

## Current status of oilseed crops in the Republic of Kazakhstan

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**Abstract** – The global production of oilseed crops is a rapidly evolving sector. Soybean, rapeseed, sunflower, and cotton hold the leading positions among oilseed crops. Among technical oils, linseed oil ranks first. In the Republic of Kazakhstan, cultivated areas dedicated to oilseed crops cover approximately 2.5 to 3 million hectares. Sunflower, flax, and rapeseed account for 75% of the total sown area, primarily concentrated in the northern regions of the country. Soybean, grown on irrigated plots, and safflower, cultivated in rainfed areas, are expanding in the south of Kazakhstan. The number of foreign varieties and hybrids of oilseed crops included in the State Register of recommended crops in Kazakhstan is updated annually. For 2024, the register includes 124 sunflower hybrids, 56 soybean varieties, 45 rapeseed hybrids, 9 flax varieties, and 2 safflower varieties. The national breeding programme for oilseed crops is conducted by 10 scientific institutions. Between 2015 and 2024, 18 domestic varieties and hybrids of sunflower, 16 varieties of soybean, 5 of rapeseed, 3 of flax, and 2 of safflower were approved for production in Kazakhstan.

**Keywords:** oilseed crops / production / selection / varieties / Kazakhstan

**Résumé – Statut actuel des oléagineux en République du Kazakhstan.** La production mondiale de cultures oléagineuses est un secteur en pleine évolution. Le soja, le colza, le tournesol et le coton occupent les premières places parmi les cultures oléagineuses. Parmi les huiles techniques, l'huile de lin est la plus répandue. En République du Kazakhstan, les superficies cultivées en oléagineux couvrent environ 2,5 à 3 millions d'hectares. Le tournesol, le lin et le colza représentent 75 % des surfaces semées, principalement concentrées dans le nord/sud du pays. Le soja, cultivé sur des parcelles irriguées, et le carthame, cultivé en zones pluviales, se développent dans le Sud du Kazakhstan. Le nombre de variétés et d'hybrides d'oléagineux étrangers inscrits au Registre national des cultures recommandées en République du Kazakhstan est actualisé chaque année. En 2024, il compte 124 hybrides de tournesol, 56 variétés de soja, 45 hybrides de colza, 9 variétés de lin et 2 variétés de carthame. Le programme de sélection des cultures oléagineuses est mené par 10 institutions scientifiques au Kazakhstan. Entre 2015 et 2024, 18 variétés et hybrides nationaux de tournesol, 16 variétés de soja, 5 de colza, 3 de lin et 2 de carthame ont été autorisés à la production au Kazakhstan.

**Mots-clés :** cultures oléagineuses / production / sélection / variétés / Kazakhstan

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### Highlights

As a result of analytical research, it has been established that there is a tendency to increase the cultivated area under oilseed crops in the Republic of Kazakhstan. Kazakhstan is a leader in the production of flax and safflower. Breeding efforts in Kazakhstan focus on sunflower, flax, safflower, rapeseed, and soybean. The varieties and hybrids developed for these crops (*Baikonur, Baiterek, Arlan, Azur, Altyn, Ahram, Nika-80, Osiris, Northern Lights, Atameken, Aisaule*) are now being introduced into production.

## 1 Introduction

Oilseed crop markets worldwide. Oilseed crops represent plants whose seeds and fruits contain fat (20-60%). They serve as the primary raw material for the production of vegetable oils. Oil is of great nutritional and technical importance. Among edible vegetable oils by gross production in the world soybean oil ranks first, followed by sunflower oil, then peanut oil, cotton oil, rapeseed oil, olive oil, sesame oil, corn oil. Among technical oils, linseed oil ranks first, followed by castor oil and olive oil. Five crops account for approximately 97% of total global oilseed production: soybean (61%), cotton (6%), rapeseed (12%), peanut (7.5%) and sunflower (8%). These crops occupy a dominant position in the world market ([Eldala.KZ, 2024](#)) ([Fig. 1](#)).

Increased oilseed crop production in the USA and Western Europe indicates increasing demand for different types of oils. North America dominates oilseed crops production with the development of biodiesel industry. The global cultivated area under oilseed crops in 2023 was 276 million ha. There is an upward trend in oilseed crops production, with a 20% increase in 2023 compared with 2019 ([Glavagronom.ru, 2022](#)) ([Fig. 2](#)).

Globally, oilseed production covers countries in North America (2), Latin America (3), EU (13), Asia-Pacific region ([Coherentmarketinsights.com, 2024](#)). Production growth is observed due to the growth of sunflower (+20%), soybean (+3%), peanut (+7%) and palm fruit (+6%) crops ([Transformation.KZ, 2024](#)).

Key global companies significantly influence in the export and import of oilseed crops in the market: Dow (USA), BASF SE (Germany), Chr. Hansen Holding A/S (Denmark), DSM (Netherlands), DuPont (USA), Evonik Industries AG (Germany), NOVUS INTERNATIONAL (USA), Alltech (USA), Associated British Foods plc (UK), Charoen Pokphand Foods PCL (Thailand), Cargill, Incorporated (USA), Nutreco (Netherlands), ForFarmers. (Netherlands), De Heus Animal Nutrition (Netherlands), Land O'Lakes (USA), Kent Nutrition Group (USA), JD HEISKELL & CO. (USA), Perdue Farms (USA), SunOpta (Canada), Scratch and Peck Feeds (USA), De Heus Animal Nutrition (Netherlands), MEGAMIX (Russia), Agrofeed (Hungary).

The vegetable oil market is a competitive one and practical strategies include product innovation, partnerships, expansions, mergers and acquisitions. Sime Darby Plantation

Berhad, Wilmar International Limited, Bunge Limited, Golden Agri-Resources, and Archer Daniels Midland Company are some of the prominent players in the studied market. The major players in the market have a wide geographical presence and extensive product portfolio to meet the numerous consumer demands. This factor supports strong market positioning in the market ([Mordorintelligence.com.ru, 2023](#)).

In this context, the oilseed crops production, processing, and distribution market continues to gain momentum.

The Board of the Eurasian Economic Commission has approved the main areas of co-operation between the countries of the Eurasian Economic Union to ensure the stable functioning of the oil and fat industry. The oil and fat industry is considered to be one of the most dynamically developing and export-oriented sectors of the Union's agro-industrial complex. Over the past five years, the production of oilseed crops has increased 1.7 times up to 33 million tonnes and vegetable oils 1.5 times to 8.8 million tones. This contributed to an increase in exports of these products. It accounted for a fifth of the Union's external agricultural food supplies ([Eec.eaeunion.org, 2023](#)).

Currently new difficulties arise due to changing geopolitical and economic situation, ecology, disruption of trade and logistics routes.

## 2 Development of oilseed crops in Kazakhstan

Currently, the role of Kazakhstan in the world market of oilseed crops is steadily growing. The situation on both local and international markets in terms of consumer preferences has changed, and oils from flax, rapeseed, soybean and safflower seeds have become particularly popular. Government incentives for production, the development of domestic processing and stable global demand are supporting Kazakhstan growing oilseed crops sector.

In oilseed crops production in Republic of Kazakhstan, sunflower, flax, rapeseed, rapeseed, safflower and soybean become particularly popular. Diversification in crop production, state subsidies, market demand had a positive impact on the growth of oilseed crops production. The growth began in the early 2000s. Not all crops showed good efficiency due to the sharply continental climate of the northern region, dominating in sown oilseed area.

The main producers of oilseed crops are Kostanay, Pavlodar, North-Kazakhstan, Akmola, East-Kazakhstan, Almaty, Zhetysu regions. In recent years, there has been an cultivated areas have expanded in West Kazakhstan and Zhambyl regions of Kazakhstan ([Stat.gov.kz, 2022](#)).

From 2019-2023, the area under oilseed crops was in the range of 2.4-3.5 million hectares, reaching 3.4 million hectares in 2022, decreasing to 2.4 million hectares in 2023 and rising to 3.2 million hectares in 2024. The decline in cultivated areas resulted from drought in the northern regions, the reduction amounted to 169.8 thousand hectares in Akmola region, 445.2 thousand hectares in Kostanay region, 639.9 thousand hectares in North-Kazakhstan region ([Fig. 3](#)).

Sunflower (46.3%) and flax (29.8%) dominate the structure of oilseed crops, followed by safflower (16.0 %), soybean (4.0 %) and rapeseed (3.9 %) ([Fig. 4](#)).

