30 KB years

TURKEY AGRICULTURAL

OUTLOOK FIELD STUDY

2024

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Dear Stakeholders,

As the Credit Bureau of Turkey (Kredi Kayıt Bürosu – KKB), we have been operating for 30 years with the responsibility that comes from our central role in addressing the shared needs of the financial system. We consider it one of our core responsibilities to offer innovative services that contribute to both social and sectoral development.

With this understanding, we developed the Agricultural Loan Evaluation System (TARDES) in 2013 to facilitate access to finance in the agricultural sector—an area of strategic importance for our country. As of 2024, TARDES continues to create significant added value by providing agricultural data and credit analysis support to banks. This system has not only enabled financial institutions to make more accurate decisions but also allowed for more efficient resource allocation.

Our services for the agricultural sector are not limited to technology and data infrastructure. Since 2019, we have also been conducting Agricultural Outlook Field Research studies to closely monitor industry developments and offer more qualified solutions. These studies provide valuable insights to the public and serve as important reference materials for decision-makers across academia, public institutions, commerce, and finance-playing a key role in the transformation of the agricultural sector.

We would like to extend our sincere thanks to the Frankfurt School of Finance & Management for preparing the content of this report.

As KKB, we firmly believe in the strategic role of the agricultural sector in Turkey's economic and social development. With this in mind, we hope that the 2024 edition of the Turkey Agricultural Outlook Field Research Report will offer meaningful contributions to the sector.

Kind regards,

Gökhan Şahin
General Manager
Kredi Kayıt Bürosu

1. Executive Summary

Kredi Kayıt Bürosu (KKB) is Türkiye's first and only credit bureau, responsible for collecting credit and risk data of all individual and legal persons in Türkiye and sharing with other stakeholders, primarily financial institutions. Aside from its core mission, KKB also develops innovative products and services aimed at increasing access to credit and financing, as well as the digital literacy levels of different segments of society. Access to finance is of strategic importance for the agricultural sector, both for the sustainability of rural welfare, and for the food security in Türkiye and the surrounding region.

KKB's TARDES and ÇKS services facilitate access to finance for the agricultural sector. Developed in 2013, the Agricultural Loans Assessment System (TARDES) has been providing agricultural data and credit analysis services to 10 banks as of 2024. To date, banks have carried out 3 million credit limit assessments of farmers through TARDES, leading to the provision of over 500 billion TL in credits. The system has significantly increased the productivity of financial institutions in terms of capital, time and labour. In addition to TARDES, KKB also acts as an intermediary between financial institutions and the Ministry of Agriculture and Forestry in providing the Farmer Registration System (ÇKS), which registers all plant producers in Türkiye.

KKB has been conducted annual "Agricultural Outlook Field Surveys" since 2019. The field surveys contribute to the improvement of the quality of its services for the agricultural sector, as well as the development of new services, while also providing the public with information of sectoral developments. The number of academic, commercial, financial and public (policy development) studies utilising these surveys is increasing day by day. In addition to field surveys, KKB also prepares sector-specific information and research reports and shares them with banks, financial institutions and the public. All our publicly available agricultural publications are available via the TARDES page on our website. All feedback and requests related to our publications are welcomed and taken into consideration by our institution.

KKB
KREDİ KAYIT BÜROSU

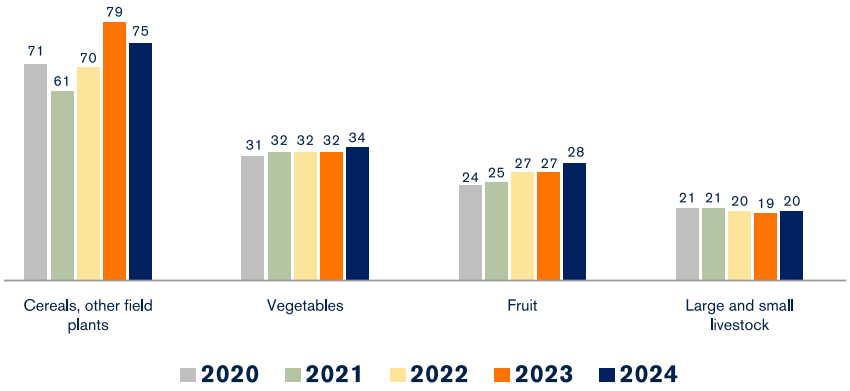
1.1. Sectoral Macro Outlook

Agricultural production is no longer increased by expanding the area, but rather by improving "productivity". A recent academic study analysing the global increase in production over the last 60 years reveals the increase in productivity to be due more to higher yields per unit area than increased cultivation area. The most significant productivity increase has realised in cereal and oil crops segments.

Global agriculture and food prices have reached historic highs in the aftermath of the pandemic. FAO's Food Price Index, which was declining before 2020, started on an upward trajectory as a result of the pandemic, and the subsequent regional tensions and conflicts around the world. The index seems to have been in search of a downward balance for the last 2 years, however, a return to pre-2020 levels seems unlikely in the short term due to increasing pressure of climate change and a high US dollar index (DXY). Global agricultural output increased by 2.9 percent per capita between 2020 and 2023, while agricultural and food exports increased by only 1.7 percent. This was attributed to the 31 percent increase in cost of agricultural and food imports over this 3-year period. The depreciation of other currencies against the strong dollar provides more income to exporters, while placing greater burdens on importers. Therefore, if productivity and output growth cannot be achieved in trade-intensive products, prices are likely to keep rising. It is hoped that the ongoing attempts to end the war between Russia and Ukraine at the time of writing of this report may positively impact inflation in the coming period.

The Turkish agricultural sector has been able to ensure national food security despite various challenges in the past 4 years. Local production has continued to rise, despite the 2020 pandemic, the severe droughts in 2021, the Russia-Ukraine war in 2022 and the earthquake that affected 11 provinces in 2023. Cereal and field crops stabilized in 2024 after a historic harvest in 2023, while vegetables and fruit production continue to rise. In livestock, recent stagnation in animal numbers has increased the importance of product efficiency per animal. Overall, despite the contractionary macroeconomic measures in 2024, the agricultural sector **has outperformed the national GDP, achieving a real growth of 3.9 percent**. Türkiye ranks 11th in total GDP, according to purchasing power parity, 9th in agricultural GDP and 19th in agricultural exports. Our country provides food to 85 million citizens, 4 million immigrant guests and 60 million tourists each year, and exports agricultural and food products to more than 120 countries. On the other hand, the high global inflation has increased the cost of traded products. Between 2020 and 2023, Türkiye's agricultural imports increased by 11 percent in quantity, but 54 percent in value. In the same period, our "net exporter"

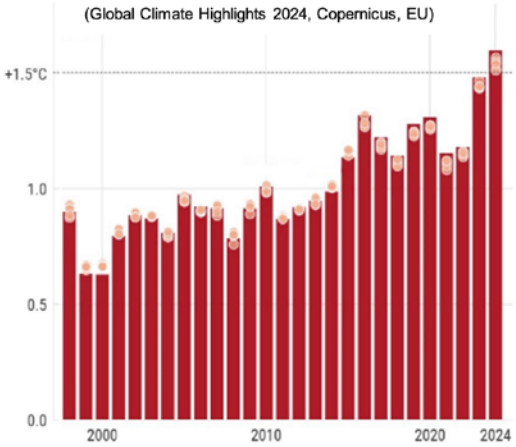
Türkiye Agricultural Production
(million tonne/million head*)



position was maintained due to a considerable (33%) increase in export quantities. Among the imported goods, "protein and fat" sources continue to be the area requiring balance in product composition. In the long term, policies and projects focused on increasing "sustainability" and "productivity" in agriculture will be of strategic importance.

It is evident that the second Donald Trump presidency in the United States will have an impact on all sectors, including agriculture. As predicted in our previous research report, the farmers' protests witnessed across Europe in 2023 have contributed to the rise of far-right and protectionist parties. The reelection of Donald Trump as US president and his party's majority in Congress should not be read in isolation from the situation in Europe. Indeed, the policy proposals of Trump and the rising protectionist parties in Europe regularly overlap, calling for **a relaxation of climate and environmental rules, the halt of migration to the West, and trade and fiscal protectionism**. As soon as he took up office, Trump signed a decree to withdraw from the Paris Climate Agreement, and announced the imposition of additional tariffs on his four largest trading partners: Mexico, Canada, China and the European Union, the first three of which are the United States' largest agricultural trading partners. The scale and timeline of the tariffs to applied to different products are still being discussed, while the trading partner countries are considering their reciprocal moves. Furthermore, illegal immigrants who make up a significant proportion of the agricultural labour force in the U.S. are also likely to be affected by Trump's anti-immigrant policies. All the above developments are expected to contribute to a hardening of agricultural and food inflation, both in the United States and around the globe.

Global surface temperature:
Increase from pre-industrial averages



The average global temperature reached a new peak in 2024 (15.1°C). The increase limit (1.5°C increase) set by the Paris Climate Agreement for 2100 has thus already been reached. The adverse effects of climate change on agriculture, including increased temperatures and sudden and extreme weather events, have been well documented, and countries must make additional investments if they are to adapt. At the most recent UN Climate Change Conference, hosted in Baku in November 2024, the developed nations pledged to provide US$300 billion in climate financing to developing countries annually until 2035. Countries and organisations seeking to benefit from this funding will need to establish "sustainable financing" policy frameworks and instruments. It is known, however, that much larger figures will be needed if the targets of the Paris Agreement are to be met. Therefore, in addition to the trade and financial challenges mentioned above, global agriculture and food inflation are also threatened by climate change. The most sustainable response to all these challenges will be to increase **factor and production efficiency** in the agricultural sector.

