICS	World	
Soybean oil	4.46	10.78	41	2.91	11.50	25
Rapeseed oil	2.17	7.41	29	1.78	7.55	24
Sunflower seed oil	5.77	12.25	47	4.41	14.02	31
Peanut oil	0.20	0.30	67	0.25	0.42	60
Cottonseed oil	0.01	0.08	7	0.01	0.09	16
Palm oil	19.61	47.27	41	0.29	49.42	1
Coconut oil	0.25	1.90	13	0.02	2.01	1
Palm kernel oil	1.28	2.89	44	0	3.04	0
Olive oil	0.14	0.91	16	0	0.96	0
Total	33.89	83.79	40	9.68	88.99	11

From Table 6, it is estimated that the vegetable oils imports of BRICS countries will be 33.89 million tons in 2023/2024, an increase of 220 thousand tons or 1% compared with five years ago, accounting for 40% of global imports. Vegetable oils exports from BRICS countries are expected to remain at a historical sub-high level of 9.68 million tons in 2023/2024, an increase of 3.66 million tons or 61% compared with five years ago, accounting for 11% of global exports. Among them, the trade volume of soybean oil, rapeseed oil, sunflower seed oil, and palm oil is higher.

Soybean oil imports of BRICS countries have declined slightly in the past five years, with an estimated import volume of 4.46 million tons in 2023/2024, a decrease of 200 thousand tons or 4% compared with five years ago, accounting for 41% of global soybean oil imports. India is the largest importer of soybean oil in the world, with an estimated import volume of 3.3 million tons in 2023/2024, accounting for 74% of the import volume of BRICS countries and 31% of the global import volume. India mainly imports soybean oil from Argentina and Brazil, with a proportion of about 36% from Brazil. Soybean oil exports of BRICS countries have increased in fluctuation, and are expected to 2.91 million tons in 2023/2024, an increase of 860 thousand tons or 42% compared with five years ago, accounting for 25% of global soybean oil exports. Brazil is the world's second largest soybean oil exporter, with an estimated export volume of 1.75 million tons in 2023/2024, accounting for 60% of BRICS exports and 15% of global exports, mainly to India.

Rapeseed oil imports of BRICS countries have

fluctuated in the past five years. It is estimated that the import volume in 2023/2024 will be 2.17 million tons, an increase of 450 thousand tons or 26% compared with five years ago, accounting for 29% of the global import volume of rapeseed oil. China is the second largest rapeseed oil importer in the world, with an estimated import volume of 2 million tons in 2023/2024, accounting for 92% of the import volume of BRICS countries and 27% of the global import volume. China mainly imports rapeseed oil from Russia, accounting for 57% of the total imports (calculated according to Comtrade data of the United Nations). Rapeseed oil exports of BRICS countries have increased significantly, with an estimated export volume of 1.78 million tons in 2023/2024, an increase of 960 thousand tons or 117% compared with five years ago, accounting for 24% of global rapeseed oil exports. Russia is the world's second largest exporter of rapeseed oil, with an estimated export volume of 1.33 million tons in 2023/2024, accounting for 74% of BRICS countries exports and 18% of global exports, mainly to China, Europe, and other places.

Sunflower seed oil imports of BRICS countries have been increasing in the past five years. It is estimated that the import volume in 2023/2024 will be 5.77 million tons, an increase of 1.05 million tons or 22% compared with five years ago, accounting for 47% of the global import volume of sunflower seed oil. India and China are the first and the third largest sunflower seed oil importers in the world, with an estimated import volume of 2.7 million tons and 1.55 million tons respectively in 2023/2024, total accounting for 74% of the import volume of BRICS countries and 35% of the global import volume. India and China mainly import sunflower seed oil from Ukraine, Russia, and other countries. Sunflower seed oil exports of BRICS countries have increased significantly, with an estimated export volume of 4.41 million tons in 2023/2024, an increase of 1.62 million tons or 58% compared with five years ago, accounting for 31% of global sunflower seed oil exports. Russia is the world's second largest sunflower seed oil exporter, with an estimated export volume of 4.3 million tons in 2023/2024, accounting for 98% of BRICS exports and 31% of global exports, mainly to Central Asia, China, and other places.