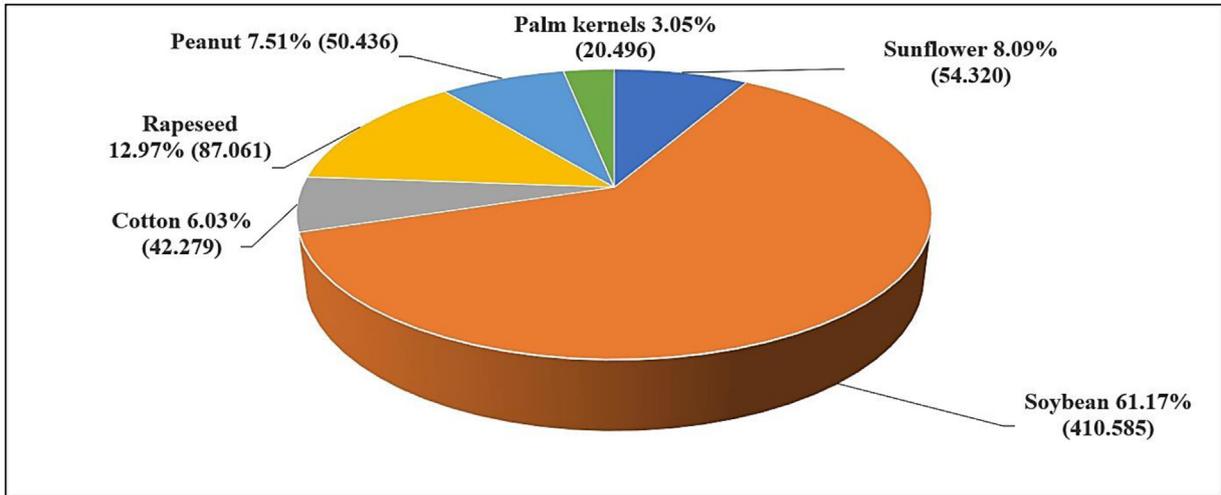


Fig. 1. Share of oilseed species in production % (million tons), 2024.

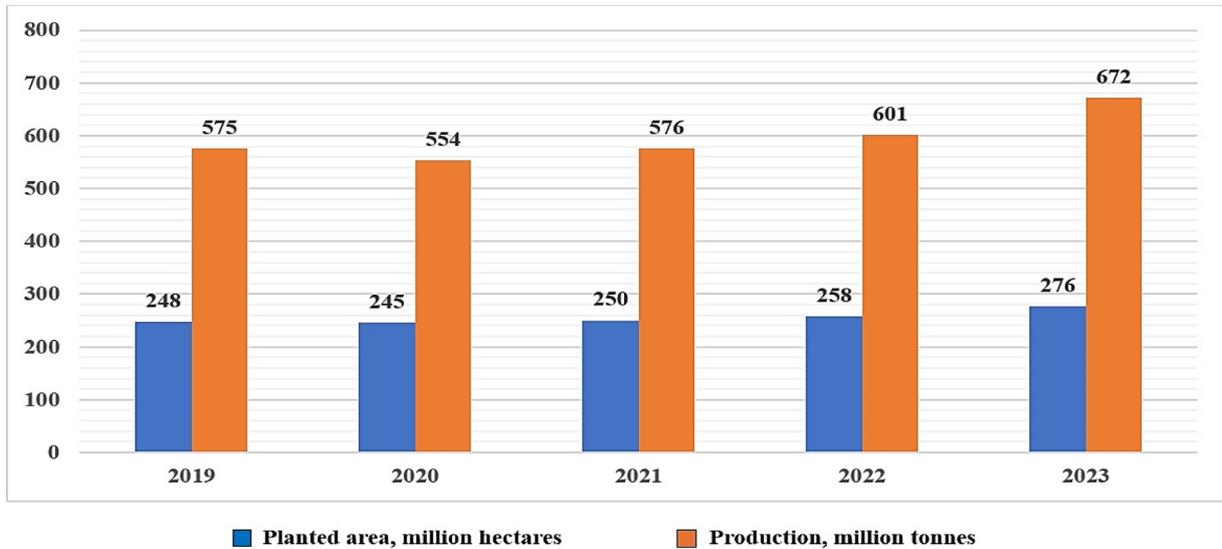


Fig. 2. Global oilseed planted area and production 2019-2023.

Thus, until 2022, there is a stable increase in gross yield of sunflower. Its growth amounted to 47%. Gross yield of flax decreased by more than 3 times. Other crops showed insignificant fluctuations in the gross harvest indicator. Reduction of cultivated areas in 2023 by 1 million hectares compared to 2022 affected the output of gross output. The largest show of more than 3.2 million tones was obtained in 2024. The gross harvest of oilseeds in 2023 was the lowest in the last 5 years – 2.2 million tones. (Margin.kz, 2024). (Fig. 5).

The average yield of oilseed crops was 0.88 t/ha. The highest yields are in Almaty region (1.82 t/ha), and East Kazakhstan region (1.52 t/ha). Yield of North Kazakhstan region (0.77 t/ha) and Zhambyl region (0.79 t/ha) [6]. The average yield of oilseed crops in Kazakhstan in the period of 2019-2023 was 0.79 t/ha for sunflower, 0.66 t/ha for flax, 1.22 t/ha for rapeseed, 0.68 t/ha for safflower and 2.05 t/ha for soybean.

### 3 Market overview of major oilseeds in Kazakhstan

#### 3.1 Sunflower

The largest export volume was recorded in 2019 – at the level of 451 thousand tones. The main export destination was China (57% of the total exported volume in 2020) and Uzbekistan (29%). In 2023 – 312.4 thousand tonnes of sunflower were exported, which is the maximum export compared to previous years (2020/2021 – 247.9 thousand tones; 2021/2022 – 226.9 thousand tones) (Eldala.KZ, 2023; Eldala.KZ, 2024; Official information resource of the Prime Minister of the Republic of Kazakhstan, 2024; The-tenge.KZ, 2024). (Fig. 6).

Kazakhstan has increased exports to Uzbekistan in 2023 – 87.7 thousand tones or almost 28%. From 2019 to 2023,

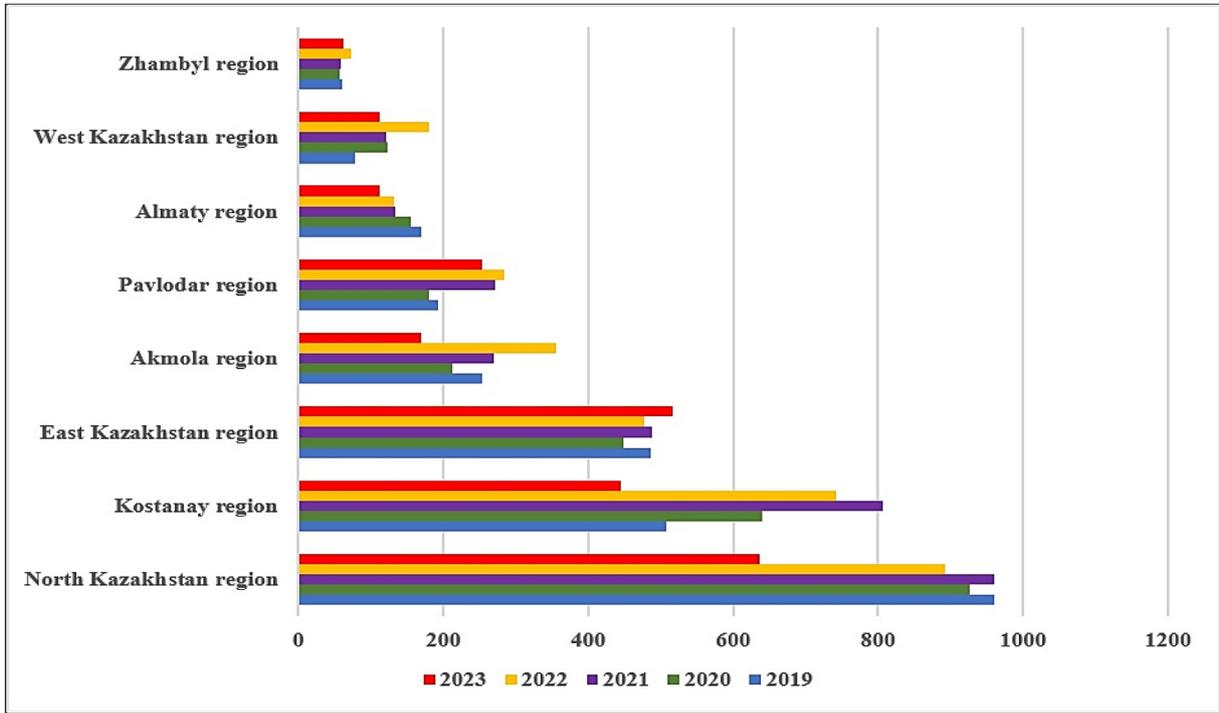


Fig. 3. Dynamics of sown areas under oilseeds in Kazakhstan by main cropping areas, 2019-2023.