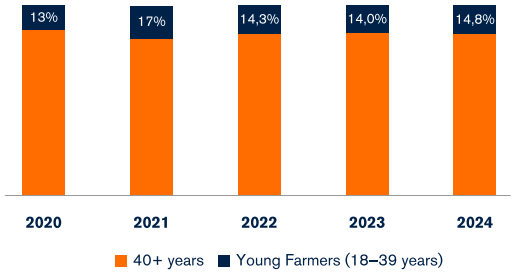
Digitalisation can contribute significantly to the sustainability and efficiency of the agriculture and finance sectors. In both sectors, analyses of big data and the development of advanced machine learning, artificial intelligence and robotic technologies have become the main targets. Adding to the widely used digital solutions it has developed to date, such as Findeks, QR Code Cheque, TARDES and the ÇKS data service, KKB has now introduced

Greendeks a new product that measures the sustainability performance of businesses in Türkiye against Environmental, Social and Governance (ESG) criteria, and reports the results highlighting areas for improvement and recommended actions. Greendeks Reports document the level of sustainability achieved by businesses for sharing with their business partners, facilitating their access to green financing.

1.2. Selected Outcomes of the Field Survey

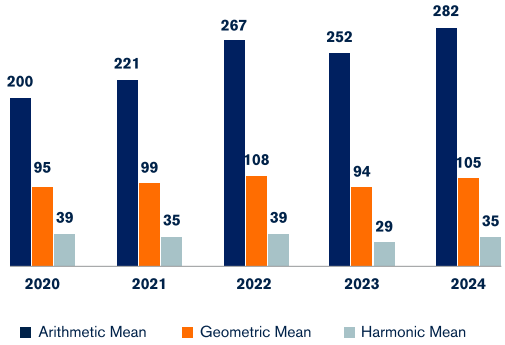
The KKB Agricultural Outlook Field Survey is conducted annually, using a simple random sampling method to select farming enterprises actively engaged in agriculture in 28 provinces. The enterprises producing for the market are included in sampling, while those primarily engaged in subsistence farming are disregarded. The 2024 survey was conducted with 1,098 enterprises, calculated as representative of the target population (farmers registered on the ÇKS in Türkiye) with a 99 percent confidence interval and a margin of error of ±3.89 percent. The research was carried out by interviewers with agricultural experience from Frankfurt School of Finance & Management, on behalf of KKB.

Young Farmers



The average age of farmers in 2024 is 53.2 years, and the proportion of young farmers is 15 percent, representing a limited increase on the previous year. The Ministry of Agriculture and Forestry, as well as other stakeholders, the launched initiatives to encourage farming among young people in recent years. Since our field surveys are based on “active” farming/farm management rather than land ownership or registration (ÇKS, etc.), the average age reported by official registration systems may be higher. The average age of farmers in the European Union (EU) and the United States is 57 and 58 years, respectively, according to the latest censuses. The proportion of young farmers in the EU was most recently recorded as 12 percent in 2020.

Land size per farmer
(decare; 1/10 hectare)



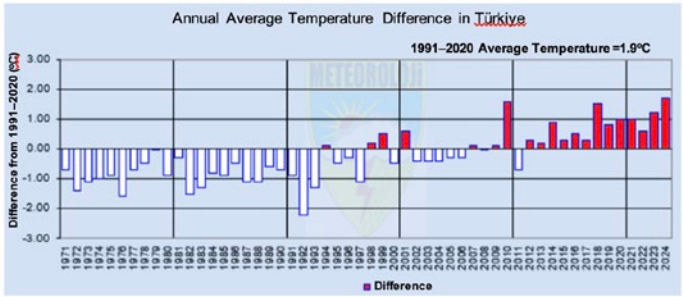
The average cultivated land area per farmer is increasing. The arithmetic average of 282 decares indicates that farmers de facto comply with the definition of “sufficient income land” introduced by the Soil Conservation and Land Use Law in 2014. Averages are calculated geometrically as 105 decares (10.5 ha) and harmonically as 35 decares (3.5 ha). These figures are interpreted as the threshold values for the transition of micro and small scale enterprises into small and medium scale in our country can be approximately 4 and 10 hectares, respectively.

Farmers grow an average of three different crops each year. Wheat, barley and maize (including silage) are the three most common crops planted this year, as in the previous years, while tomatoes are the first choice among vegetables and grapes are the first choice among fruits. In our research, 10 agricultural products in the “top 20” list presented every yearwere matched with the **“Agricultural Production Planning Scheme”**, comprising 13 products +1 product group, that the Ministry started to implement this year.

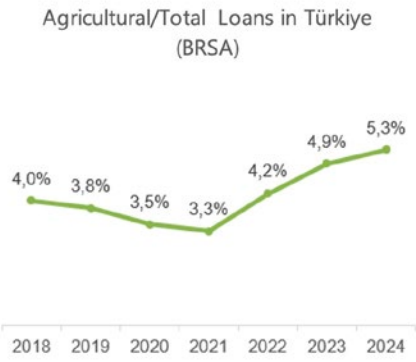
In the livestock farms participating in our research, dairy cattle breeding (76%) is the most common, followed by beef cattle breeding (38%). These enterprises are followed by enterprises engaged in ovine husbandry (21%), beekeeping (3%) and poultry farming (2%). The average number of animals according to enterprise type in the last 5 years was 27 head in dairy farming, 55 head in fattening, 245 head in ovine farming and 86 hives in beekeeping.

Farmers highlight "input costs" as the main problem encountered during the production period, and "lower than expected sales prices" after production. In Türkiye, the Agricultural Input Price Index (IPI) increased by 214 percent in 2021 and 2022 in total, before entering a period of stability in 2023–2024. Nevertheless, the annual increase in Agricultural IPI still remains above 30 per cent. In 2021–22, the Producer Price Index (Agricultural PPI) lagged behind the increase in Agricultural IPI. Although the Agricultural PPI has risen faster than the Agricultural IPI in the last 2-year period (2023–24), the perception of high input inflation among farmers remains. The stabilisation of input prices increases was addressed in another survey question. The number of **"I used less inputs"** responses to the question **"How does the cost of inputs affect you?"** decreased from 56 percent in 2022 to 33 percent in 2024. The proportion of **"My input type/quantity has not changed"** responses to the same question increased from an average of 36 percent/39 percent in 2022 to 78 percent/66 percent in 2024.

"Climate change" and "water scarcity" have become long-term problems for farmers. Over the last four years, an average of two out of every three farmers surveyed have indicated that the "climate has become drier/unstable", while one marked the "insufficient water" option. Türkiye's average temperature in 2024 increased by 1.7°C above the long-term average, breaking the record held for the last 54 years, however, droughts were prevented due to the sufficient rainfall in the same year.



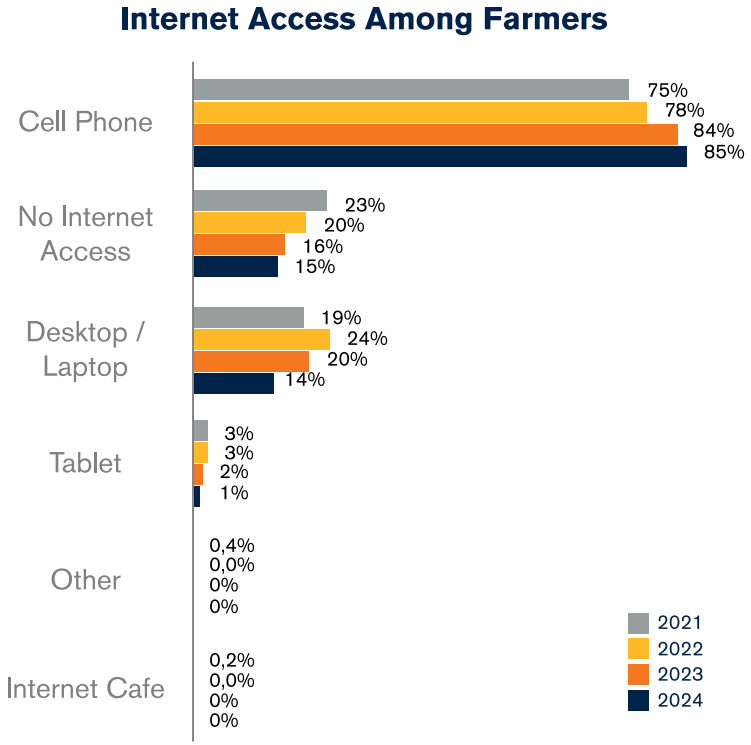
Some 71 percent of farming households supplement their income with income from other activities. In other words, agriculture was the sole source of income for only 29 percent of farmers in 2024. The most common source of income other than from agriculture was marked as "Pension", with 44 percent. It is understood that the EYT Regulation introduced in 2023 contributed strongly to this increased rate, which was 34 percent in 2022. The "Pension" response to this question was followed in popularity by "Salaried family member" (22%) and "Tradesman/merchant" (15%).

