

## Aspects of legume growth in Ukraine

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**Abstract.** The cultivation of legumes in Ukraine is key for agriculture and the economy, as they are strategic crops for food security, export potential and sustainable development of the agricultural sector. The study aimed to examine the current state of legume cultivation in Ukraine and identify the main aspects that determine their production. Gross harvest, yields, planted areas, export dynamics and prices of such legumes as soybeans, chickpeas, beans and peas for 2015-2023 were analysed to address the set aim. The results of the study showed the stability and potential growth of legume production in Ukraine. Despite changes in the level of soybean exports, production and processing from year to year, there is a general upward trend. In 2023, soybean exports reached a record high of 3.6 million tonnes, a significant increase from the lowest level in 2021, when only 1.4 million tonnes were exported. As for peas, chickpeas and beans, their production in Ukraine reflected fluctuating trends. Pea production peaked in 2018 at 755 thousand tonnes, chickpea production reached its highest level in 2021 (93.4 thousand

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tonnes), and beans in 2020 (65 thousand tonnes). In the period from 2021 to 2023, prices for legumes in Ukraine showed steady growth, with chickpeas at 21.6 thousand UAH/t, beans at 33-35 thousand UAH/t, and peas at 8.1 thousand UAH/t. The price dynamics of soybeans also showed an increase to the level of 17.2-17.4 thousand UAH/t. The strategic directions identified in the study point to the need to invest in research, technological progress and infrastructure to ensure sustainability in legume production

**Keywords:** exports; acreage; yield; soy; chickpea; agricultural production

## INTRODUCTION

Legumes are an important component of the agricultural sector in many countries, and their cultivation is essential for the sustainable development of agriculture and the economy. The cultivation of legumes improves soil fertility, diversifies production, reduces environmental impacts and ensures food safety. In Ukraine, the cultivation of legumes creates new opportunities for exports and the development of the agricultural sector, contributing to the country's integration into global markets and ensuring economic stability.

Legumes are attracting considerable attention from researchers in agriculture and the food industry. These crops play a key role in the food, feed and agricultural-ecological sectors of Ukrainian agriculture. However, the area under legumes is insufficient, which may be a limiting factor for further development of legumes and utilisation of their full potential. Therefore, according to V. Mazur *et al.* (2021), when expanding sown areas, it is necessary to choose the right varieties, addressing current environmental conditions and biological characteristics of plants. The main criteria for choosing varieties are their yield, resistance to stress, height and other technological characteristics. In this context, it is necessary to address the creation of highly productive varieties of legumes, optimisation of the structure of sown areas and the development and implementation of scientific and innovative cultivation technologies based on the efficient use of life factors such as light, heat, moisture and nutrients, which will contribute to the maximum synthesis of organic matter and protein, as noted by N. Leschuk *et al.* (2022). In addition, in the context of climate change, it will be important to develop a unified agricultural policy to produce legumes.

Growing legumes requires a flexible approach to international competition to ensure food and environmental security for the modern globalised economy. These crops are important in the grain and fodder balance of Ukraine. According to I. Kulyk (2019), the reduction of raw material export and the development of advanced processing is strategically important for Ukraine. This will meet the needs of intensive livestock production with high-protein feed, create new jobs,

increase tax revenues, and ensure the country's food and environmental security. Many scientists emphasise the unique properties of legumes, which open wide opportunities in the processing industry – from various food products to the production of feed, medicines and cosmetics. Therefore, Y.A. Yigezu *et al.* (2021), B. Desalegn *et al.* (2022) and A. Singh *et al.* (2023) argue that there is a need for the strategic development of agricultural technologies focused on global trends in the cultivation and fertilisation of these crops.

To ensure maximum productivity with minimal environmental impact, it is important to study and implement modern agricultural technologies, such as agricultural operations, irrigation systems, fertilisers and plant protection. O. Krupchan & V. Korol (2022) emphasise the need to ensure high-quality standards for legume products, which affects their perception of the world market. At the same time, there is a need to support small and medium-sized farms, which typically grow legumes, to ensure their sustainable development and market competitiveness. E. Lagerquist *et al.* (2024) note that this may include providing access to financial resources, support for the introduction of new technologies, training and advice on cultivation and farm management. In addition, the need to adopt environmentally friendly approaches to growing legumes is key to preserving natural resources and ensuring sustainable development of the agricultural sector. W.F. Abobatta *et al.* (2022) and S. Kodgire *et al.* (2022) emphasise that such measures will not only preserve the environment but will also contribute to ensuring productivity and crop quality, which are important aspects of modern production.