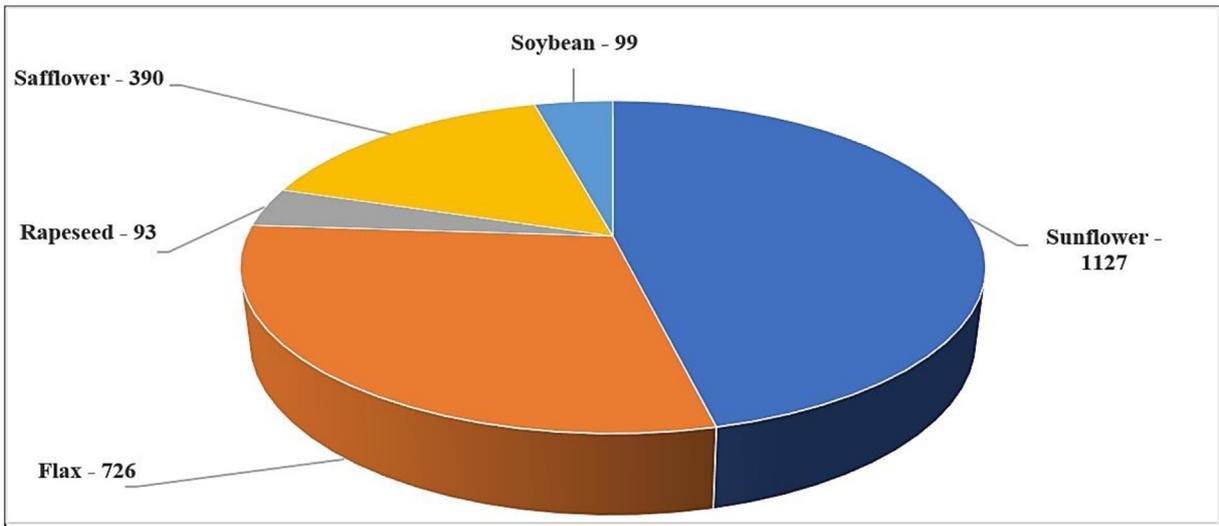


Fig. 4. Sown areas of oilseeds by crops in Kazakhstan, thousand hectares, 2023.

exports decreased shipments to the world market, but the country's sunflower seed imports were not affected. In 2019, imports increased from 110,000 tonnes in 2019 to 233,000 tons in 2022, while in 2023, on the back of a record crop, imports decreased (by 1.7%) from the previous season. The forecast for 2024 was more than 44 thousand tons, which is higher than the level of imports in the same period of the 2023 season or 1.8 times, 2022 season – 2.8 times, 2021 season – 30%, 2020 season – 4.5 times (lsm.KZ, 2024).

Today, there are 54 enterprises operating in the Republic, which have produced more than 537,000 tons of oil. The

annual raw material processing capacity is 3.2 million tones. The profitability of sunflower cultivation in the country is 96.4%.

In 2022, 356 thousand tons of sunflower oil were exported. This is almost 3 times higher than the level of 2021 84.9 thousand tones. In 2019-2023 there is a stable growth in production of refined oil (135 thousand tones) and unrefined oil (343 thousand tones). The main buyers of Kazakhstan sunflower oil are China and Uzbekistan, which in 2020 imported 46.6 thousand tones and 44.6 thousand tones, respectively, of the total volume of 109.7 thousand tones.

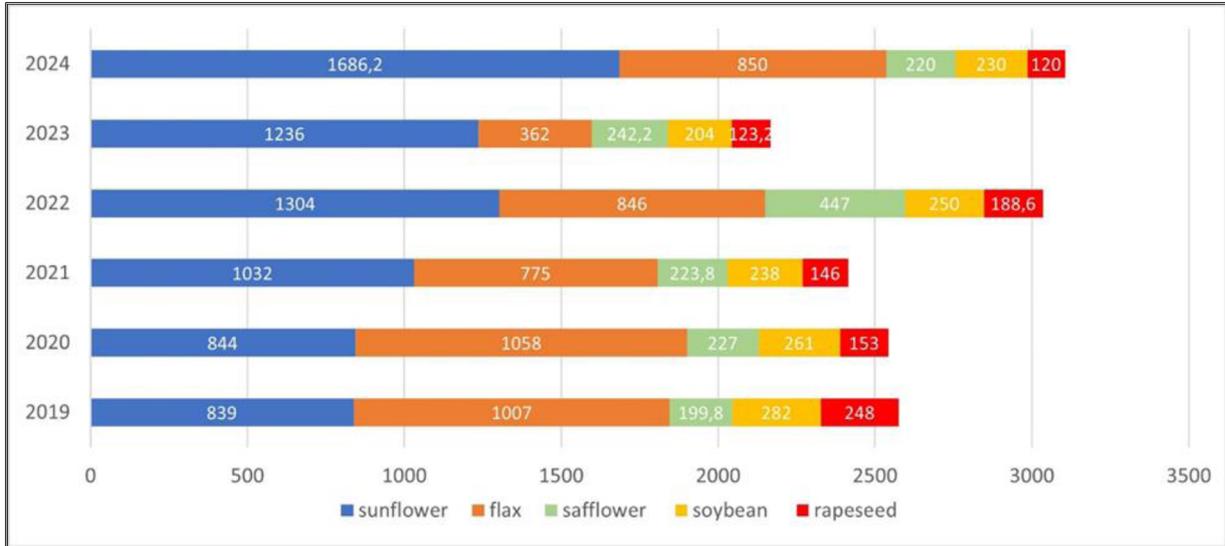


Fig. 5. Gross harvest by oilseeds in Kazakhstan for 2019-2024, thousand tones.

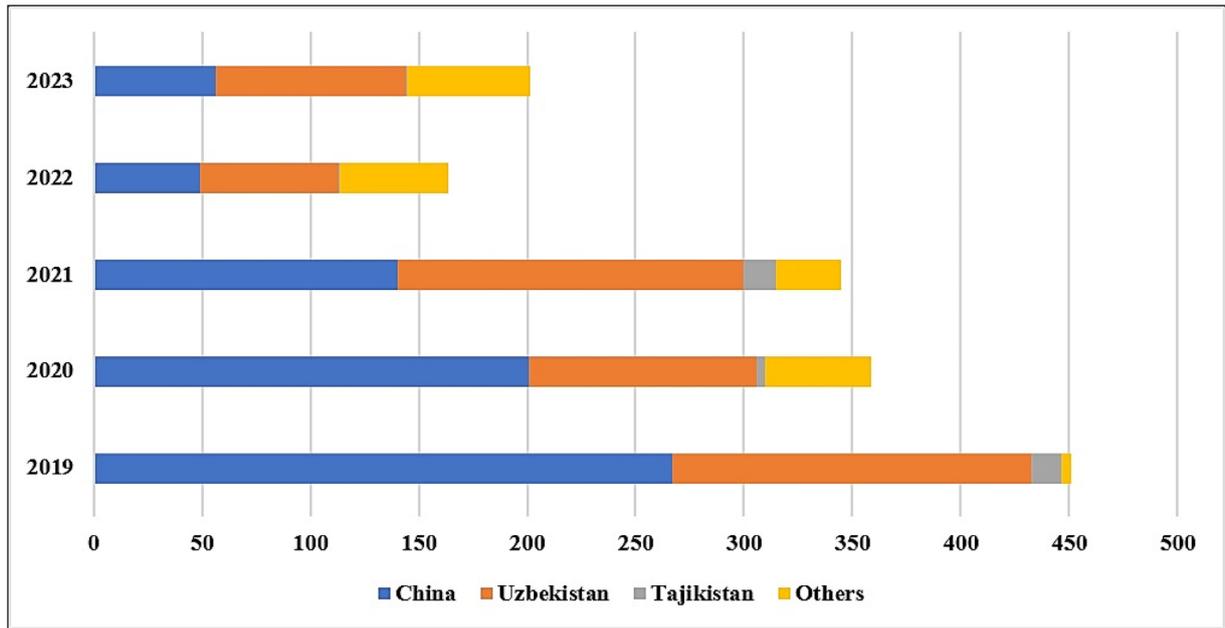


Fig. 6. Sunflower exports from Kazakhstan, thousand tones, 2019-2023.