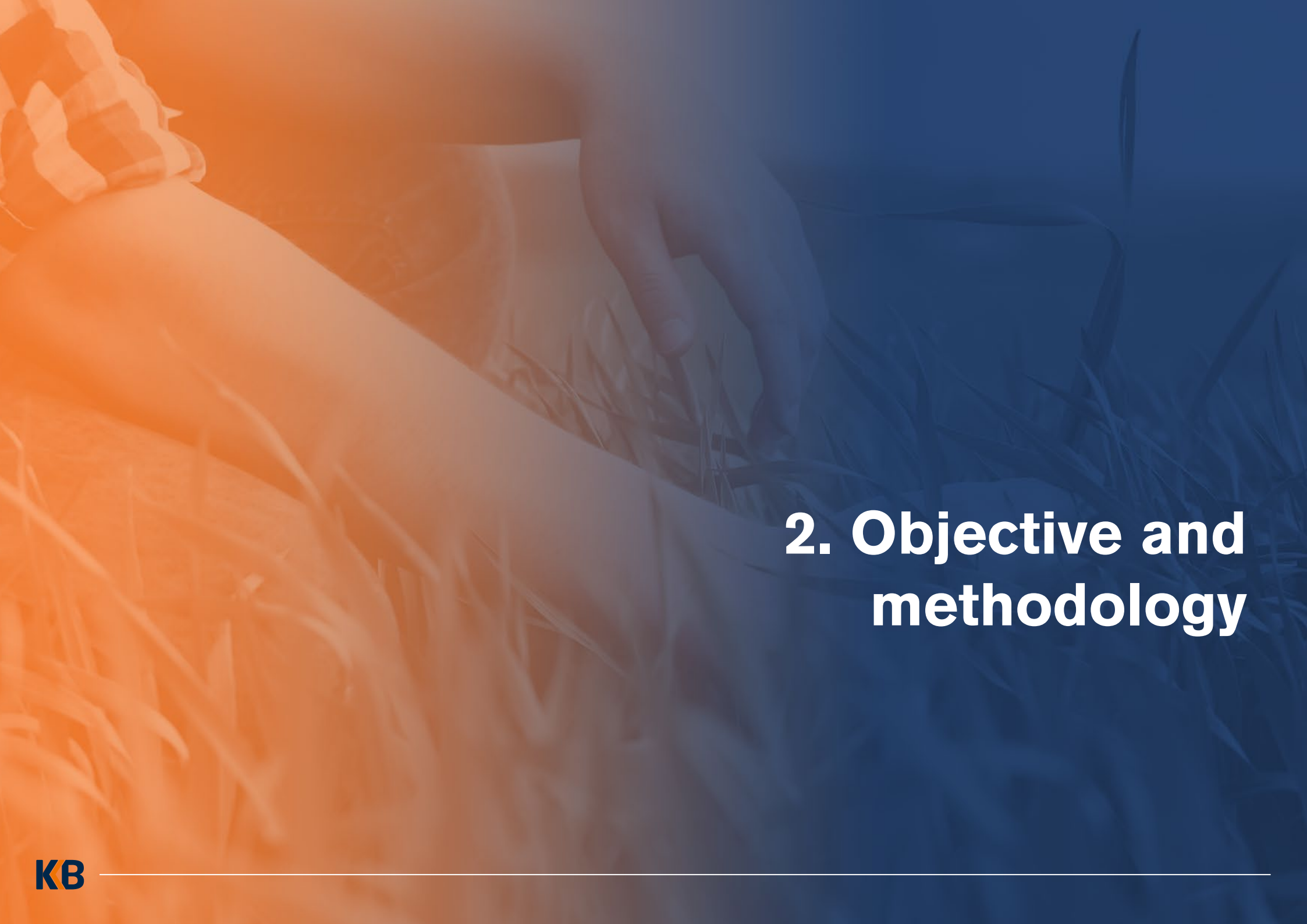


Some 60 percent of farmers utilise bank loans. For the purpose of the present study, this rate also includes the special credit cards provided by banks to farmers. The average number of banks that a farmer works with to access credits is 1.7. According to Banking Regulation and Supervision Agency (BRSA) data, the ratio of agricultural loans to total loans in Turkey increased from 3.3 percent in 2021 to 5.3 percent in 2024. In the same period, the increase in agricultural loans was higher than the Agricultural PPI. The share of "operating" loans among the loans utilised by the respondent farmers increased in this period, leading to a decline in the share of "investment" loans. When the farmers who did not use bank credits were asked why, 53 percent responded "I do not need credit", while 43 percent cited the "high interest rates and costs of credit" as the reason. Considering that the same rate was measured as 27 percent in 2023, it is predicted that responses in 2025 are likely to return to the previous levels in the event of a decrease in loan rates.

The number of farmers taking out TARSİM® agricultural insurance is increasing every year. The proportion of farmers with insurance was 43 percent in our 2021 survey, but had i,increased to 54 percent in 2024. When farmers who do not have insurance were asked why, their reasons were primarily “Too expensive” (43%), “I find it unnecessary” (43%) and “claims are underpaid/not paid” (34%). **Smart mobile phone ownership (91%) and Internet usage (85%) among farmers are increasing day by day**. The increased digital literacy in the sector suggests a growing market for products and services targeting sustainability, efficiency and inclusiveness. In our research, the most frequently used digital services by farmers were **“agricultural meteorology”** (78%), **“agricultural news”** (66%) and **“product/input prices”** (34%). Although not yet used, the services that have attracted most interest in the last few years are **“satellite land tracking”**, **“asking agricultural questions on the internet”**, “information on diseases and pests” and **“agricultural technologies”**.

Our field survey, the highlights of which are presented in this summary, includes 34 questions measuring different areas and needs within the agricultural sector. The results and analyses of the study are shared under the following headings.





2. Objective and methodology

2.1. Objective of the Survey:

The main mission of Kredi Kayıt Bürosu (KKB) is to serve as a source of financial data, information and technology for the financial and real sectors in Türkiye. The institution develops analytical models, products and services based on rich data, striving to fulfil this mission in the best way possible. In doing so, it contributes to the operational efficiency and technology access costs of nearly 200 member institutions, while also increasing society's access to finance and financial literacy. The **Agricultural Loans Assessment System (TARDES)** developed by KKB seeks to strengthen the access of the agricultural sector to finance in Türkiye. Launched in 2014, TARDES is a modern software that carries out fast, practical and accurate credit analyses for farmers seeking loans from banks and other credit institutions. By the end of 2024, 10 banks in Türkiye were providing financing to farmers through our TARDES system. These banks have to date allocated more than 500 billion TL in credits to farmers based on more than 3 million credit assessments carried out through TARDES. KKB also acts as an intermediary in the operation of the Farmer Registration System (ÇKS) of the Ministry of Agriculture and Forestry, in which all plant producers in Türkiye are registered, to financial institutions. Our institution started carrying out yearly field surveys in 2019, to contribute to the improvement of the quality of the financial services it provides to the agricultural sector, to support the development of new financial and non-financial services, and to follow the transformations in the sector and share them with the public, This report presents the results of the latest survey conducted between November and December 2024. All publicly available publications of KKB can be accessed through our website from the link "Our Products > TARDES". Our agricultural field researches are carried out by a team with expertise in the agricultural sector garnered through theFrankfurt School of Finance & Management (Frankfurt School), one of Germany's leading business and finance schools. All feedback related to our publications and their contents are encouraged and highly valued by our Institution.

Table 1: 2024 Survey Numbers

Province	Number of Questionnaires
Konya	143
İzmir	79
Antalya	79
Erzurum	60
Ankara	57
Şanlıurfa	55
Tokat	55
Balıkesir	52
Samsun	46
Manisa	46
Adana	46
Diyarbakır	45
Bursa	40
Tekirdağ	37
Denizli	37
Kastamonu	31
Iğdır	28
Elazığ	27
Kahramanmaraş	26
Burdur	18
Erzincan	18
Uşak	16
Nevşehir	14
Çankırı	13
Adıyaman	12
Bilecik	7
Bayburt	6
Kilis	5
TOTAL	**1.098**

2.2. Survey Methodology:

All our field surveys are conducted through one-to-one telephone surveys with **farmers actively engaged in agricultural production.** The survey using cluster sampling method has been applied in the same **28 provinces** in Türkiye every year. For the province selection, the first clustering included seven geographical regions, and for the second clustering, four provinces were determined for each geographical region, being the two provinces with the highest and two provinces with the lowest agricultural production values (output). The final selection was made based on a comparison of the identified provinces based on such criteria as production patterns and product diversity, and whether or not they are located in the same basin. It was thus ensured that all geographical and climatic structures and production patterns in Türkiye were represented in the study. A **simple random** method was used for the selection of farmers, with no stratification or quotas. All the respondent farmers were residents of agriculturally active districts, towns and villages in the selected provinces. The total number of farmers interviewed in each province was determined based on the agricultural output of the province, meaning that more farmers were included from the provinces with high agricultural activity than those with low agricultural activity. The participant farmers were selected from the farmer database established by KKB and the Frankfurt School over many years. This means that the survey participants may or may not have participated in the surveys in previous years, and may include also new farmers. It is believed that the sampling and selection methods adopted for the study will ensure the statistical acceptability of the research, leading to more unbiased results.