Palm oil imports of BRICS countries have fluctuated and declined in the past five years. It is estimated that the import volume in 2023/2024 will be 19.61 million tons, a decrease of 960 thousand tons or 5% compared with five years ago, accounting for 41% of global palm oil imports. India and China are the first

and second largest palm oil importers in the world, and it is estimated that the import volume in 2023/2024 will be 9.2 million tons and 6.2 million tons respectively, total accounting for 79% of the import volume of BRICS countries and 33% of the global import volume. They are mainly imported from Indonesia and Malaysia.

2.3 China's imports of oils and oilseeds from BRICS countries

China's oilseeds imports from BRICS countries in 2023 (calendar year, the same below) are shown in Table 7.

Table 7 China's oilseeds imports from BRICS countries in 2023

Oilseeds	Import/Million tons		Percentage/%
	BRICS	World	
Soybean	71.50	98.96	72
Rapeseed	0.37	5.49	7
Cottonseed	0	0.66	0
Peanut	0.01	0.66	1
Sunflower seed	0.02	0.28	6
Total	71.90	106.05	68

Note: Data from the General Administration of Customs of China

It can be seen from Table 7 that China imported 71.9 million tons of oilseeds from BRICS countries in 2023, an increase of 4.76 million tons or 7% compared with five years ago, accounting for 68% of global imports. Among them, soybean imports are the largest. In 2023, China imported 71.5 million tons of soybeans from BRICS countries, accounting for 72% of global imports. Brazil is China's largest source of soybean imports. In 2023, China imported 69.96 million tons of soybean from Brazil, accounting for 98% of imports from BRICS countries and 71% of global imports. In 2023, China imported 370 thousand tons of rapeseed from BRICS countries, accounting for 7% of global imports, mainly from Russia. Imports of cottonseed, peanut, sunflower seed, and other oilseeds are very small.

China's import of vegetable oils from BRICS countries in 2023 is shown in Table 8.

It can be seen from Table 8 that China imported 2.83 million tons of vegetable oils from BRICS countries in 2023, an increase of 2.09 million tons or 284% compared with five years ago, accounting for 29% of global imports. In 2023, China imported 220 thousand tons of soybean oil from BRICS countries, accounting for 56% of global imports, mainly from Brazil and Russia. Rapeseed oil imports reached 1.63 million tons, accounting for 69% of global imports, mainly from Russia and the United Arab Emirates. Sunflower seed oil imported from BRICS countries was 780 thousand tons, accounting for

52% of the world's imports, mainly from Russia. Peanut oil imported from BRICS countries was 200 thousand tons, accounting for 81% of the world's imports, mainly from India and Brazil. Palm oil and palm kernel oil are mainly imported from Indonesia and Malaysia, because BRICS countries are not the main producers. The overall imports of olive oil and coconut oil are very small, and they are basically not imported from BRICS countries.

Table 8 China's vegetable oils imports from BRICS countries in 2023

Vegetable oils	Import/Million tons		Percentage/%
	BRICS	World	
Soybean oil	0.22	0.40	56
Rapeseed oil	1.63	2.36	69
Sunflower seed oil	0.78	1.51	52
Peanut oil	0.20	0.25	81
Palm oil	0	4.33	0
Coconut oil	0	0.18	0
Palm kernel oil	0	0.72	0
Olive oil	0	0.02	0
Total	2.83	9.77	29

Note: Data from the General Administration of Customs of China

3 Future cooperation potential of oils and oilseeds among BRICS countries

3.1 Land resources and agricultural production have great potential

According to Food and Agriculture Organization of the United Nations (FAO) forecast^[1], the arable land in use of the world in 2005/2007 was 1 592 million hectares, and it is projected to increase to 1 645 million hectares and 1 661 million hectares in 2030 and 2050, respectively. The suitable land with rain-fed crop production potential is forecasted to 1 412 million hectares, mainly concentrated in developing countries such as sub-Saharan Africa, Latin America, and East Asia. Restricted by soil and water resources, China will still need to import a considerable amount of oils and oilseeds to meet domestic demand in the future. Other BRICS countries are rich in agricultural resources and have the potential for large-scale agricultural development cooperation, of which Brazil, Siberian region of Russia, and South Africa have a large amount of arable land to be developed. Brazil has unique climatic conditions and is rich in land, biological and water resources. In the 20 years from 2001 to 2021, Brazil's arable land area increased by 12.23 million hectares or 27% to 58.25 million hectares (calculated according to the FAO database). Brazil's per capita arable land area in 2021 is 0.27 hectares, 3.6 times that of China. Brazil has