In 2023, exports of sunflower oil from Kazakhstan are increased by 4% to 141,000 tones, due to its high cost, logistical problems at the Kazakhstan-China border and high domestic demand (Fig. 7).

In the 2023 season, 135 thousand tons of unrefined sunflower oil were exported. Due to the introduction of customs duty, unrefined oil output declined from 35 thousand tons of oil to 29 thousand tones – (by 17%).

Domestic production of sunflower oil in Kazakhstan does not fully meet the country’s demand for the product. The share of oil imports remains significant. Due to change in the course of government policy in favor of the development of the oilseed crop industry, in particular processing, the share of sunflower oil imports decreased significantly – from

133 thousand tones in 2023 to 95 thousand tones in the current season.

### 3.2 Soybean

The main producers of soybeans in Kazakhstan – Almaty, Zhetysu and East Kazakhstan regions. They account for more than 80% of the total production in the Republic. The area of soybean cultivation in the period of 2019-2024 shows the dynamics of decrease from 138 thousand hectares to 100 thousand hectares due to the reduction of cultivation of this crop in the northern regions. The average soybean yield in Kazakhstan is 1.95-2.3 t/ha (Fig. 8).

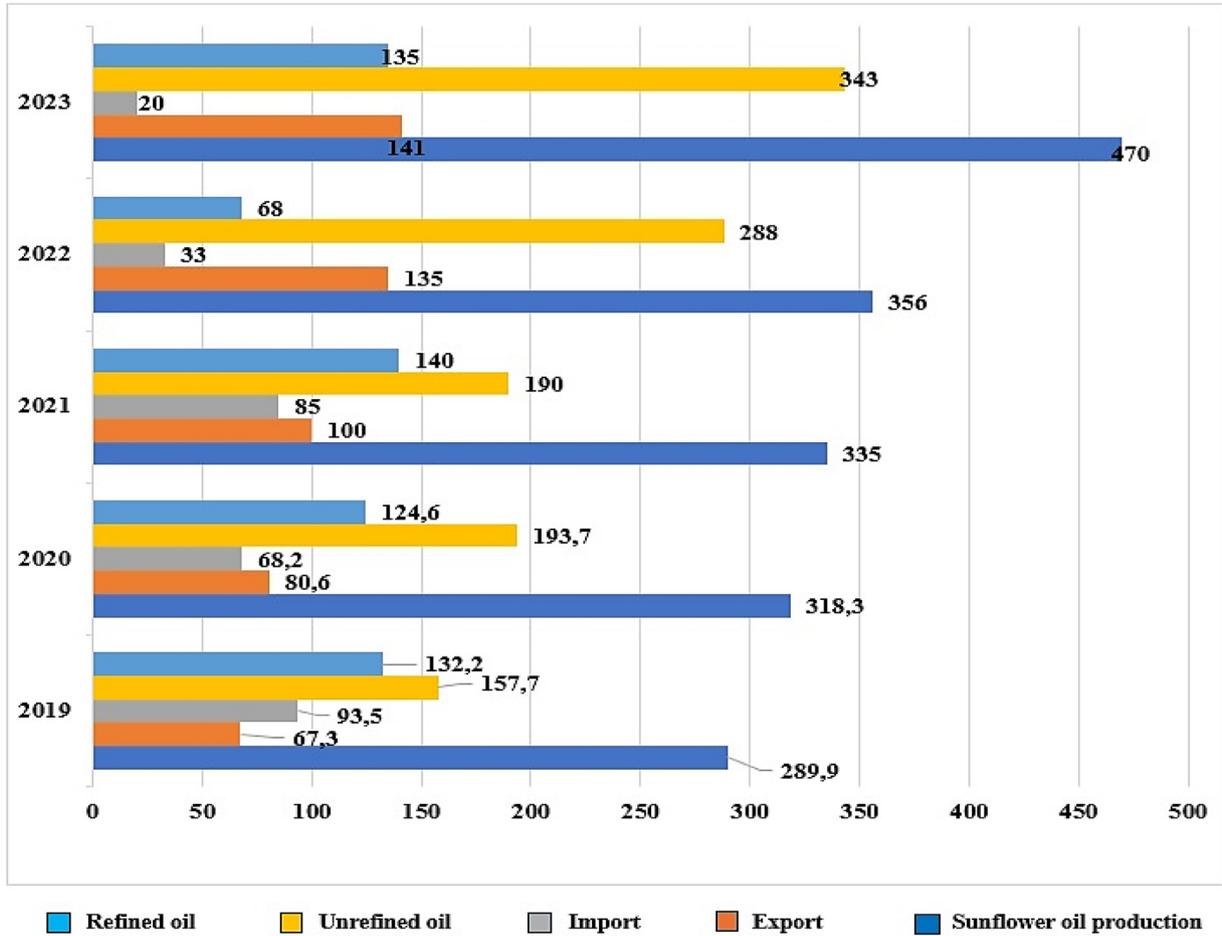


Fig. 7. Production, export and import of sunflower oil in Kazakhstan, thousand tones, 2019-2023.

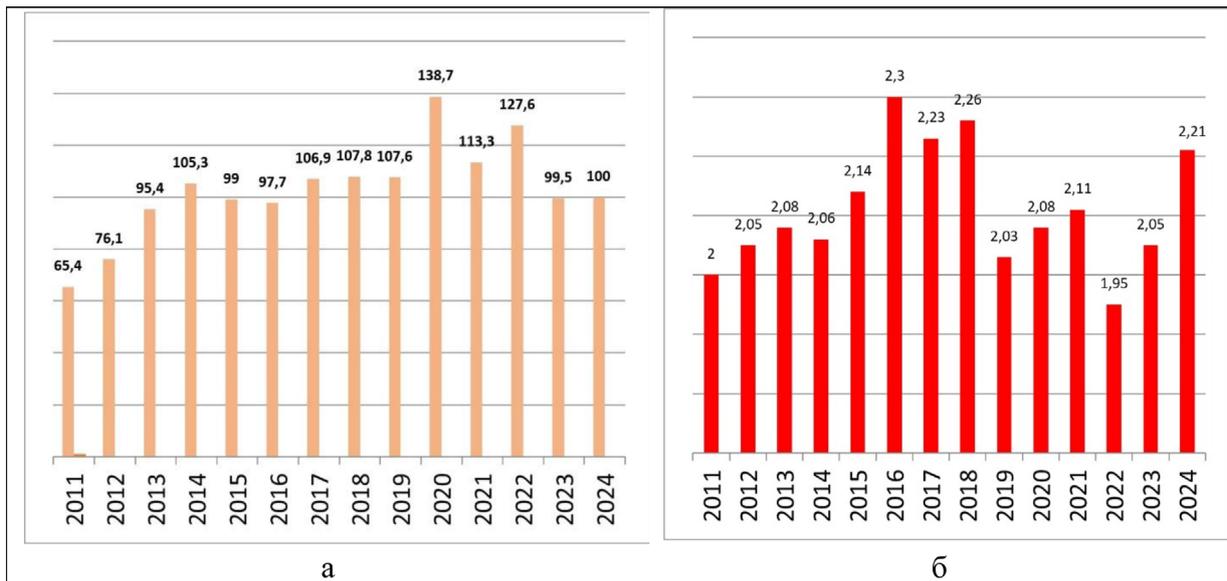


Fig. 8. Dynamics of sown areas (a-thousand hectares) of soybean in Kazakhstan and yield level (b-tons per hectare) 2011-2024.