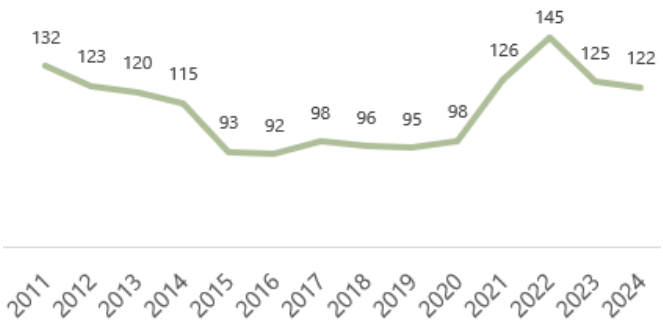
The number of farmers (sample) who participated in the survey was **1,098.** There are 2,319,426 farmers registered in the Turkish Farmer Registration System (ÇKS) (target population)[1]. Accordingly, the sample size represents the target population with a margin of error of ±3.89 percent at a 99 percent confidence interval.

The questionnaire, which is completed by the participants voluntarily, includes 34 professional, sectoral and financial questions, but no questions seeking sensitive personal data (sensitive data). The respondents answered each question with a “Yes/No” response or numerical answer, but could also indicate an “Other” response that could be supported by free text. It was thus ensured that all possible answers, foreseen or unforeseen, related to the investigated topic were collected.

[1]https://www.aa.com.tr/tr/ekonomi/kayitli-genc-kadin-ciftci-sayisi-10-yilda-4-5-katina-cikti/3222181

3. Sectoral macro outlook

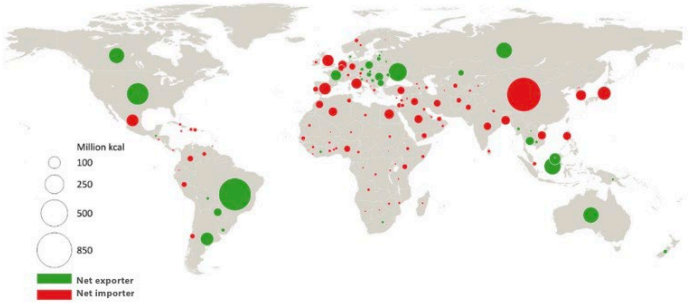
Figure 1: FAO Food Price Index (2014-2016=100)



This section provides a brief summary of the global and national developments in the agricultural sector in 2024. It is hoped that presenting this summary before the results of the field research will provide an understanding of the general outlook of the agricultural sector. Products subject to foreign trade in the agricultural sector are directly affected by global developments and macro policies. Türkiye plays an active role in the global agricultural market both as a major supplier and as a buyer.

The most important indicator of supply-demand balance in the agriculture and food sector is price levels. Prepared by the United Nations Food and Agriculture Organisation (FAO) agricultural commodity price index (FAO food price index) has been monitoring the foreign trade prices of 81 unprocessed and processed agricultural commodities in US dollars on a global scale since 1961 and presents them as an index. The index, which had been following a downward trend for 10 years before the pandemic, entered a dramatic upward trend in its aftermath (Figure 1). This inflationary trend, exasperated by the regional wars and tensions that arose in the years following the pandemic, reached a peak in 2022. Although the index seems to have been seeking downward stabilisation for the last two years, a return to pre-pandemic levels seems unlikely in the short term. The high inflation in both advanced and emerging economies has led central banks to keep interest rates high in an attempt to restrain the supply/demand and price levels of goods and services. In particular, the dollar index (DXY) has maintained the high level seen in the pre-pandemic period. In fact, global agricultural supply (output) levels have not decreased, while per capita agricultural production increased by a total of 2.9 percent between 2020 and 2023, i.e. by an average of 1 percent per year. In the same 3-year period, however, the increase in agriculture and food exports was limited to 1.7 percent[2], indicating that the producer countries utilised the revenues mostly for their own populations. The financial value increase (in USD terms) of agricultural exports, which decreased in relative terms, was 27 percent[3]. As such, while agricultural trade has not increased sufficiently around the world, the cost of this trade has increased dramatically. Exporting countries have higher revenue per calorie from importers. This difference is much more pronounced and sticky in local currencies due to the strong Dollar Index. Resulting in a lack of any significant increase in imported products. If agricultural productivity and output growth cannot be achieved, agricultural inflation will remain high. The increased likelihood at the time of writing that the war between Russia and Ukraine will come to an end under a US initiative is a partly pleasing development in terms of price inflation.

Figure 2: Net Calorie Trade (2023)



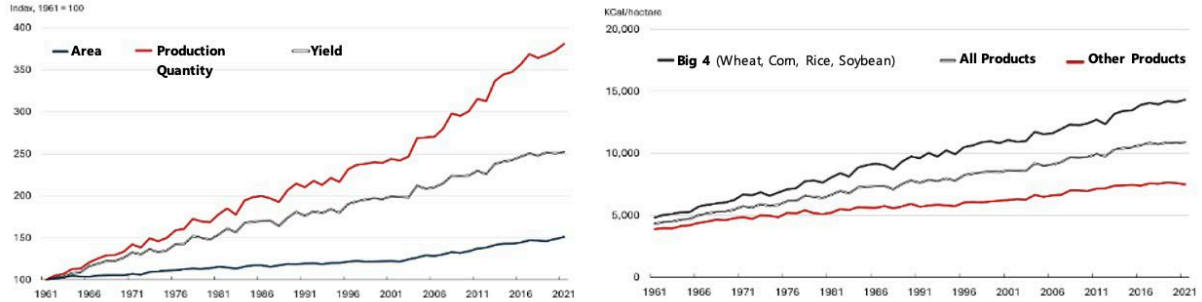
Source: FAO. 2024. Trade of agricultural commodities 2010–2023. FAOSTAT Analytical Briefs, No. 98. Rome.

[2]Per capita production index = FAO Gross Per Capita Production Index, Export Quantity Increase = FAO Export Quantity Index
[3]In the same period, the increase in agricultural import value index (import value index) was [31] percent.

Türkiye's high self-sufficiency in agriculture means that developments in global agriculture and food trade are not as vital for the country as they are for other countries. Our country has been a net exporter in terms of agricultural trade volume and income for many years, and has maintained a position among the top 20 exporting countries. As mentioned earlier, however, the domestic prices of agricultural products that need to be imported, partially or in full, are directly affected by global developments. In the 3-year period from 2020 to 2023, Türkiye's agricultural imports increased by only 11 percent, while the cost of these imports increased by 54 percent. In the same period, agricultural exports increased much more in quantity (33%) but at a similar rate in value terms (53%). Since the items imported by Türkiye are mostly protein and fat sources, a 2023 FAO analysis identifies Türkiye as a net (calorie) importer, albeit by a small margin (Figure 2).

In a recent academic study analysing the increase in global agricultural production over the last 60 years revealed that the increase in the amount of 144 agricultural products produced worldwide, accounting for 98 percent of the total global production, was due to an increase in **productivity** per unit area rather than an increase in agricultural area (Figure 3)[4]. The increases in agricultural area and productivity in the last 20 years have been almost the same in percentage terms (25%). Wheat, maize, rice and soya – the so-called global Big Four – led the increase in quantity.

Figure 3: Global Yield Growth Patterns of Agricultural Commodities



Mobile election advertising board in rural America: "Farmers Supporting Trump" (Photo: WSJt)

Last year's field research report mentioned the farmers' rallies that swept through Europe. Started initially by Eastern European farmers as a protest against agricultural prices, the rallies expanded into Central and Western Europe where the **EU's climate and environmental rules** were added to the demands. The protests were heard in Brussels, the administrative centre of the EU, and led the European Commission to either postpone or shelve some of the "green" rules and the related cuts in agricultural subsidies. This situation can be said to have helped the centre-right and centre-left blocs maintain their votes in the European Parliament elections held on 6 June, 2024. Furthermore, the far-right and far-left groups were able to increase their shares of the vote in Parliament from 19 percent to 26 percent, leaving little room for manoeuvre for centrist politics in Europe. A rising trend in far-right and nationalist politics has been seen in the national parliaments of the EU member states[5].

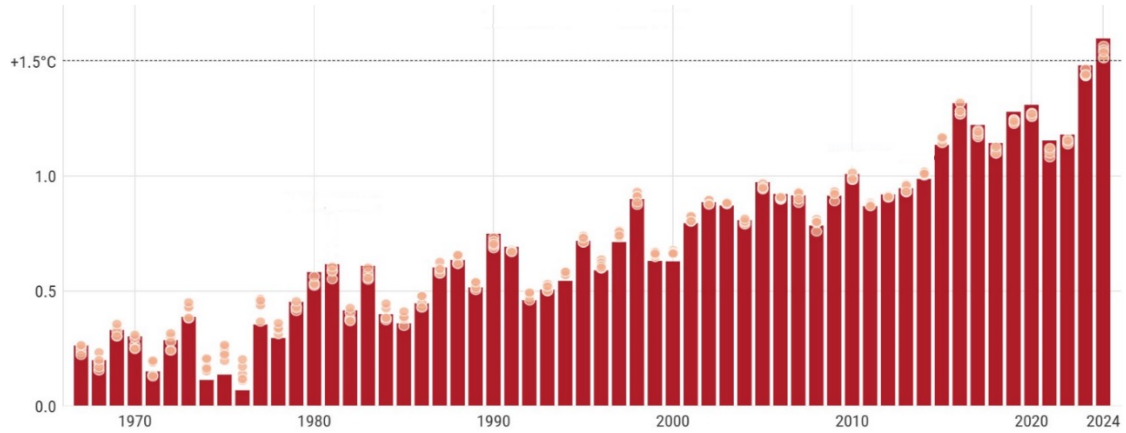
[4]Baffes J Etienne X (2024) Yield growth patterns of food commodities: Insights and challenges. PLoS ONE 19(11): e0313088. https://doi.org/10.1371/journal.pone.0313088

[5]Following the [25] percent success of the far-right coalition in French Parliament in June [2024], the far-right AfD (Alternative for Germany Party) is tipped to come second in the German elections on [23] February [2025] with around [20] percent of the vote.