the largest area of uncultivated land in the world, and another 40 million hectares of degraded pasture are planned to be converted into arable land^[2]. If all the new arable land is used for soybean production, soybean production is expected to double. Russia is the country with the largest land area, with 0.84 hectares of arable land per capita in 2021, 11.2 times that of China, ranking fourth in the world. Nearly 17 million hectares of arable land in Russia are idle^[3], especially in Siberia, where there is a huge amount of abandoned arable land. Due to the impact of global warming, some permafrost in this region would turn into arable land, which will become an important area for increasing grain production in Russia and has great potential for growth. South Africa is rich in arable land resources, with a per capita arable land area of 0.2 hectares in 2021, 2.7 times that of China. However, the productivity of agricultural science and technology in South Africa is relatively backward and the yield per unit area of crops is low. If the BRICS countries can strengthen trade and investment, exchange of advanced technology and experience, and stabilize the expectation of agricultural product trade, it will be conducive to improve the contribution rate of agricultural scientific and technological progress in South Africa, thereby enhancing South Africa's agricultural production.

3.2 Agricultural trade structure and cooperation has great potential

It is estimated that global soybean imports will reach 222 million tons in 2033/2034, of which soybean imports from BRICS countries will increase by 40.9 million tons to 147 million tons, accounting for 66% of global soybean imports (according to the report of *USDA Agricultural Projections to 2033* released in February 2024). The forecast of soybean import volume of BRICS countries in the next ten years is shown in Table 9.

Table 9 Forecast of soybean imports of BRICS countries in 2033/2034

Country	Import/Million tons		Rate/%
	2023/2024	2033/2034	
China	100.00	138.30	38
Egypt	2.80	5.40	93
Iran	2.80	2.80	0
Saudi Arabia	0.80	0.80	0
Total	106.40	147.30	38

Note: Data from the report of *USDA Agricultural Projections to 2033* was released in February 2024. The report only includes the four BRICS countries in the table, and the other BRICS countries have no data. China's soybean import volume in 2023/2024 in the report is 100 million tons, which is inconsistent with the estimated soybean import volume of 105 million tons in 2023/2024 described below in Table 5, due to different data sources

It can be seen from Table 9 that compared with 2023/2024, China's soybean imports are expected to continue to increase by 38.3 million tons to 138 million tons in the next decade, mainly due to the continued growth in soybean meal demand from the expansion of pig and poultry industry. Egypt's soybean imports are expected to double to 5.4 million tons, mainly to meet domestic crushing demand. Iran and Saudi Arabia's import demand is relatively stable. As in most parts of Brazil, soybean production is still more profitable than other crops, Brazil's position as the world's largest exporter of soybeans will continue to be consolidated. With the increase of planting area in the Cerrado region and the increase of production in the Amazon legal area, it is expected that Brazil's soybean planting area will increase steadily in the next decade. The export volume of Brazil in 2033/2034 is expected to increase by nearly 36 million tons to 133 million tons, accounting for 60% of the global soybean export volume of 222 million tons, which can basically meet the increasing demand for soybeans in China and other BRICS countries.

The forecast of soybean oil imports of BRICS countries in the next ten years is shown in Table 10.

Table 10 Forecast of soybean oil imports of BRICS countries in 2033/2034

Country	Import/Million tons		Rate/%
	2023/2024	2033/2034	
China	0.40	1.20	200
India	3.30	4.50	36
Iran	0.30	0.30	0
Egypt	0.20	0.30	50
Total	4.20	6.30	50

Note: Data sources and explanations are the same as those in Table 9

It can be seen from Table 10 that compared with 2023/2024, the soybean oil imports of BRICS countries are expected to increase by 50% to 6.3 million tons in 2033/2034, accounting for 46% of global soybean oil imports. India, the world's largest soybean oil importer, is expected to increase its soybean oil imports by 36% to 4.5 million tons in 2033/2034, as the expected growth in per capita income will continue to drive demand for edible oils, while low yield per unit area and limited planting area expansion potential limit the growth of oilseeds production. China's soybean oil imports are expected to increase to 1.2 million tons, while Iran and Egypt's soybean oil imports are stable at about 300 thousand tons. Brazil's soybean oil exports are expected to decline from 2.3 million tons in 2023/2024 (this

figure does not correspond to the estimated export of 1.75 million tons of Brazilian soybean oil in 2023/2024 as described below in Table 6, due to different data sources) to 1.5 million tons in 2033/2034, and the proportion of global soybean oil exports will decrease from 20% (this figure is inconsistent with that estimate of 15% of global soybean oil exports in 2023/2024 as described below in Table 6, for the same reason) to 11%, mainly due to the use of more soybean oil for domestic biofuel production.