In the context of the analysis of data from various authors, it is worth noting that there is a gap in the collection and analysis of data on production, available acreage and yields of legumes in Ukraine. Information on the exact volumes and dynamics of their cultivation is important for effective agricultural policy planning, development of agricultural technologies and food security. The lack of such data makes it difficult to analyse trends in legume production, identify problem areas and develop strategies to address them. Therefore,

the study aimed to collect and systematise the data on the cultivation of legumes in Ukraine and identify key aspects of their production. To achieve this goal, the following tasks were set: to analyse the current state of legume cultivation, evaluate existing methods of cultivation, and identify strategic directions for increasing the sustainability and development of Ukrainian agricultural production in the field of legume cultivation.

## MATERIALS AND METHODS

The theoretical segment of the study addressed achievements in the field of agrarian development and the field of research on the problems of transformations in agricultural production and its sale. In addition, the study used statistics from the United Nations (2024) and Food and Agriculture Organization (n.d.), the official statistical body of the European Union – Eurostat (2023) and Statista (2024) websites, which provide access to statistics from various sectors. The research materials were analysed using the method of comparison and grouping, as well as the abstract and logical method, which was aimed at studying the current state, problems and prospects of growing legumes in Ukraine.

The study used a range of methods: generalisation – when working with literary sources to systematise and summarise information, the dactylic method – to study the patterns, state and prospects of growing legumes in Ukraine, grouping – to study the totality of data and their logical combination, statistical methods – to quantify data and analyse them statistically. The production of legumes in the modern Ukrainian agricultural sector was addressed to analyse statistical data on cultivation volumes, yields and areas, according to the State Statistics Service of Ukraine (n.d.). The data on exports of legumes obtained from the Ministry of Agrarian Policy and Food of Ukraine (2024) were also included. The use of these data was justified by their completeness and reliability, as they are officially collected and confirmed by government agencies.

The following indicators were analysed to determine the state and prospects of growing legumes in Ukraine: dynamics of gross harvest, yields and sown areas of such crops as soybeans, chickpeas, peas and beans, dynamics of changes in the price of legumes on the market, as well as indicators of their production, processing and exports for the period 2015-2023. In addition, the main agrotechnical methods for growing these crops and the existing market and legal requirements for the quality of their products in Ukraine are identified. A SWOT analysis was conducted to identify the strengths and weaknesses of the legume sector and to identify existing opportunities and threats to

substantiate strategic directions for increasing the sustainability and development of Ukrainian agricultural production. The obtained research results were processed for reliability by applying the multivariate method of MANOVA analysis of variance using Microsoft Excel software and the Statistica 10 software package. Differences in the results obtained are possible at a significance level of  $P \leq 0.05$  according to the Student's criterion.

## RESULTS

The Food and Agriculture Organization (n.d.) (FAO) recognises legumes as key food crops that play an important role in meeting the ever-growing food needs of the global population. Beans, chickpeas, peas, soybeans and lentils are the most common legumes in the world. At the same time, legumes used for harvesting green fruits (such as green peas and green beans) are more often classified as vegetable crops.

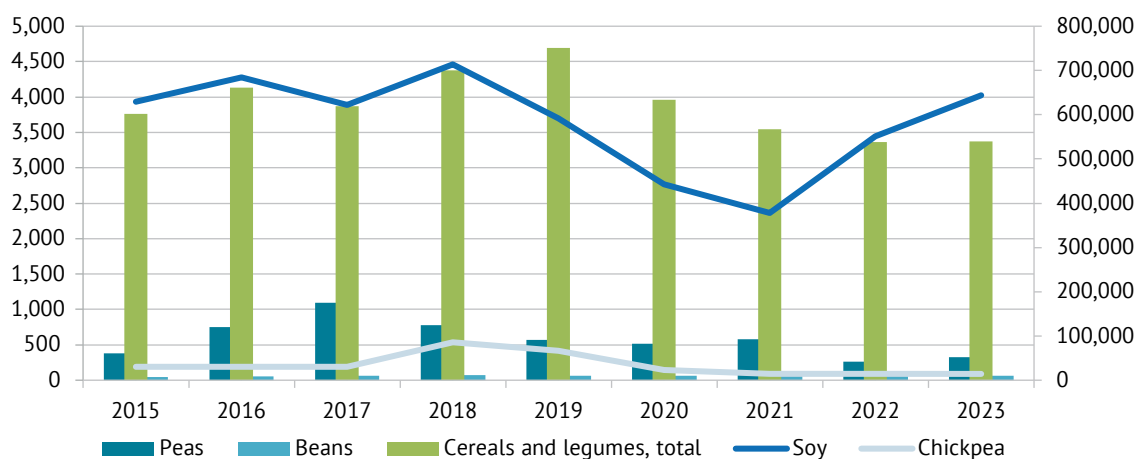
Ukrainian agribusinesses are showing an active interest in growing legumes, including soybeans, peas, chickpeas and beans, which demonstrates their popularity among agricultural producers. It is worth noting that growing legumes in Ukraine is a complex and multifaceted process that includes a range of agronomic practices that contribute to the successful cultivation of these crops. This process begins with the selection of the right variety, which is based on the individual requirements of the climate and soil conditions of the region, as well as yield and disease and pest resistance. Soil preparation before sowing is an important step, which includes tilling the soil and applying the necessary fertiliser. Legumes are sown at the optimum sowing density and seeding depth to ensure healthy growth and development of the plants. Crop care involves various activities such as weed control, fertilisation, watering and protection against pests and diseases. Plants are cared for throughout the growing season to ensure maximum yield and product quality. The final stage is harvesting, which requires care and precision to maintain grain quality. After harvesting, the crops are stored and further processed for use in various industries, such as the food industry, feed production and others. All these aspects of agricultural technology together contribute to the successful cultivation of legumes in Ukraine, ensuring high yields and product quality, as well as contributing to the sustainable development of the agricultural sector (Dankevych *et al.*, 2022).