Undoubtedly, the most important development in 2024 was the re-election of Republican candidate **Donald J. Trump** as president after 4 years in the United States. Furthermore, the Republicans also gained the majority in both the Senate and the House of Representatives, giving Trump and his government full control of the political landscape in the United States – the world's largest economy. One of the key effects of this new situation in the United States on the agricultural sector will be the additional tariffs placed on other countries by the Trump administration. At the time of writing, the United States has announced additional tariffs of 25 percent on its three largest trading partners, Mexico and Canada, and 10 percent on China. The United States maintains the largest agricultural exports and imports in both directions with Mexico and Canada, and is China's largest agricultural supplier. If the United States follows through on its threat to impose these **additional tariffs**, their partner countries will no doubt announce counter-tariffs in response, leading potentially to agricultural inflation. Another move by the Trump administration that is likely to have a negative impact on the domestic market in the United States is the policy targeting **illegal immigrants**. Almost half of the agricultural labour force in the United States is made up of illegal immigrants, according to different sources. If this illegal labour is not facilitated or exempted, the cost of labour for US farms will increase, again leading to agricultural and food inflation. As long as inflation in the United States fails to fall to the level targeted by the FED (2%), interest rates will remain high, which will keep the "dollar index" high in developing countries, thus keeping the spiral of external debt, balance of payments, and producer and consumer inflation alive. There is no realistic way developing countries can permanently escape from this spiral other than by increasing their **factor and production productivity.**

One of the main threats of the Trump administration is its **view of climate change.** In 2024 the average annual global temperature hit a new peak of 15.1oC, but somewhat ironically, Trump signed a presidential decree on 20 January, 2025 withdrawing the United States from the Paris Climate Agreement. The Paris Climate Agreement (2015) aimed to limit the global temperature increase to 1.5oC by 2100 compared to the pre-industrialisation period (1850–1900), and if this could not be achieved, to ensure that the increase remained below 2oC. However, the 1.5oC limit has already been surpassed (Figure 4). It is known that the temperature increases and sudden and extreme weather events resulting from climate change are detrimental both to existing agricultural areas and to crop yields. The result is a need to increase investments to adapt to the changes, especially in countries with high agricultural outputs, which feed the majority of the world's population.

Figure 4: Increase in Global Surface Temperature (Relative to 1850-1900 Average)



Source: Global Climate Highlights 2024, Copernicus

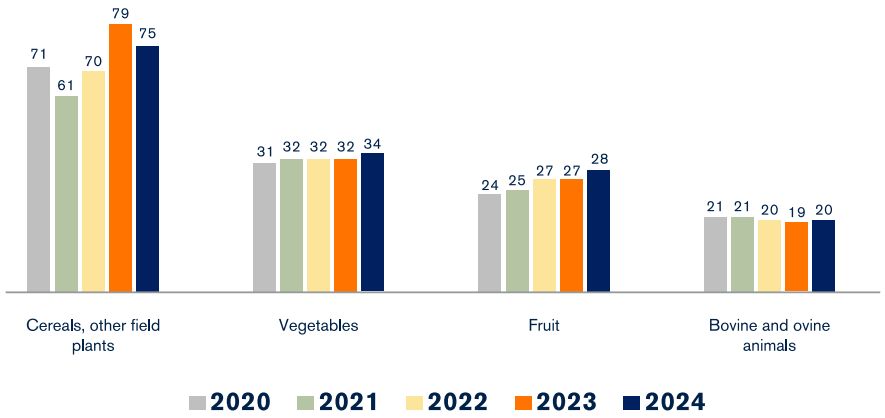
In line with the Paris Agreement, under which the signatory countries come together with high-level representation every year to contribute to the sustainable fight against climate change, 197 countries convened for a meeting in Baku in November 2024[6]. During the meeting, the countries discussed the total amount of climate financing to be provided annually by developed countries to developing countries to mitigate the effects of greenhouse gases and to support the adaptation to climate change, and agreed to increase the current financing target of US$100 billion per year until 2025 to US$300 billion per year for the 2025–2035 period. Experts estimate, however, that the actual amounts needed to reach the Paris Agreement targets on time are closer to US$1 trillion per year. For this reason, countries with lower and lower–medium income levels strongly protested the financing target set during this year's COP[7].

Digital illustration generated by the AI application ChatGPT

Digitalisation is expected to be one of the most important factors contributing to the sustainability and efficiency of the agriculture and finance sectors. In both sectors, the main goal has become to process big data and to develop machine learning, making use of advanced artificial intelligence and robot technologies. Such technologies are expected to aid farmers in making sustainable production decisions[8] while linking financiers with customers to provide them with customised financial products/services. KKB has added a new product (Greendeks) to its existing portfolio (which includes Findeks, QR Code Cheque, TARDES and the ÇKS data service), that measures and reports the sustainability performance of enterprises in Türkiye against Environmental, Social and Governance (ESG) criteria, and offers recommendations based on its identification of areas in need of improvement. Greendeks Reports document the level of sustainability achieved by businesses for sharing with their business partners, facilitating their access to green financing.

[6]The UNFCCC Conference of Parties (COP) meeting organised each year.
[7]https://tr.euronews.com/green/2024/11/24/cop29-zirve-gelismekte-olan-ulkeler-icin-yilda-300-milyar-dolarlik-iklim-finansmani-anlasm
[8]Technologies such as drones, remote monitoring and satellite systems for the monitoring of land and crops, meteorological and climate monitoring systems, Internet of Things, machines facilitating precision agriculture and autonomous devices will support agricultural production and increase the productivity of farmers.

Figure 5 : Türkiye Agricultural Production (million tonnes, million head[9])



Before presenting the field research, a macro-analysis of the total **agricultural output** of Türkiye will be carried out both to contribute to the global outlook and the fictional context presented above, and to serve as a starting point for the detailed analyses of the field research. While the 2020 pandemic, the drought that hit Türkiye's agricultural regions in 2021, the Russia-Ukraine War in 2022 and the earthquake that hit 11 provinces in 2023 placed considerable pressure on our agricultural sector, it managed to maintain its production levels and to ensure the food security of our country. The output quantities for 2024 announced by TURKSTAT by market segment are presented in Figure 5. Following the high yields in cereals and field crops witnessed in 2023, the output stabilised in 2024. While there has been a moderate upward trend in vegetables and fruit yields in the last 5 years, a reverse trend has been seen in the total number of cattle and sheep. This situation in the number of animals does not automatically mean the same for the amount of animal products, because the productivity of products obtained per animal has different dynamics. For instance, while red meat production increased between 2020 and 2023, total milk production decreased. Overall, despite the decline in demand spurred by macroeconomic measures in 2024, the agricultural sector outperformed the national GDP, achieving a real GDP growth of **3.9 percent**.

[9]The total number of bovine (cattle, buffalo) and ovine (sheep, goat) animals announced by TURKSTAT were converted into Bovine Animal Units (BAU) using the rates determined based on the Pasture Law, and are presented as a single total. 1 BAU is equivalent to 500 kg of cultivated cattle.

4. Survey findings and analyses

4.1. Demography and Farming Types

The minimum age of the respondent farmers in the 2024 field survey was 17 years and the maximum age was 90 years. The **average age (arithmetic) was 53.2 years** (Figure 6). This average age is 2.1 years greater than the lowest value of 51.1 years noted in previous KKB field surveys (2021). The trend over the last 5 years indicates that the farming population is aging. The limited decrease in the average age observed in 2023 was not significant and sufficient for the analysis. Public/private sector stakeholders in recent years have sought to encourage young people to take up farming through the provision of different types of financial and non-financial incentives, including the Ministry of Agriculture and Forestry's Youth Council, the Grant Programme for Supporting Rural Development Investments (KKYDP), the Expert Hands in Rural Areas Project, and Ziraat Bank's Young and Women Farmer Loan Subsidies. When selecting farmers for the field survey, the criterion of "active" farming/farm management was considered rather than land ownership or Farmer Registration System (ÇKS) registration. Adopting this approach ensured that it was the farmers who actively managed the farm and made production decisions who were surveyed rather than the owner of the farm or land (title deed), such as an older parent. Because of this, the average age of farmers calculated based on official registration system data will be higher than the average in our survey. According to Union of Chambers of Agriculture data, the average age of farmers in Türkiye was 58.1 years in 2023, while the latest censuses in the European Union and United States put the average age of farmers at 57 and 58 years, respectively. Our survey revealed that **young farmers** (under 40 years of age) made up **15 percent** of the total, with a limited increase in line with the limited decrease in the average age of farmers (Figure 7), compared to a rate of 12 percent reported for the European Union in 2020.