In addition to soybean oil, India and China are expected to continue to import large quantities of palm oil from Indonesia and Malaysia, and sunflower seed oil and rapeseed oil from Russia and Ukraine to meet domestic food and industrial needs. China and India are quite different from Brazil, Russia, South Africa and other BRICS countries in terms of agricultural resource endowment and agricultural product structure, which makes the trade of oils and oilseeds naturally complementary and shows great potential and space for cooperation.

4 Recommendations

4.1 Deepening agricultural cooperation between China and Brazil

Brazil is playing an increasingly important role in the global agri – food market, with the greatest potential for agricultural resources. Brazil and China have the strongest agricultural complementarity and good bilateral relations. It is suggested that Brazil can be taken as a key country for China to develop international agri – food cooperation. As Brazil has not yet signed the "Belt and Road" cooperation agreement with China, Chinese financial institutions are not yet able to provide white list financial policy support for Chinese enterprises' agricultural investment in Brazil. It is proposed that this policy should be adjusted appropriately to include the agricultural investment of Chinese enterprises in Brazil and other BRICS countries in the white list, so as to create a more favorable development environment for promoting agricultural cooperation between China and Brazil and other BRICS countries.

4.2 Enhancing the stability and facilitation of agricultural trade in BRICS countries

BRICS countries complement each other in agricultural advantages and can theoretically achieve self – sufficiency in oils and oilseeds, as the agricultural resources of Brazil and Russia can meet the new demand for oils and oilseeds in other BRICS countries. There is

a proposal that the signing of bilateral agricultural trade agreements among BRICS countries should be taken as a guide^[4] to explore the feasibility of regional agricultural trade agreements, tariffs, inspection, and quarantine policies among BRICS countries, so as to enhance the facilitation of agricultural trade among BRICS countries and promote more competitive, dynamic and balanced trade relations among them. In addition, it is suggested to promote the settlement and exchange of national currencies among BRICS countries, or to create a new clearing "currency" to further enhance the stickiness of BRICS cooperation.

4.3 Promoting BRICS cooperation for the benefit of local agriculture

By 2022, China's agricultural investment stock in Brazil, Russia, India, South Africa, and other BRICS countries has exceeded 2 billion dollars. COFCO is the largest Chinese enterprise investing in agriculture in BRICS countries, and has successful experience in Brazil, South Africa and ect. The practice of COFCO shows that increasing investment, providing management experience and advanced technology, integrating into local communities and serving agricultural development can stimulate local agricultural production potential, thus providing more sustainable and solid support for BRICS countries in oils and oilseeds trade cooperation. Therefore, BRICS countries should strengthen the replication and promotion of advanced technologies and management experience in digital technology, factory management and green development, and increase personnel training and technical cooperation, so as to promote agricultural production and sustainable development and achieve a mutually beneficial and win – win situation among BRICS countries.

References:

- [1] World Agriculture Towards 2030/2050: The 2012 revision [EB/OL]. (2012 – 06 – 05) [2024 – 04 – 12]. <https://www.fao.org/economic/esa>.
- [2] China and Brazil hold talks on Brazil's agricultural transformation[EB/OL]. (2023 – 03 – 28) [2024 – 04 – 22]. <https://www.163.com/dy/article/I0T9TLDE0519BOH6.html>.
- [3] Russian Prime Minister; Russia has nearly 17 million hectares of arable land deserted and idle[EB/OL]. (2023 – 04 – 07) [2024 – 04 – 22]. <http://www.chinaru.info/qjeluosi/jreluosi/60160.shtml>.
- [4] REN Y F, TONG Y H, DONG B, et al. Progress and outlook of agricultural cooperation mechanism in BRICS countries [J]. J Agric Sci Technol, 2021, 23 (10) : 1 – 9.