According to many scientists, modern legume cultivation technologies in Ukraine are constantly evolving and include several innovative approaches that help to increase yields, reduce costs and improve product quality. Some of these include developing legume

varieties that are suitable for different soil types and using modern genetic technologies to develop new hybrids and varieties of legumes that have improved properties such as resistance to stress, diseases and pests, and higher yields. The use of agricultural informatics and modern data collection and analysis technologies, such as remote sensing, agricultural drones and sensor technology, allows farmers to obtain detailed information about the condition of fields and plants, which helps them make more informed decisions on agricultural management. The use of precision farming technologies, such as GPS systems and autopilot tractors, reduces fuel and fertiliser costs and improves the accuracy of agricultural operations. Development of biological farming, including the use of biological methods of pest and disease control, green fertilisers and biological control agents, which help to preserve soil fertility and reduce environmental

impact. These modern technologies help Ukrainian farmers increase the efficiency of legume cultivation, reduce environmental impact and increase the profitability of agricultural production (Kravchenko *et al.*, 2019; Leschuk *et al.*, 2022).

According to the State Statistics Service of Ukraine (n.d.), the gross harvest of cereals and legumes from 2015 to 2023 experienced significant fluctuations. Thus, the highest gross harvest was recorded in 2019 (751 million tonnes), and the lowest in 2021 (566 million tonnes). Peas, chickpeas and beans show a general downward trend in gross harvest during the period under review. Soybeans, on the other hand, were growing steadily. Significant fluctuations in the gross harvest of each crop can be attributed to factors such as weather conditions, pests and diseases, changes in agricultural technology and practices, as well as pandemics and full-scale war (Fig. 1).

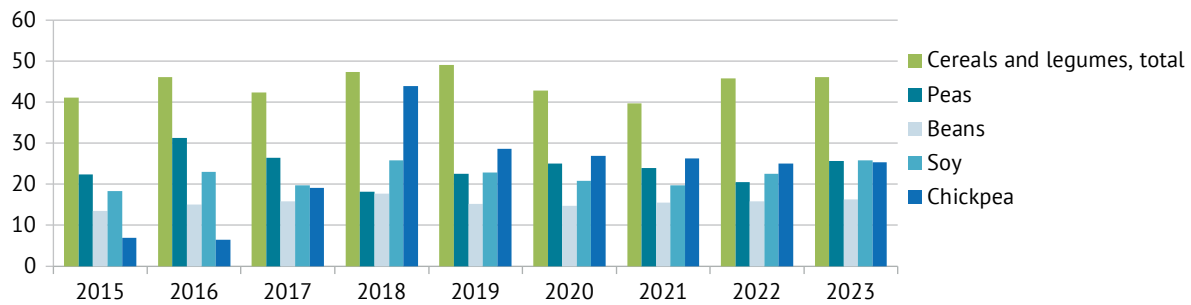


**Figure 1.** Gross harvest of legumes in Ukraine, thousand tonnes

**Source:** compiled by the authors based on the State Statistics Service of Ukraine (n.d.)

The analysis of yields shows that for peas it varies from 22.4 hwt/ha in 2015 to 25.7 hwt/ha in 2023. Bean yields range from 13.5 hwt/ha in 2015 to 15.9 c/ha in 2022. The highest yield of beans was recorded in 2018 – 17.7 hwt/ha. It is worth noting that chickpea yields have been increasing over the years, and in 2023, they reached 25.4 centners per ha, up from 6.49 in 2016. Soybean yields ranged from 19.7 hwt/ha in 2017 to 25.8 hwt/ha in 2018 and 2023. In a comparison between crops, pea and soy yields are higher than beans. In general, it is worth noting that there is a general tendency to increase the yield of legumes over the years, especially in the case of soybeans (Fig. 2). The study determined that the sown area of legumes tends to