Figure 6: Average Age of Farmers

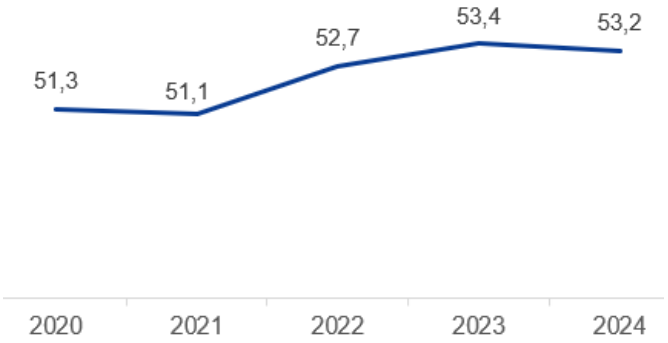
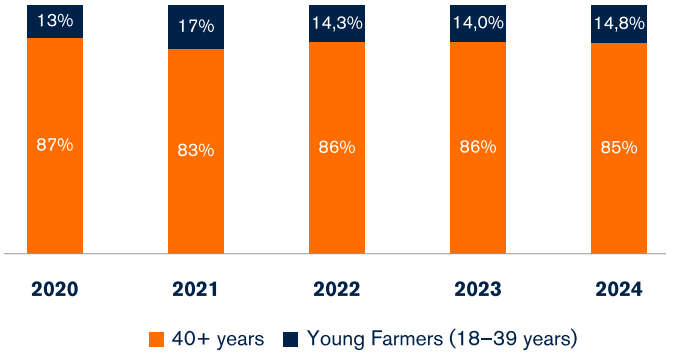


Figure 7: Proportion of Young Farmers

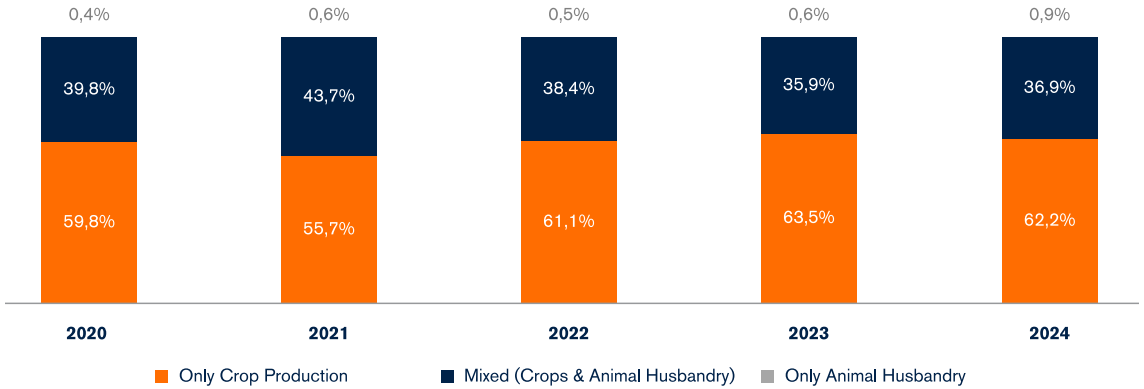


The main activity types of agricultural enterprises can be listed under three categories: crops, livestock and mixed (Figure 8). An analysis of yearly averages reveals that roughly six out of every 10 enterprises in Türkiye are engaged **in crop production**, while the remaining four are engaged **in mixed production** (crops + livestock). Less than 1 percent of the enterprises in our research were engaged only in animal husbandry. The proportion of enterprises engaged in crop production is rising, although slowly, which has been attributed the fact that mixed enterprises whose main field of activity is crop production but that engage in animal husbandry as a side activity are gradually giving it up. The decline in mixed enterprises indicates the growing popularity of specialisation in a single type of production, although it may be a sign that the integrated and cyclical agricultural production system adopted especially by small family enterprises may be on the decline. In the agricultural sector, mixed enterprises are generally considered more economically, socially and environmentally sustainable[10]. One group of farmers in our study that can technically be considered as engaged in mixed production, accounting for 3.3 percent of the total

[10]https://www.fao.org/agriculture/crops/thematic-sitemap/theme/ic-lsd/themes/introduction-to-icls/en/

number of participants, states that they produce crops **only to feeding their livestock**, i.e. for feed production. It would be fair to say, therefore, that the proportion of farmers specialised only in animal husbandry is actually 4 percent in the study.

Figure 8: Agricultural Production Types



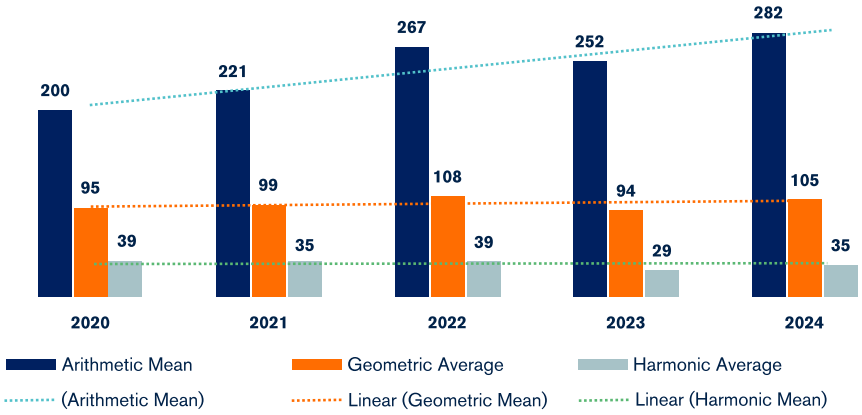
The proportion of farms specialised in animal husbandry in the European Union was 16 percent in 2020[11]. Some 14 percent of these farms are engaged in **"pasture animal husbandry"**, while only 2 percent are engaged in closed system (intensive) animal husbandry. The main factors limiting livestock breeding in our country are the decline in the area and quality of pasture. According to the latest general agricultural data garnered by TURKSTAT in 2001, Türkiye has 14.6 million hectares of pasture. Although TURKSTAT continues to report the same figure due to the lack of any agricultural census since 2001, identification and allocation studies conducted by the Ministry of Agriculture and Forestry under the Pasture Law (1998) indicate that, as of the end of 2023, the total identified area stands at approximately 13.1 million hectares, with about 8.5 million hectares allocated. Although the classification of these areas in terms of pasture quality has not been announced, the Ministry has been overseeing a large number of rehabilitation and development programmes affecting 2.2 million hectares of pasture area since 1998, when the Law was enacted, up to 2024. On the other hand, the area set aside for forage crops in Türkiye has increased by 2 million hectares over the last 20 years. These findings indicate that the pressure on pasture from different sources (climate change, urbanisation and construction, change in allocation purpose, etc.) is increasing in our country, and so livestock farms are increasingly trying to meet their feed requirements by planting forage crops. Increasing/improving our pasture will reduce the stress on "fodder crops" within the scope of the Ministry's "Agricultural Production Planning Model", and will open up more arable land for other crops.

The arithmetic mean, geometric mean, **105 decares** (10.5 hectares), harmonic mean, and harmonic mean of the total land size of "active[12]" farmers engaged in crop production in this year was **282 decares** (28.2 hectares), **105 decares** (10.5 hectares), and **35 decares** (3.5 hectares), respectively.

In statistics, "geometric" and "harmonic" averages can be used to show the central tendency or typical values in a series, and to reduce the effect of extreme outliers[13]. These two alternative average types are used in the study to minimise the effect of large-scale producers on the arithmetic mean.

[11]EuroStat (2025) "A Look at European Farms: Agricultural Census Results"
[12]In research, the ownership or legal status of the land that the enterprises "de facto" cultivate is not questioned.
[13]For the definition of geometric and harmonic averages see: https://en.wikipedia.org/Geometric_mean, https://en.wikipedia.org/Harmonic_mean

Figure 9: Land Size per Farmer (decare; 1/10 hectare)



When the linear trend lines on the graph are analysed, a significant upward trend can be seen in the arithmetic averages of the last 5 years, while a very limited increase can be observed geometrically. The harmonic mean, which is least affected by extreme values, is almost stable. This reveals the enterprise typology in Türkiye to be generally **micro-scale**. The fact that the geometric mean is around 10 hectares suggests that the **transition** band from the 0micro scale to the **small/medium scale** may be 10 hectares in our country.

As explained in the field surveys of previous years, there are different and valid reasons why the "actual" land size in our surveys is higher than the "Agricultural Enterprise Structure Survey"[14] (76 decares) announced by TURKSTAT in 2016 or the 2023 Farmer Registration System data of the Ministry of Agriculture and Forestry[15] (71 decares). First of all, in Türkiye, **land owner** and **the farmer who cultivates the land** may differ as a result of different social and economic factors (undistributed inheritance, migration, rent, etc.). To ensure such de facto cultivations were recorded, the Ministry made a significant change in the Farmer Registration System (ÇKS) on 18 November 2023[16]. Secondly, there are lands that **belong to the treasury** but are used for agriculture as **forests or pastures** or lands that have lost their forest status (2B status). It is not possible for these lands to be recognised in official documents unless an official activity permit is issued (lease, ecrimisil), or if ownership has been transferred to a farmer.

The average land areas identified in our study reveal that farmers have "de facto" complied with the **"sufficient income agricultural land"** concept was first defined in the Soil Conservation and Land Use Law No. 5403, updated in 2014. According to the Law, regardless of the crop grown on the land, areas of less than 75 decares for irrigated lands, 160 decares for dry lands and 10 decares for orchards are no longer considered suitable for "sufficient income", and dividing existing parcels into parcels below these figures is forbidden. It is estimated that the average land size per farmer has increased towards the sufficient "economic scale" due both to the new restrictions imposed by the Law and the other reasons listed above. The new general agricultural census[17] agreed between the Ministry of Agriculture and Forestry and TURKSTAT in September 2023, the results of which will be announced at the end of 2025 or in 2026, will provide us with new information in this direction.