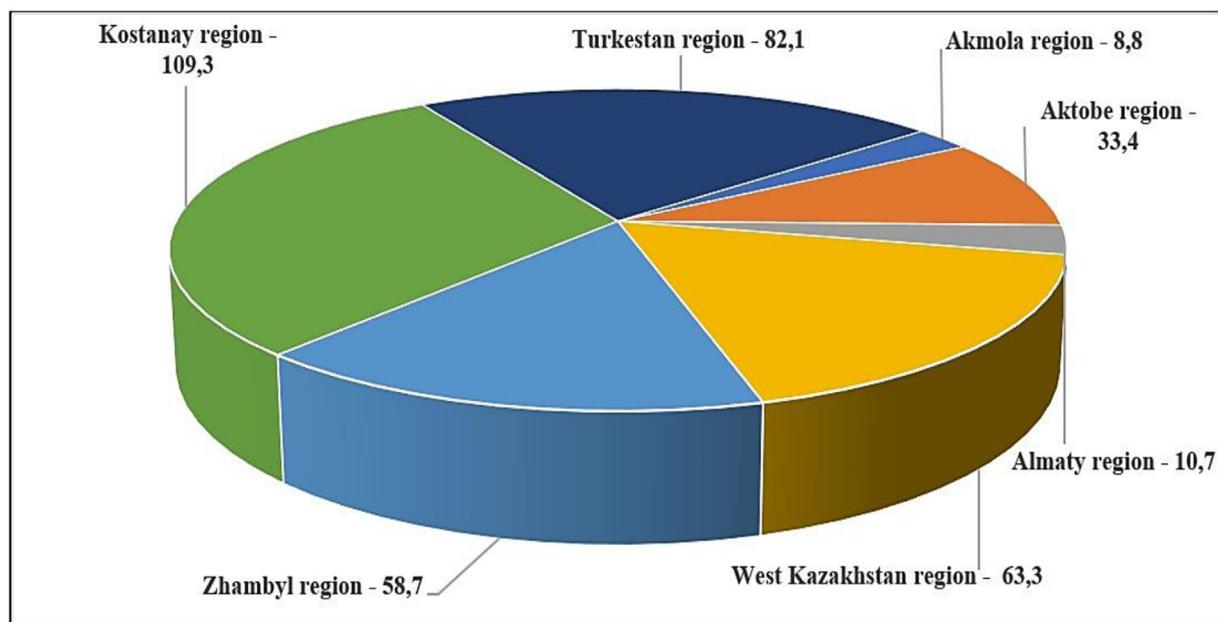


Fig. 9. Distribution of sown areas under safflower by regions of Kazakhstan, thousand hectares –2023s.

The main share of soybean area is concentrated in Almaty and Zhetysu – 83%, East Kazakhstan – 9.4% and Kostanay – 3.9% regions. Soybean yield in Kazakhstan under conditions of South-East on drip irrigation reaches up to 5.5 tons per hectare. This crop remains in high demand and is economically viable.

Soybean exports increased following the opening of the Chinese market. According to Agro-industrial complex (AIC) – Inform, 4.98 thousand tons of Kazakhstan soybean were exported in 2023. The vast majority of soybean shipments went to China – 4.56 thousand tons, the remaining volume was sent to Uzbekistan. In January 2022, Kazakhstan exported only 195 tons of soybean (all exports were destined for Uzbekistan) ([Advis.ru, 2023](#)).

Since the beginning of 2023, soybean oil production in Kazakhstan increased 2.2 times. Exports of soybean oil increased – by 19.2%, up to 10.1 thousand tons, which was supplied to Tajikistan, Uzbekistan and China.

### 3.3 Safflower

Safflower is a key oilseed crop in Kazakhstan. The cultivation of this oilseed crop accounts for almost half of Kazakhstan total vegetable oil production. Since 2000, Kazakhstan has been one of the top five safflower producers in the world, ranking second after India. Kostanay, Turkestan, West Kazakhstan and Zhambyl regions occupy the leading position in production ([Fig. 9](#)).

The total area under safflower in 2023 amounted 389.7 thousand hectares, which is 243.7 thousand hectares less than in 2022. The reason for the decrease were unfavorable weather conditions. The crops on the area of about 65 thousand hectares were lost – Akmola (41%), West Kazakhstan (54%), Kostanay (43%). The average yield (2019-2023s) is 0.68 t/ha.

Gross safflower production from 2019 to 2022 in Kazakhstan had a stable growth from 199.78 to 447.46

thousand tones, which is 2.5-fold increase. In 2023, due to weather conditions (drought) and the lack of a sales market, production decreased by 205.29 thousand tons of seeds or 54%.

Kazakhstan increases production volumes for safflower oil processing. In 2023, safflower oil production rose almost 8 times, its volume increased to 1.5 thousand tones.

In 2023, exports totaled 12.5 thousand tons of safflower (of which 3.55 thousand tones were supplied to China). In 2022, the figure was 4.39 thousand tones, with the vast majority of safflower going to China – 4.23 thousand tones. In 2021, 7.7 thousand tons of safflower was exported, in 2020 – 10.8 thousand tones, in 2019 – 5.8 thousand tones, in 2020 – 4.1 thousand tones. For 2024 safflower seed stocks in Kazakhstan were at 113.7 thousand tones ([Oleoscope.com, 2022](#)).

The key importing countries of safflower seeds in 2023 were Turkey, China, Tajikistan, Uzbekistan, Kazakhstan (import from the Russian Federation for subsequent resale to third countries), USA, Belgium, Poland, Germany and Iraq. These countries together accounted for 93.8% of global safflower seed imports ([Margin.KZ, 2023](#)).

### 3.4 Rapeseed

Rapeseed cultivation is one of the three actively developing areas of oilseed crop production in the world ([Magizov, 2023](#)). It has doubled in 15 years and the global average yield has increased by 25 %. The main rapeseed producers in the world were and still are EU countries (more than 20 million tonnes), Canada (more than 18 million tons), China (more than 13 million tons), India (about 7 million tons), Australia (more than 13 million tons) ([Goncharov and Karpachev, 2019](#)).

Rapeseed is a profitable crop for cultivation in Kazakhstan. It is considered a highly liquid crop, as it does not experience such price hikes as wheat. Regionally rapeseed production is

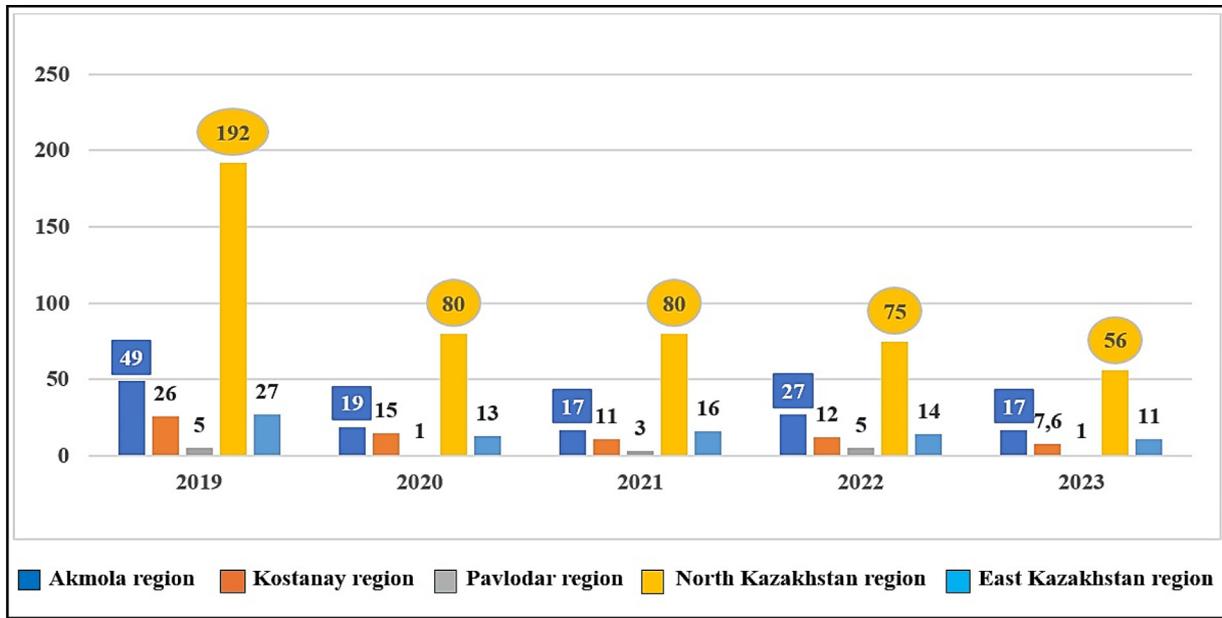


Fig. 10. Structure of sown areas of spring rapeseed in Kazakhstan, thousand hectares, 2019-2023.

mainly concentrated in the northern and eastern regions of Kazakhstan: Akmola, Kostanay, Pavlodar, North-Kazakhstan and East-Kazakhstan. North Kazakhstan accounts for 60% of production, then Akmola – (18%), East-Kazakhstan – (12%) and Pavlodar regions (8%) (Fig. 10).

Rapeseed production up to 2019 was increasing and amounted to 247.9 thousand tones. However, since 2020 there is a gradual decline. In 2023, the cultivated area was 92.6 thousand hectares, which is 26% lower than in 2019. The Gross harvest declined by nearly 50%. The five-year average gross harvest for the Republic was 172 thousand tones and the average yield was 1.22 t/ha. The highest yield is observed in East Kazakhstan region up to 2.05 t/ha.