decrease during the study period. From 2015 to 2023, the total area under legumes decreased from 14,739 thousand ha to 12,357.2 thousand ha. Considering the sown areas for each legume crop by year, it is possible to state that the sown areas changed significantly. For peas, they ranged from 423 thousand ha in 2018 to 139.3 thousand ha in 2023. Bean acreage ranged from 36 thousand ha in 2015 and 2016 to 42 thousand ha in 2019 and 2020. The area under Chickpea also reached its lowest point in 2023, amounting to 5.3 thousand ha. However, soybean acreage is growing over time, from 1,323.2 thousand ha in 2020 to 1,780 thousand ha in 2023. The general trend is that soybeans have seen the largest increase in area (Table 1).



**Figure 2.** Yield of legumes in Ukraine, hwt/ha

**Source:** compiled by the authors based on the State Statistics Service of Ukraine (n.d.)

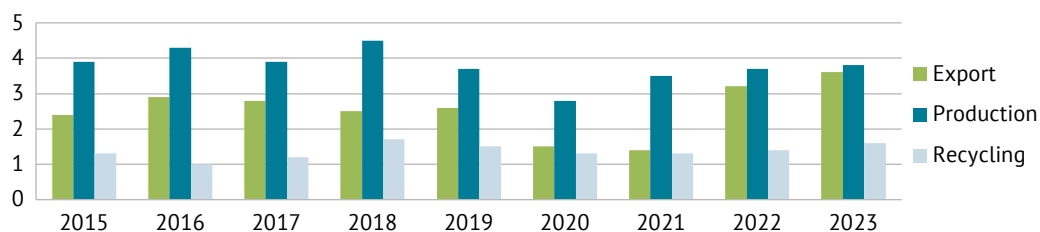
**Table 1.** Sown areas under legumes in Ukraine, thousand ha

Year	Cereals and legumes, total	Peas	Beans	Soy	Chickpea
2015	14,739	173	36	2,158	7
2016	14,401	237	36	1,869	7.3
2017	14,607	412	41	1,994	13.7
2018	14,848	423	40	1,709	35
2019	15,318	258	42	1,609	31
2020	14,759.1	237.7	42	1,323.2	20
2021	10,203.2	242.8	41	1,183.4	9.1
2022	12,171.1	131.3	37.5	1,558.9	8
2023	12,357.2	139.3	37	1,780	5.3

**Source:** compiled by the authors based on the State Statistics Service of Ukraine (n.d.)

When analysing the dynamics of soybean exports, production and processing data over the years, certain fluctuations can be noted. The highest exports were recorded in 2023 (3.6 million tonnes), and the lowest in 2021 (1.4 million tonnes). The highest volume of soybean production was set in 2018 (4.5 million tonnes), and the lowest – in 2020 (2.8 million tonnes). Soybean processing volumes also fluctuated over the years, with

the highest value in 2023 (1.6 million tonnes) and the lowest in 2016 (1 million tonnes). Although exports, production and processing volumes of soybeans may fluctuate from year to year, they have been increasing over the period of observation. This may indicate an increase in demand for soybeans, both as an export commodity and for domestic consumption or processing in Ukraine (Fig. 3).



**Figure 3.** Production, exports and processing of Ukrainian soybeans, million tonnes

**Source:** compiled by the authors based on the State Statistics Service of Ukraine (n.d.)

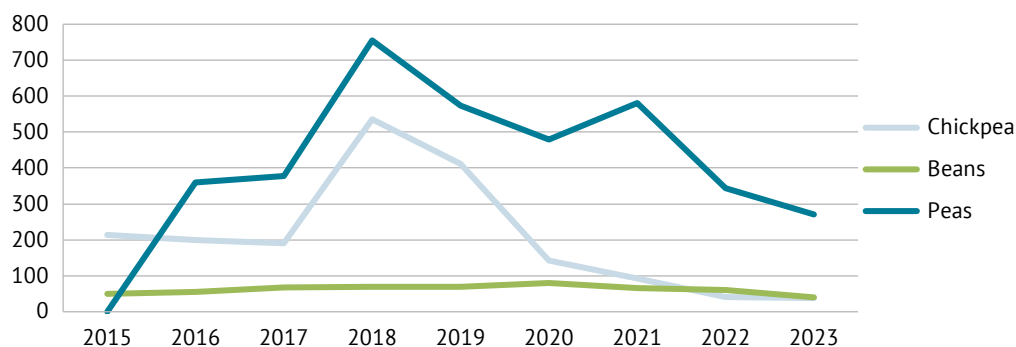
In the period 2015-2023, the production of peas, chickpeas and beans in Ukraine showed growth and decline, ranging from small volumes to impressive figures. Thus, in 2018, there was a significant increase in pea production – 755 thousand tonnes, while chickpeas and beans had lower volumes compared to previous years – 535.6 thousand tonnes and 70 thousand

tonnes, respectively. In 2020, pea production declined to 142.2 thousand tonnes, but in the following years, pea production recovered and increased to 344.2 thousand tonnes in 2022 and 270 thousand tonnes in 2023, although it remained lower than in previous years.