In our research, land size per farmer is also observed in slices (Figure 10). In line with the results of the previous years, that the enterprises can be seen to be concentrated in the 50–499 decare bands in 2024.

[14]https://data.tuik.gov.tr/Bulten/Index?p=Tarimsal--Isletme-Yapi-Arastirmasi-2016-24869
[15]https://www.tarimorman.gov.tr/EYDB/Belgeler/QrCodes/iddialar_gercekler_2023.pdf
[16]https://www.tarimorman.gov.tr/TRGM/Haber/Cks-Yonetmelik-Degisikligi
[17]https://www.tarimorman.gov.tr/TRGM/Haber/791/Tarim-Sayimi-Icin-Ilk-Adim-Atildi-Tarim-Ve-Orman-Bakanligi-Ile-Tuik-Arasinda-Genel-Tarim-Sayimi-Yapilmasina-Iliskin-Protokol-Imzalandi

Figure 10: Distribution of Farmers by Farmland Size (decare)

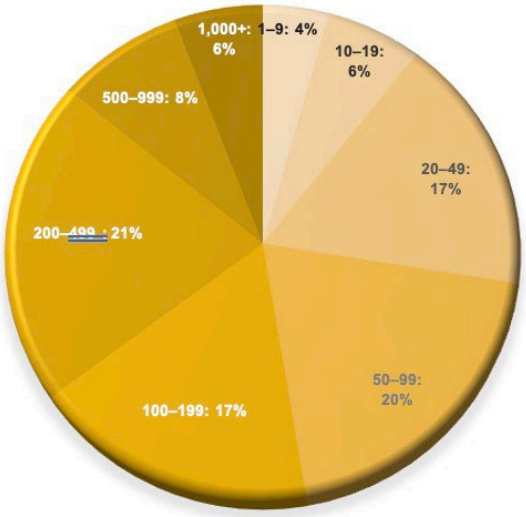


Table 2: Agricultural Lans for Rent

Research Year	Rental / Total land
2020	%28
2021	%29
2022	%29
2023	%30
2024	%35

As mentioned above, **“land rental”** is common among farmers with agricultural holdings, and so the farmers were asked how much of the land they declared was rented. Over the last 5 years, the proportion of rented land to total productive land has been gradually increasing, rising from 28 percent in 2020 to 35 percent by 2024 (Table 2). KKB’s agricultural field experts confirm that the cost of rented land has declined since 2023. The increase in rented land can be considered a positive development, indicating that the land left “idle/uncultivated” as a result of rural-urban migration is being used for production and the creation of economic value. The idea to open up uncultivated agricultural lands for public rental suggested by the Ministry during the pandemic, took on a legal identity on 22 August, 2024 and was entered into the regulation[18]. Land owned by real/legal persons that is left uncultivated for 2 consecutive years, as determined by the district land determination commission, can be leased to other real and legal persons in the same location through the Ministry, if the property owner does not object. The fact that no such leases have yet been signed indicates that the Regulation has already started to mobilise the owners of uncultivated land.

4.2. Product and production preferences of farmers

The respondent farmers were asked to list the **“plant products”** they produced in the relevant year, thus providing data on the number and quantities of different crops being produced. The listed product names were first classified into varieties and sub-varieties, based on which the number of unique products was calculate[19]. Since 2019, the single herbal product variety identified each year with the same method is presented in the last 5 years, a total of 105 individual crop varieties have been identified in the provinces in which the research was carried out, while the number of **different crop varieties grown** per farmer in the same year varied between 2.92 and 3.28[20]. An analysis of the rightmost column in the table reveals that while the number varies slightly each year, the average is around **3 products.**

[18]https://www.tarimorman.gov.tr/Haber/6369/Iki-Yil-Ust-Uste-Islenmeyen-Tarim-Arazileri-Kiraya-Verilecek
[19]For example, all sub-names such as durum/bread wheat, seed wheat, winter/summer sowing wheat and feed wheat are all listed under the main heading “Wheat”.
[20]This figure was in the range of 3.34–3.64 in KKB’s TARDES system. It should be kept in mind that TARDES covers all 81 provinces, while the survey covers only 28 provinces.

Table 3: Agricultural Plant Types Reported by Farmers

Research Year	Total Number of Unique Plant Types	Number of Unique Plants per Farmer
2019	110	3.00
2020	111	3.28
2021	98	2.92
2022	100	3.18
2023	109	3.05
2024	102	3.04
Average	**105**	**3.08**

Farmers may choose to grow different crops at the same time (on different plots) and/or consecutively within the same year for climatic, agronomic (crop cycles, rotation, irrigation, etc.) and economic reasons. For example, in the 2020 pandemic year, uncertainties related to supply/ demand and pricing compelled farmers to cultivate a wider product range and increase the number of varieties sown as a risk distribution strategy, while in the following year they reduced the variety of products sown due to problems encountered in the value chain that could be attributed to the pandemic and the severe drought experienced that year. As stated in our previous reports, the decline observed in 2021–2022 was mostly due to vegetable varieties[21].

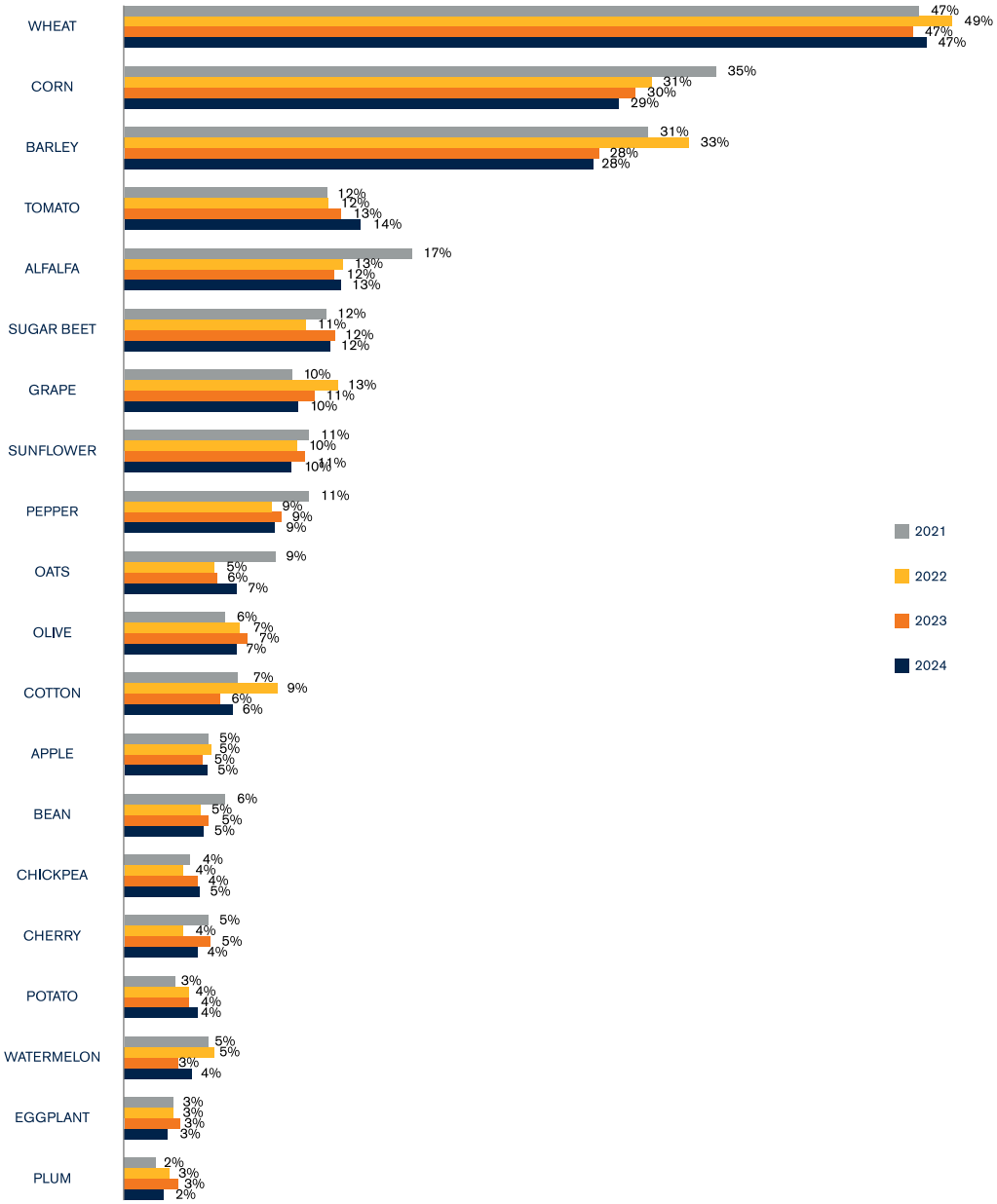
After reporting the product varieties sown during the pandemic, the respondent farmers were asked how many different crops they had grown **"in the preceding 3 years"** as a separate question. The responses to this question varied between 3.6 and 4.3 on average since 2019. The responses to both questions can be summarised as follows: In Türkiye, farmers' crop baskets generally include an average of 3–4 different crops, planted in rotation, and as explained earlier, these are selected based on agricultural and economic factors, as well as essentially legal reasons[22].