In 2019, Kazakhstan exported 154.6 thousand tons of rape seed, while in 2020 this figure decreased to 69.6 thousand tones. In 2021, only 12.3 thousand tons of rape seed were exported compared to 47.5 thousand tones in the same period in 2020. In 2023, Kazakhstan exported 45,000 tons of rapeseed. China is the main importer of Kazakh rapeseed oil with a 74% share of total exports. Exports of rapeseed oil were in 2019-56.8 thousand tones; 2020-53.5 thousand tones; 2021-17.2 thousand tones; 2022 – 40.0 thousand tones. In 2023, the total export of oil was about 49 thousand tones. Meanwhile, from 2017 to 2020, China share totaled 98%. China consumption of rapeseed oil makes about 8.2 million tons annually. The share of Kazakhstan rapeseed oil in Chinese imports does not exceed 3% (Apk-inform.com, 2024).

Overall, of the rapeseed oil produced, more than 60% is exported to China, as well as small volumes to Iran, Tajikistan, Afghanistan and Uzbekistan.

Oil refineries in Kazakhstan in 2021-2022 on average produced 32 thousand tons of rapeseed oil, and for the past 2023 production exceeded 79 thousand tones, which is a record for the entire history of Kazakhstan – said the head of National Association of Oilseed Processors (NAOSP).

In Kazakhstan, 60–65% of producers use varietal seeds, and 30% use hybrids, and 30% – hybrids. Companies that are

purposefully engaged in growing rapeseed for export, grow hybrids under the Clearfield system. Its difference from the conventional system is that Clearfield controls cruciferous weed pressure on rapeseed.

Increased capacity utilisation in Kazakhstan will reduce the cost of production of finished products. In 2019, production increased almost 5-fold to 69 thousand tones, in 2021 the production capacity of unrefined rapeseed oil was 266.5 thousand tons per year (Invest.gov.KZ, 2024).

### 3.5 Flax

Kazakhstan is the world's largest producer of oilseed flax and is the world's largest producer of oilseed flax. In the 2018 season, the country had a harvest of 683.3 thousand tones, surpassing the previous leaders, Russia (603.2 The area under flax until 2020 (1526.4 thousand hectares) is gradually decreasing, in 2023 the area was 726.1 thousand hectares. A decline is observed in Akmola (51.5%), Karaganda (8.9%), Pavlodar regions (9%) (Fig. 11).

In 2022, the gross harvest totaled 845.6 thousand tones, which is 42.7% higher than the 2023 level (361.6 thousand tones). The crop is processed in the domestic market by only a few plants and is essentially export oriented. According to *stat.gov.kz* site, yields were in the range of 0.22-1.0 t/ha. In North Kazakhstan – from 0.49 to 1.0 t/ha, Kostanay – from 0.43 to 0.61 t/ha, Karaganda – from 0.32 to 0.84 t/ha, Pavlodar – from 0.22 to 0.7 t/ha, Akmola region – from 0.39 to 0.76 t/ha.

The exports account for 43% of total flax seed production. In 2019, flax seed exports totaled 464.4 thousand tones. In 2020, there was a decline of 46% due to a decrease in gross harvest, and in 2021 an increase of 3 times, in 2023 a slight decrease of 28% compared to 2023, where seed exports amounted to 615.3 thousand tones, which is 24% higher than in 2019. The key buyer of Kazakhstan flax in 2019 was China, accounting for 21%, while Belgium accounted for 14%. In

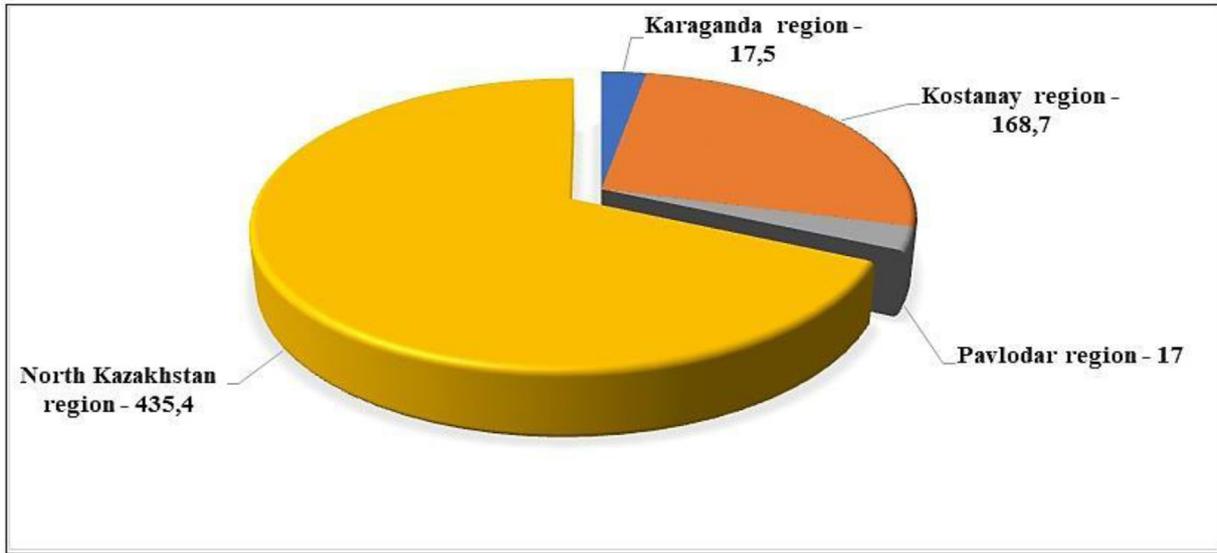


Fig. 11. Distribution of sown areas of flax crop by regions of Kazakhstan in 2023, thousand hectares.

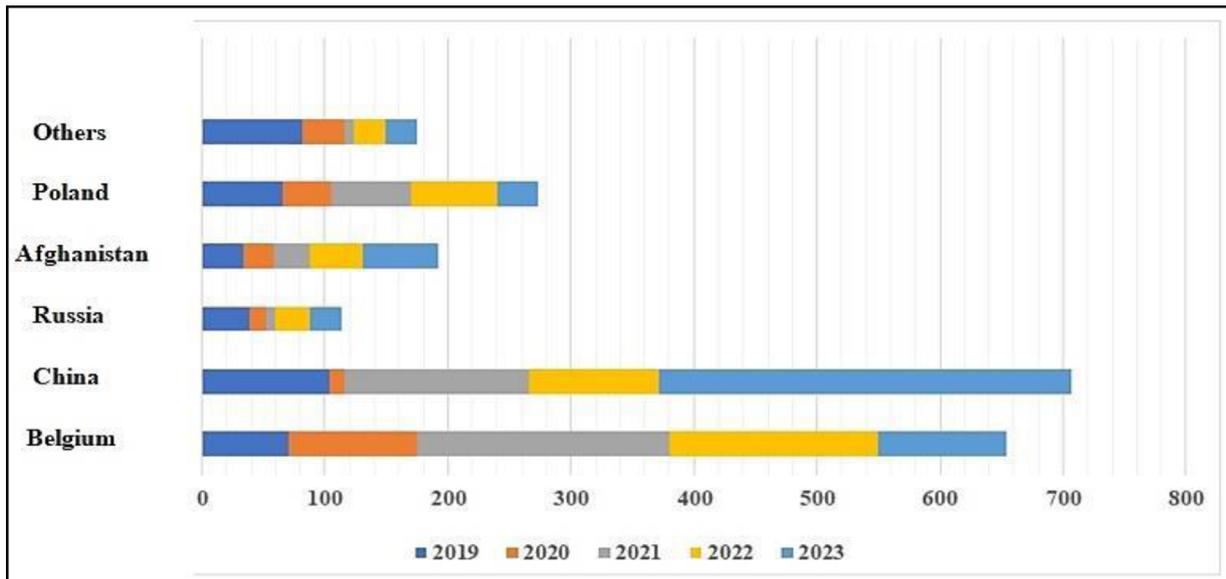


Fig. 12. Flax exports from Kazakhstan 2019-2023, thousand tonnes.

2023, 2023 export growth exceeded 2019 levels and amount to 335 thousand tonnes (China), Belgium (103 thousand tonnes), Afghanistan (61), Russia and Poland 26 and 30 thousand tons respectively. Shipments to Germany fell by a third, from 13.1 to 10.3 thousand tonnes (Eldala.KZ, 2022) (Fig. 12).