Chickpea production also experienced a decline in 2020, falling to 142.2 thousand tonnes. However, in

2021, chickpea production increased again, reaching 93.4 thousand tonnes, but declining to 38 thousand tonnes in 2023. Bean production in 2020 totalled 80 thousand tonnes, which is stable compared to previous years. However, in 2021, bean production decreased to

65 thousand tonnes, and in 2022 and 2023 it continued to decline to 60 thousand tonnes and 40 thousand tonnes, respectively. The analysis described the dynamics of the production of these important crops in Ukraine (Fig. 4).

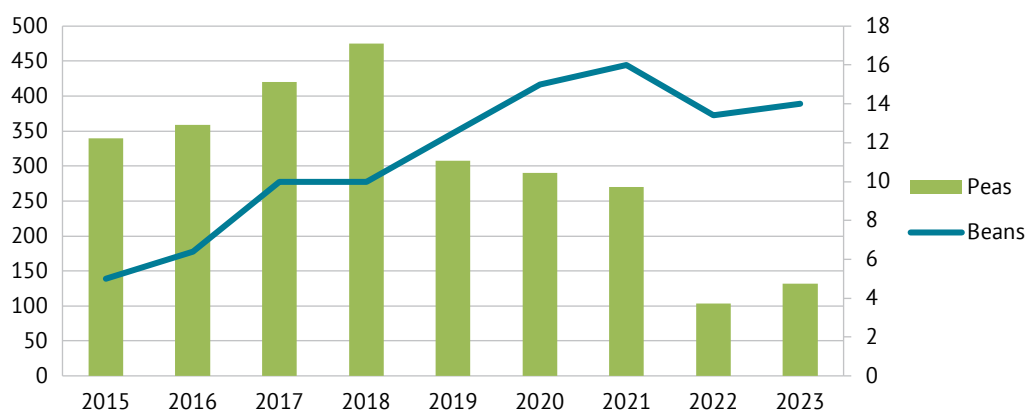


**Figure 4.** Production of Ukrainian peas, chickpeas and beans, thousand tonnes

**Source:** compiled by the authors based on the State Statistics Service of Ukraine (n.d.)

Analysing the export data, it is possible to argue that the overall trend of pea exports to Ukraine is declining. After stable exports in 2015-2018, pea exports declined sharply in 2019 and continued to decline until 2023, reaching 132 thousand tonnes, although there were some fluctuations in this process. Exports of beans also show some volatility, but the overall trend is upward. The volume of bean exports grew from 2015

to 2021 but then declined in 2022 to 13.4 thousand tonnes. However, in 2023, there was a slight recovery in bean exports to 14 thousand tonnes. (Fig. 5). Such fluctuations can be influenced by several factors, including internal and external factors such as yields, global market demand, tariffs, trade agreements and the war, which has significantly reduced legume acreage, yields and production.



**Figure 5.** Exports of peas and beans from Ukraine, thousand tonnes

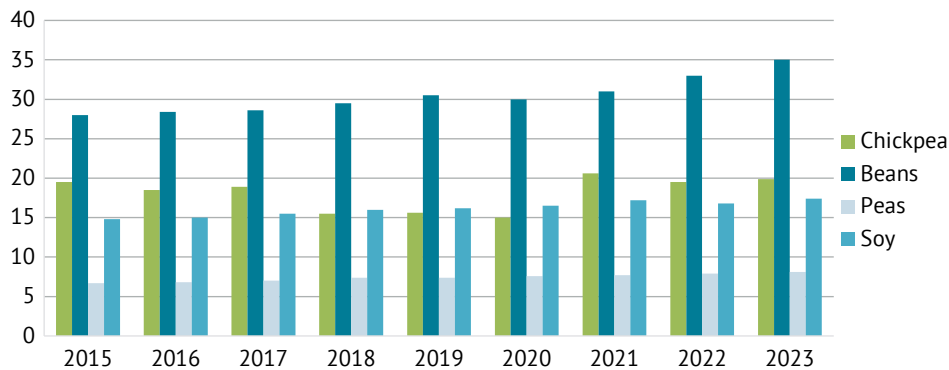
**Source:** compiled by the authors based on the State Statistics Service of Ukraine (n.d.)

In terms of legumes, the period from 2015 to 2023 is characterised by different price dynamics for chickpeas, beans, peas and soybeans. Chickpea prices remained stable for most of the period, with minor fluctuations in 2015-2017. However, in 2021, there was a significant increase in prices – up to 21.6 thousand UAH/t, which may be due to increased demand for chickpeas. Bean prices also remained stable for the majority of the

period, with small price changes in 2019 and 2020. However, from 2021 to 2023, bean prices showed a slight increase to 33-35 thousand UAH/t, which may be due to increased demand or limited supply. Pea prices have remained stable for most years, with an increase in 2021-2023 to 8.1 thousand UAH/t. Soybean prices showed a stable trend for the majority of the period with slight fluctuations. However, from 2021

to 2023, soybean prices showed a slight increase to 17.2-17.4 thousand UAH/t, which may be due to the

increased demand for this product for food or animal feed production (Fig. 6).



**Figure 6.** Price dynamics of legumes, thousand UAH/t

**Source:** compiled by the authors based on the State Statistics Service of Ukraine (n.d.)

A SWOT analysis was carried out to identify the strengths and weaknesses of the legume industry and to identify existing opportunities and threats (Table 2). It is worth noting that among the strengths is the fact that Ukraine has significant land resources and favourable natural conditions for growing legumes. This creates great opportunities for the development of this industry. Ukraine can use its legumes as an export commodity, which would expand markets and provide additional income for agricultural producers. Growing legumes helps maintain soil fertility and reduce erosion, which is important for sustainable agriculture and environmental protection. However, the disadvantages include the fact that legumes are subject to

weather conditions, which can lead to crop instability and production losses. In some cases, legumes may be less technologically advanced than other crops, which may limit their productivity and competitiveness. Problems with marketing and sales of products in the domestic and foreign markets can be an obstacle to the development of the industry and reduce the motivation of farmers to grow legumes. However, the use of modern agricultural technologies and innovative approaches can increase the efficiency of legume cultivation and ensure more stable production, while the growing demand for Ukrainian legumes in foreign markets can create new opportunities for expanding exports and sales geography.

**Table 2.** SWOT analysis of legume growth in Ukraine

Advantages	Disadvantages
Great potential for development Cultivation traditions Export potential Ecologic value	Dependence on weather conditions Low technology Sales problems
Possibilities	Threats
Growth in demand Implementation of new technologies Export development	Competition in the global market Negative environmental and climate change Uncertainty about the political and economic climate

**Source:** compiled by the authors

Based on the research on the aspects of legume cultivation, the following strategic directions can be considered to increase the sustainability and development of Ukrainian agricultural production:

- investing in research and breeding of new varieties of legumes that are resistant to stressful conditions, diseases and pests, as well as have high yields and quality;
- the use of advanced agricultural technologies, such as precision farming and biological methods of

pest and disease control, will help to increase yields and product quality;

- increasing the production of legumes for export to foreign markets will diversify sales markets and provide additional income for agricultural producers;

- increasing the consumption of legumes in the domestic market by focusing on their health benefits and properties will help develop the domestic market and increase the importance of these crops in the population's diet;

→ supporting farmers in growing legumes by providing subsidies and financial support for the development of this industry will help to increase production;

→ the development of modern storage and processing systems for legumes will help maintain their quality and provide additional added value.

These strategic directions will contribute to sustainable development and increase the productivity of Ukrainian legume production.

Thus, the overall analysis of the legume sector in Ukraine reflects a complex but promising area of the industry. Given the vast potential of land resources, favourable natural conditions and export opportunities, as well as challenges related to weather, sales and war, the development of legumes requires a comprehensive approach and the introduction of modern agricultural technologies. Continued investment and innovation will contribute to the sustainable development of the agricultural sector and ensure food security in the country.

## DISCUSSION

In the Ukrainian agricultural sector, the cultivation of plant-based food products is an important industry that determines the quality and sustainability of the food supply. The favourable natural and climatic conditions, vast land area and long history of agricultural development provide a strong potential for efficient cultivation of various crops, including legumes. However, due to global changes, economic instability, and environmental and geopolitical difficulties, the current challenges facing the Ukrainian agricultural sector require careful consideration to ensure the sustainable development of plant-based food production (Rawtani *et al.*, 2022).