Lower yields in 2021 led to a rapid increase in world prices: for Canadian flax. They tripled (from \$428 in March 2021 to \$1228 in March 2022). In Europe, flax (mainly of Kazakhstan origin) doubled in price (from \$515 to \$1035). In the domestic market of Kazakhstan – it increased by 70% in price (from \$428 to \$761). In Europe prices for the same period rose even more strongly – from \$515 to \$1035 per ton (Ab-centre.ru, 2022).

In 2023, the average export price of flax seed was \$530 per ton, down 33.1% from the 2021 level. The most expensive

products among the leading exporting countries came from the Netherlands (2.7 times higher than the world average price), Germany (2.4 times higher) and India (2.1 times higher). In 2024, there may be a decrease in sown area due to farmers' fears of a repeat drought (Ab-centre.ru, 2022).

#### 4 Oil and fat industry in Kazakhstan

The oil and fat industry comprises one of the key sectors of the agro-industrial complex of the Republic of Kazakhstan. By 2023, its share in the structure of food production exceeded more than 18% (Fig. 13).

Kazakhstan has significantly increased production and processing of oilseed crops within a short period of time. Thus, from 2019 to 2023, sunflower oil output increased 2.5-fold,

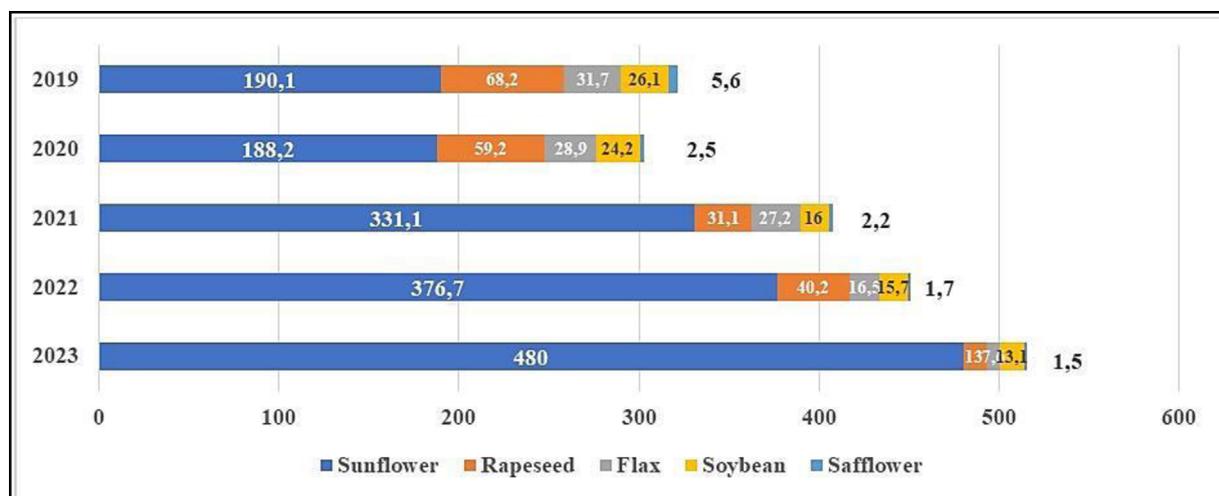


Fig. 13. Oil production by types of crops in Kazakhstan, thousand tones.

Table 1. Domestic sunflower varieties and hybrids recommended for production in Kazakhstan for the period 2015-2024.

Variety/hybrid	Year of admission	Originator
<i>Baikonur 21</i>	2024	LLP «ESOC»
<i>Baikonur</i>	2023	LLP «ESOC»
<i>Baiterek</i>	2023	LLP «ESOC»
<i>Arlan</i>	2022	LLP «ESOC»
<i>Batyr</i>	2022	LLP «ESOC»
<i>Mailangan</i>	2021	LLP «RPCGF A.I.Barayev»
<i>Avangard 2017</i>	2020	LLP «ESOC»
<i>Irtys</i>	2020	LLP «ESOC»
<i>Dostyk UK</i>	2020	LLP «EKAES»
<i>Baiterek 17</i>	2019	LLP «ESOC»
<i>Zarya vostoka</i>	2019	LLP «EKAES»
<i>Agrobusiness 2050</i>	2019	LLP «ESOC»
<i>Astana –109</i>	2018	LLP «ESOC»
<i>Narym</i>	2018	LLP «ESOC»
<i>Patriot</i>	2017	LLP «EKAES»
<i>Kun nury</i>	2017	LLP «RPCGF A.I. Barayev»
<i>Sary</i>	2017	LLP «Kostanay SRIA»
<i>Rauan</i>	2015	LLP «Kostanay SRIA»

while production of safflower, soybean, rapeseed, and flax declined by in production by 27, 12, 19 and 24%, respectively (Businesstat, 2023).

Currently, the main markets for Kazakhstan oil and fat products are China, Central Asia and Europe. Last year Kazakhstan exported vegetable oils and extracted meal / oilseed cake to China to the amount of \$177 million. According to the forecast for 2024, oil and fats products will be supplied to China to the total amount exceeding \$90 million (+29% growth compared to the same period in 2023). By the end of 2024, it is planned to receive foreign currency earnings of more than \$200 million. In second place on purchases of Kazakhstan vegetable oils and meal / oilseed cake – Uzbekistan with an indicator of \$164 million (representing 32%), in third place – Tajikistan (\$82 million, representing 16%). The National Association of Oilseed Processors

(NAOSP) also noted that other markets are being developed, including Europe (\$47m, 9%). In 2023, major shipments were made to Latvia, Sweden, Italy, Denmark and Germany.

It is worth noting separately the development of supplies of oil and fat products to Central Asian countries (Uzbekistan, Tajikistan, Kyrgyzstan, Turkmenistan) (Ism.KZ, 2023).

In Kazakhstan, the oil and fats industry are represented by several large companies: ‘Eurasian Foods Corporation’, ‘Maslo-Del’, ‘Mai’, ‘Vostokselkhozprodukt’, ‘Shymkent-Mai’, ‘Ust-Kamenogorsk Oil Factory’, ‘Arai’, ‘Prombaza-7’, and ‘Poima Mai Combines’. There are also two specialised associations: National Association of Oilseeds Processors (NAOSP) of Republic of Kazakhstan and Oil and Fat Union. The NAOSP includes 36 plants processing 90% of seeds. The enterprises process seeds of soybean, safflower, rape, sunflower, cotton, flax, produce vegetable oils, special fats

**Table 2.** Domestic flax varieties recommended for production in Kazakhstan for the period 2015-2024.

Variety/hybrid	Year of admission	Originator
<i>Azur</i>	2024	LLP «EKAES»
<i>Altyn</i>	2021	LLP «AES» Zarechnoye»
<i>Kustanaysky 11</i>	2016	LLP «AES» Zarechnoye»

as raw materials, as well as finished products – milk containing products, margarine, ketchup, mayonnaise, spread, chocolate, glaze, sauces. Wastes from production (oilseed cake, meal) are used for bird and animal feed ([Kz.kursiv.media, 2023](#)).

## 5 Research and breeding of oilseed crops in Kazakhstan

The development of breeding and seed production of oilseeds for Kazakhstan is a key direction aiming to reduce dependence on imported seeds, introduction of modern technologies for their cultivation and processing, as well as support sustainable development of the oil and fat sector ([Eurasian Economic Commission, 2023](#); [Shcherban and Shcherban, 2023](#)).

In Kazakhstan, 10 research institutes are engaged in research work on collection, evaluation, and development of new varieties of oilseed crops – soybean, sunflower, flax, rapeseed and safflower – of high yield potential and stress tolerance – drought, weather and climatic conditions and with high quality indicators.

In Kazakhstan, two institutes are developing heterotic hybrids in the east – “East Kazakhstan Agricultural Station” LLP (“EKAS” LLP) and “Experimental Station of Oilseed Crops” LLP (“ESOC” LLP). On the basis of these scientific institutes for the last five years, promising sunflower hybrids – *Avangard 2017*, *Agrobusiness 2050*, *Baikonur*, *Baiterek 17*, *Batyr*, *Arlan*, *Baiterek S*, *Dostyk UK* – have been created and recommended for production ([State register, 2024](#)). On the selection of sunflower varieties, research was conducted in LLP “Scientific and Production Center of Grain Farming named after A. Baraev” (“RPCGF” LLP) and LLP “Kostanay Scientific Research Institute of Agriculture” (“Kostanay SRIA” LLP). In the State Register of recommended agricultural crops of Kazakhstan 162 varieties and hybrids of sunflower are registered, 38 of them are of domestic selection ([Table 1](#)). The main directions of work on this crop are the creation of drought-resistant, herbicide-resistant, high oleic hybrids ([Sherban \*et al.\*, 2023](#)).

Oilseed flax is a popular crop in the market due to its valuable qualities and wide use in various industries, cosmetology and medicine ([Pomorova \*et al.\*, 2023](#)). The climatic conditions of Northern Kazakhstan meet the requirements for growing oilseed flax for both oilseeds and animal feed ([Singh \*et al.\*, 2019](#)). Rising export demand has driven an increase in flax crops in the Republic of Kazakhstan from 626 thousand hectares in 2015 to 1,496 thousand hectares in 2022. The study of flax collection material in the north of Kazakhstan is carried out by A. I. Baraev Research and

**Table 3.** Domestic safflower varieties recommended for production in Kazakhstan for the period 2015-2024.

Variety/hybrid	Year of admission	Originator
<i>Akhram</i>	2023	LLP «Aktobe AES»
<i>Nika-80</i>	2018	LLP «KazRIAPG»

Production Center of Grain Farming LLP» ([Oshergina and Ten, 2022](#)). Two organisations – “Karabalyk Agricultural Experimental Station” LLP (KAES LLP) and “Agricultural Experimental Station ‘Zarechnoye’ LLP (AES LLP “Zarechnoye”) – are engaged in the creation of oilseed flax varieties in the conditions of northern Kazakhstan ([Iskakov, 2023](#)). In recent years, such flax varieties as *Kustanay 11* and *Altyn* have been included in the register of breeding achievements of the Republic of Kazakhstan ([State register, 2024](#)).

In the State Register of Recommended Agricultural Crops of Kazakhstan registered 15 varieties of flax, 6 of them are domestic selection ([Tab. 2](#)).

Safflower may well replace sunflower as an oilseed crop in arid steppe regions. Since 2000, Kazakhstan has been one of the world’s five leaders in safflower production, and in 2010, with a yield of 122.24 thousand tons, it became the second after India. In addition to these countries, safflower is also actively grown in China, Uzbekistan, Ukraine, Australia, USA, Mexico, Argentina, Ethiopia and Tanzania. In Kazakhstan, safflower breeding is carried out by the Kazakh Scientific Research Institute of Agriculture and Plant Growing LLP (Almaty region), Krasnovodopad Agricultural Experimental Station LLP (South Kazakhstan region), Aktobe Agricultural Experimental Station LLP, Uralskaya Agricultural Experimental Station LLP. These research institutions have developed varieties *Center 70*, *Akmai*, *Irkas*, *Moldir 2008*, *Akhram*, *Nika 80*. Earlier safflower was cultivated mainly in the southern regions of Kazakhstan, but now this plant, owing to its adaptability and drought tolerance, is expanding into new agro-climatic zones in the northern and western regions. At present, safflower is widely cultivated in South Kazakhstan ([Zhamalbekov \*et al.\*, 2022](#)), Almaty ([Gatzke \*et al.\*, 2023](#)), Aktobe region ([Zhubanysheva \*et al.\*, 2023](#)) and Northern Kazakhstan ([Musynov, 2013](#)). In addition to increasing crop productivity, breeding efforts target improved seed quality ([Limaskaya \*et al.\*, 2023](#)) and development of drought- and salt-tolerant varieties ([Hajghani \*et al.\*, 2019](#)). Agronomic studies complement breeding programmes to selection developments to obtain potential yield ([Tamer \*et al.\*, 2021](#)).

In the State Register of Recommended Agricultural Crops of Kazakhstan registered 9 varieties of safflower, 7 of them domestic selection ([Tab. 3](#)).

In Kazakhstan, the scientists of “Baraev Scientific and Production Center for Plant Protection and Agriculture” LLP are developing spring rapeseed varieties ([Oshergina and Ten, 2021](#)). LLP Kazakh Research Institute of Agriculture and Plant Growing) and LLP “Karabalyk Agricultural Farm”. Varieties such as Maikudyk, Maily Dan, *Maily*, *Shalkar 39*, *Lipkar 2014*, *Osiris* ([State register, 2024](#)) were created and recommended

**Table 4.** Domestic rapeseed varieties recommended for production in Kazakhstan for the period 2015-2024.

Variety/hybrid	Year of admission	Originator
<i>Osiris</i>	2021	LLP «RPCGF A.I.Barayev»
<i>Lipkar 2014</i>	2017	LLP «Karabalyk AES»
<i>Shalkar 39</i>	2016	LLP «KazRIAPG»
<i>Maily Dan</i>	2016	LLP «RPCGF A.I.Barayev»
<i>Maikudyk</i>	2015	LLP «RPCGF A.I.Barayev»

**Table 5.** Domestic soybean varieties recommended for production in Kazakhstan for the period 2015-2024.

Variety/hybrid	Year of admission	Originator
<i>Severnoye siyanie</i>	2024	LLP «KazRIAPG», LLP «AES» Zarechnoye»
<i>Danelia</i>	2023	LLP «AES» Zarechnoye»
<i>Elmery</i>	2023	LLP «KazRIAPG»
<i>Tan</i>	2023	LLP «ESOC»
<i>Progress</i>	2023	LLP «ESOC»
<i>Alua</i>	2022	LLP «KazRIAPG», LLP «EKAES»
<i>Atameken</i>	2022	LLP «ESOC»
<i>Aisaule</i>	2021	LLP «KazRIAPG»
<i>Nur plus</i>	2021	LLP «ESOC»
<i>Otan Plus</i>	2021	LLP «ESOC»
<i>Aysere</i>	2020	LLP «KazRIAPG»
<i>Vostochnaya krasavisa</i>	2019	LLP «KazRIAPG», LLP «EKAES»
<i>Ivushka</i>	2018	LLP «KazRIAPG», LLP «Kostanay SRIA»
<i>Pamyat YCG</i>	2018	LLP «KazRIAPG»
<i>Akku</i>	2017	LLP «KazRIAPG»
<i>Birlik KV</i>	2017	LLP «KazRIAPG», LLP «EKAES»

for production. In rapeseed, the main direction of work is the creation of hybrids with low content of erucic acid.

51 varieties and hybrids of rape of which 6 are domestic selection are registered in the State Register of Recommended Agricultural Crops of Kazakhstan (Tab. 4).

The cultivated area of soybean in Kazakhstan for the last 10 years has increased more than 2.5 times from 53.6 thousand hectares in 2009 to 127.6 thousand hectares in 2022. The yield of the crop is in the range of 2.0 - 2.2 t/ha (Stat.gov.kz. 2022). Currently, 80 soybean varieties are registered in the State Register of Breeding Achievements allowed for use in the Republic of Kazakhstan, of which 28 are domestic varieties developed by LLP «KRIAPG», LLP «AES» Zarechnoye», LLP «EKAES» and LLP «ESOC» (State register, 2024). The main cropping region in the country is irrigated arable land in Almaty and Zhetysu districts (96 thousand hectares (Didorenko, 2020, 2021). The limiting factors for increasing cultivated areas in the Republic are such factors as vegetation period, photoperiodic sensitivity (Yerzhebayeva *et al.*, 2023) resistance to cracking and shattering, resistance to unfavorable climatic factors, frost, salt and drought resistance (Yerzhebayeva *et al.*, 2024; Didorenko *et al.*, 2025). The issues of anti-nutritional substances (Bulatova *et al.*, 2019) ], suitability for mechanized harvesting are being studied. (Kuzbakova *et al.*, 2022).

In the State Register of Recommended Agricultural Crops of Kazakhstan 84 soybean varieties are registered, 28 of them are of domestic selection (Tab. 5).

## 6 Conclusion

The oilseed crop market is highly dynamic. Demand for oilseed crops remains high. This drives expansion of acreage under high-value crops. In the future plans are in place to expand oilseed cultivation under oilseed crops in Kazakhstan to 4 million hectares, and the average yields to 1.5 t/ha. Kazakhstan remains the world's leading producer of oilseed flax. The existing challenges in diversifying domestic varieties of oilseeds are solved within the selection programs. The breeding objectives depend on the crop, cultivation zone and further use. In sunflower, priorities include creation of drought- and herbicide-resistant, high oleic hybrids. For soybean the main directions of work are photoperiodic neutrality, yield, drought resistance, reduction of anti-nutritional factors in seeds. rapeseed – development of low-erucic acid hybrids. In flax – increase of oil content, in safflower – drought resistance. At present, oilseed crop breeding is supported through the state target program of the Ministry of Agriculture of the Republic of Kazakhstan.

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