Legumes are valuable in global agriculture, providing valuable protein products to the world's population, as well as contributing to soil fertility and sustainable development of the agricultural sector. Legumes such as soybeans, peas, beans, lentils and others are important crops for human consumption and as animal feed. They are rich in protein, carbohydrates, vitamins and minerals and have significant potential for high-quality products. However, growing legumes requires an integrated approach and careful consideration of various aspects, including variety selection, tillage, fertilisation, weed, disease and pest control, and optimal harvest and storage times (Kebede, 2021; Freidenreich *et al.*, 2022). In this context, it is worth noting the most effective methods and strategies that will help farmers achieve high results and ensure a stable harvest of legumes. M. Behnassi & M. El Haiba (2022) addressed the environmental benefits of growing legumes and emphasised their important role in biodiversity conservation. The authors argue that legumes

contribute to increasing the richness of vegetation cover and providing conditions for the development of various plant and animal species. This is considerable for maintaining ecosystems and preserving natural environments. Scientists also emphasise the restorative properties of legumes on soils, which helps maintain fertility and ecosystem stability. This contribution to biodiversity conservation makes legumes an important and environmentally sustainable component of agriculture.

In Ukraine, legumes are one of the most important crops. These crops are known not only for their high yields but also for their ability to fix nitrogen from the air and improve soil structure. These functions make legumes important components for supporting sustainable and resilient agriculture. Expanding the area under legumes can help improve soil quality, increase yields and reduce the use of chemical fertilisers, which will have a positive impact on environmental performance and economic efficiency of agriculture (Kulyk, 2019). In modern Ukrainian agriculture, growing legumes is becoming particularly important given their high economic value on the global market, which has encouraged agricultural enterprises and farms to expand the area under these crops and introduce modern cultivation technologies (Shikovets *et al.*, 2020). However, several specific aspects affect the cultivation of legumes in Ukraine and, thus, are noteworthy. These include climatic and soil conditions, availability of appropriate infrastructure, high competition with other crops, and problems with pests and diseases. Therefore, efficient legume crop production requires an integrated approach that includes modern agricultural technologies, research and careful production planning (Danko *et al.*, 2020; Roberts, 2021).

The study confirms the opinion of I. Irtysheva *et al.* (2023), who emphasise that in modern conditions, farmers need not only to increase the cultivation of legumes but also to ensure their sustainability and environmental safety. The authors also emphasise the strategic importance of this for ensuring food security and sustainable development of the country. Y. Wang *et al.* (2022) emphasise that in addition to increasing the volume of legumes grown, it is important to ensure their adaptability to current market requirements and environmental standards. The introduction of such crops can help improve soil quality, reduce negative environmental impacts and increase demand for environmentally friendly products, which is also highlighted in the study. Another proof of this and confirmation of the results obtained is the opinion of C. van der Giesen *et al.* (2020) and T. Glauben *et al.* (2022), who believe that the expansion of the area under organic legumes is becoming a key direction for the development of the



agricultural sector. This is not only in line with global trends in ecological production but also increases the competitiveness of agricultural products on the international market. Moreover, similar data are demonstrated by Y. Wang *et al.* (2021) and L.M. Pörtner *et al.* (2022), according to which there is a gradual increase in the production of plant legumes in agriculture. Farmers and peasants are increasingly interested in using modern agricultural technologies, improving plant varieties and using land resources more efficiently. The development of new varieties of legumes can be used to improve yields, pest and disease resistance, and adapt to climate change.

Growing legumes in modern conditions also requires innovative strategies and modern approaches. According to the findings of E. Shahini *et al.* (2023), the introduction of agricultural intelligence and modern irrigation technologies increases the yield of legumes by 15% and reduces irrigation costs by 20%. In addition, modern genetically modified varieties provide high resistance to stressful conditions, which leads to improved quality of the products grown. L. Gutierrez *et al.* (2022) also consider the introduction of modern technologies, rational use of natural resources and expansion of the range of legume cultivation as key factors of efficiency and sustainability in this industry. Supporting innovation through financial support and the creation of specialised centres is an important step in the development of the sector, where advanced technologies are constantly being improved and introduced. I. Salim *et al.* (2019) point out the importance of considering socio-economic aspects, such as military conflicts, which have a significant impact on the agricultural sector due to loss of control over land, economic instability and mass migration. However, the increase in the value of legume exports indicates the successful adaptation of the Ukrainian agricultural sector to international market conditions, which is also confirmed by the study. Another confirmation of the study can be found in the statements of D. Fiott (2022) and J.H.P. Pires Eustachio *et al.* (2023), according to which adherence to the principles of sustainable use of natural resources and interaction between business entities expand prospects for legumes. Reducing the negative impact on the environment and avoiding the risks associated with market lop-sidedness are important aspects for the sustainable development of this industry. At the same time, the active development of export opportunities is a key element in attracting foreign investment and expanding markets. This opens up new opportunities for legume producers in the international market and increases the competitiveness of their products.

Summing up, it is possible to note that in the context of active development and transformation of the Ukrainian agricultural sector, the important role of legumes as a key element of the national economy cannot be underestimated. These crops not only ensure the stability of the economic situation in the country but also have a significant potential to influence global economic and environmental challenges. The identified strategic directions of development can significantly improve the state and prospects of legume production in Ukraine. These strategies, which focus on sustainability and coherent growth, are key to the sustainable and competitive development of the legume sector in the global economic environment. The inclusion of legumes in such strategies can significantly increase the level of development of the agricultural sector and contribute to the economic growth of Ukraine as a whole. In the global economic environment, stability and readiness to adapt are critical factors for successfully overcoming challenges and seizing opportunities internationally.

## CONCLUSIONS

Legumes in Ukraine play an important role in agriculture and food security. The analysis of yields shows some stability and even an upward trend, especially in the case of soybeans. An analysis of the dynamics of soybean exports, production and processing suggests that despite fluctuations in volumes over the years, there is a general upward trend. In 2023, soybean exports reached their highest level of 3.6 million tonnes, compared to the lowest volume in 2021, which was only 1.4 million tonnes. Soybean processing volumes increased, reaching their highest level in 2023, at 1.6 million tonnes as for peas, chickpeas and beans, their production in Ukraine showed different growth and decline trends during the period 2015–2023. Peas were subject to fluctuations in production, with the highest volume in 2018 at 755 thousand tonnes. Chickpea production was the highest in 2021 at 93.4 thousand tonnes, and beans in 2020 (65 thousand tonnes).

In the period from 2021 to 2023, prices for legumes in Ukraine showed steady growth. Thus, the price of chickpeas rose to 21.6 thousand UAH/t, the price of beans showed an increase to 33–35 thousand UAH/t, and the price of peas rose to 8.1 thousand UAH/t. The price dynamics of soybeans in Ukraine were stable with slight fluctuations, and in the period from 2021 to 2023, there was a certain increase in prices to the level of 17.2–17.4 thousand UAH/t, which indicates an increase in demand for these crops.

The SWOT analysis of legumes in Ukraine has highlighted several strengths and weaknesses, as well as identified opportunities and threats. For example, the

cultivation traditions, export opportunities and environmental value of legumes create great potential for development. However, dependence on weather conditions, low technology, sales problems and other factors pose challenges to the sustainable development of the sector. In this context, investing in research and breeding of new varieties, use of advanced agricultural technologies, development of export and domestic markets, support for farmers and development of storage and processing systems are key strategies for achieving

success in legumes. Further research is needed to analyse market trends and demand for legumes both in Ukraine and internationally to develop strategies for optimal production, marketing and export.

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#### CONFLICT OF INTEREST

None.

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## Аспекти вирощування зернобобових культур в Україні

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**Анотація.** Вирощування зернобобових культур в Україні є ключовим для сільського господарства та економіки, оскільки вони є стратегічними культурами для продовольчої безпеки, експортного потенціалу та сталого розвитку сільськогосподарського сектору. Мета дослідження полягала у вивченні поточного стану вирощування зернобобових культур в Україні та виявленні основних аспектів, які визначають їх виробництво. Для досягнення поставленої мети проаналізовано валовий збір, урожайність, посівні площі, динаміку експорту та цін таких зернобобових культур, як соя, нут, квасоля та горох за період 2015-2023 рр. Результати дослідження показали стабільність та потенційне зростання виробництва зернобобових культур в Україні. Незважаючи на зміни в рівні експорту, виробництва та переробки сої з року в рік, спостерігається загальний тренд їх збільшення. У 2023 році експорт сої досяг рекордного показника – 3,6 млн т, що є значним зростанням у порівнянні з найнижчим показником у 2021 році, коли було експортовано лише 1,4 млн т. Щодо гороху, нуту та квасолі, їх виробництво в Україні відображало тенденції коливання. Зокрема, максимум виробництва гороху припав на 2018 рік і становив 755 тис. т, виробництво нуту досягло найвищого рівня у 2021 році (93,4 тис. т), а квасолі – у 2020 році (65 тис. т). У період з 2021 по 2023 роки ціни на зернобобові культури в Україні показали стійке зростання, зокрема, ціна на нут становила 21,6 тис. грн/т, на квасолі – 33-35 тис. грн/т, на горох – 8,1 тис. грн/т. Цінова динаміка сої також показала зростання до рівня 17,2-17,4 тис. грн/т. Стратегічні напрями, визначені у дослідженні, вказують на необхідність інвестування у наукові дослідження, технологічний прогрес та інфраструктуру для забезпечення сталості у вирощуванні зернобобових культур

**Ключові слова:** експорт; посівні площі; урожайність; соя; нут; сільськогосподарське виробництво