The 102 individual crops grown by farmers were ranked, and the **20** most commonly grown crops were as follows (Şekil 11). The grey, yellow, orange and dark blue bars in the graph indicate the values for 2021, 2022, 2023 and 2024, respectively. As the number of notifications for each product is not divided by the total number of notifications for that product, but by the number of farmers making notifications, the annual totals may exceed 100 percent.

[21] Click here to access KKB's agricultural sector reports: https://www.kkb.com.tr/urunler/tarim-kredileri-degerlendirme-sistemi

[22] The Ministry of Agriculture and Forestry does not make support payments to farmers if an annual crop is planted three times in a row on the same parcel (except for greenhouse and paddy crops).

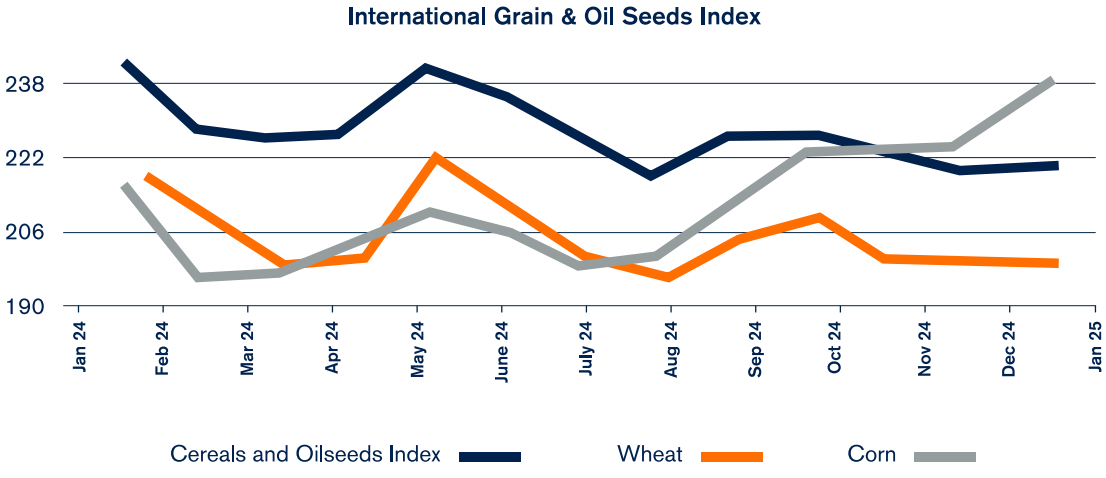
Figure 11: First 20 Plant Types Produced in 2024 to the Total Number of Farmers (%)



Wheat (47%), **maize** (29%) and **barley** (28%) maintained their constant top three positions in 2024, being the main basic inputs for both human nutrition (grain, flour) and animal feed in our country. The varieties grown for the livestock sector reported by the farmers, such as forage wheat/barley and silage maize, are included within the main crops reported in our research. There has been a notable partial decline in maize and barley over the last two years. According to TURKSTAT, the high yields of all three crops obtained throughout Turkey in 2023 declined in 2024[23]. The decrease in maize (-10%) and barley (-12%) yields was greater than for wheat (-5.5%). **The Turkish Grain Board** (TMO) announced lower intervention purchase price increases for barley and maize than for to wheat. Grain and silage maize production has also been affected by the Ministry's water constraint planning, and the resulting shift from maize to other crops (e.g. sunflower, tomato, beans) has been addressed in previous reports.

[23]https://data.tuik.gov.tr/Bulten/Index?p=Bitkisel-Uretim-Istatistikleri-2024-53447

Figure 12: International Grain & Oil Seeds Index



Maize prices in the 2023/2024 production season fell to unexpectedly low levels due to the increase in global production. US corn, which was priced at around US$220 during the 2023 harvest season, fell to US$150 in August 2024. However, low yield forecasts in Argentina and Brazil for the 2024/2025 season, along with concerns about additional customs duties in the United States, caused corn prices to rise again. Brazil, the United States and Argentina are the world's top three maize exporters. Maize prices in our country increased by 54 percent on average in the free market compared to last year, affected by both the decrease in domestic production and global developments[24].

As in previous years, tomato (14%) and grape (10%) ranked first among the vegetables and fruit, respectively. In this year's survey revealed an increase in tomato production. The unfavourable market developments related to contract production, and the prices and export of tomatoes in previous years have been covered in our previous reports. The increase in production in 2024 suggests that farmers predicted the fluctuations in this product experienced in previous years would have a positive effect on prices. The increase in tomato production was confirmed by TURKSTAT data at the end of the year (Figure 13). The TURKSTAT data for **potato** and **pepper**, which can be produced anywhere in Türkiye, visibly diverge from those presented in Figure 11, however, this may be attributable to the sampling approach. While the TURKSTAT data is based on nationwide sampling, our field surveys were conducted only in 28 provinces. It would seem appropriate to consider this analysis together with Figure 14.

Tablo 4: Production Quantity for Selected Products

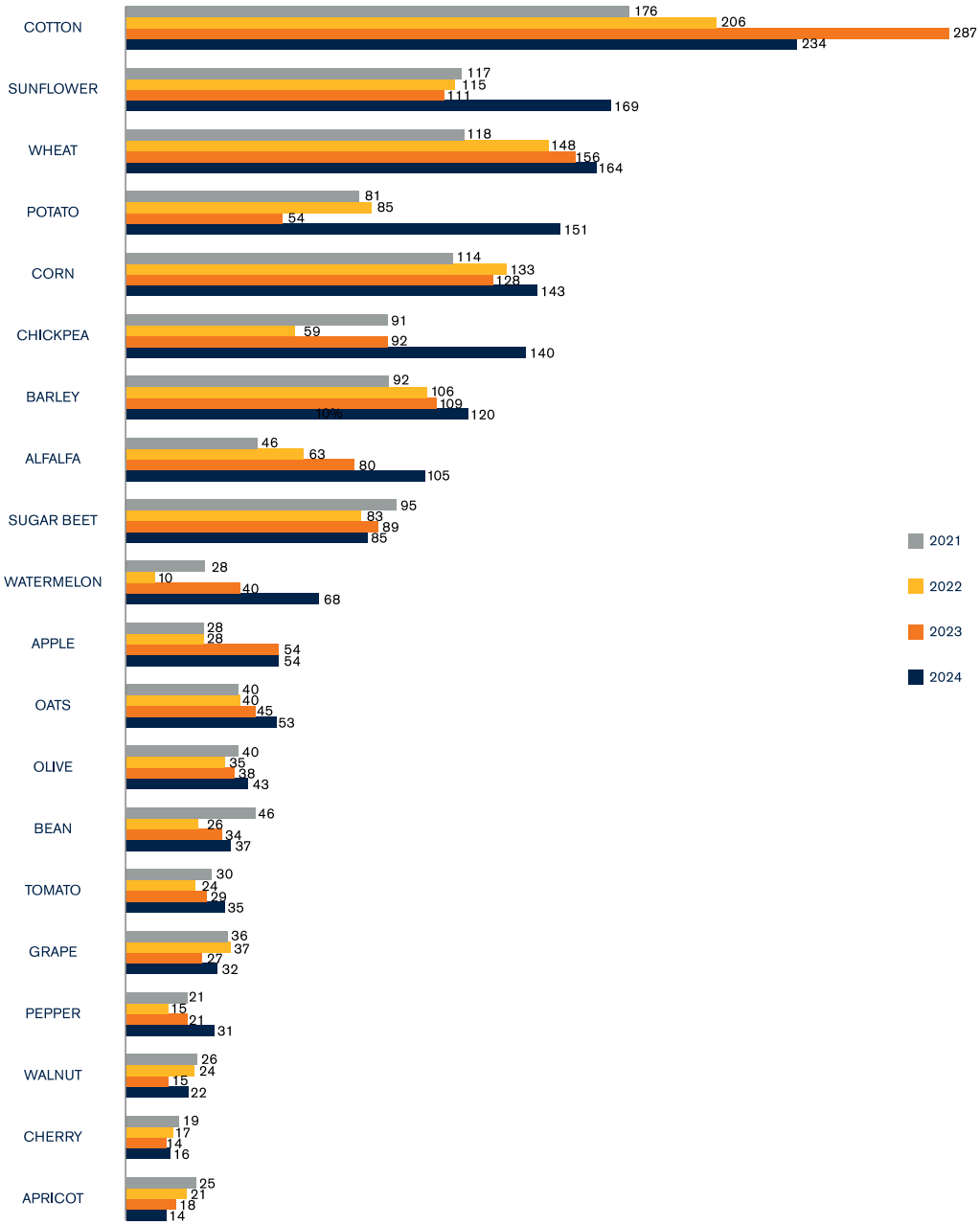
Product Name	2023-2024 Change
Wheat	-6%
Corn	-10%
Barley	-12%
Tomato	10%
Sugar beet	-9%
Grape	2%
Sunflower	0%
Pepper	11%
Cotton	7%
Apple	-4%
Beans	0%
Chickpea	-1%
Cherry	-1%
Potatoes	21%
Watermelon	2%
Eggplant	1%

Although the rankings of **sugar beet** (12%) and **sunflower** (10%) differ in Figure 11, the crops have been close to each other in the last 5 years, and have been the leading industrial crops. While some changes occurred in the rankings of the top 20 products listed in 2023 and 2024, there were no changes in the listed products, and there have been 15 products that have never left the top 20 in the last 5 years. Furthermore, although the rankings vary, 16 of the top 20 products for which loans are requested through KKB's TARDES system also appear in the top 20 list of the field study.

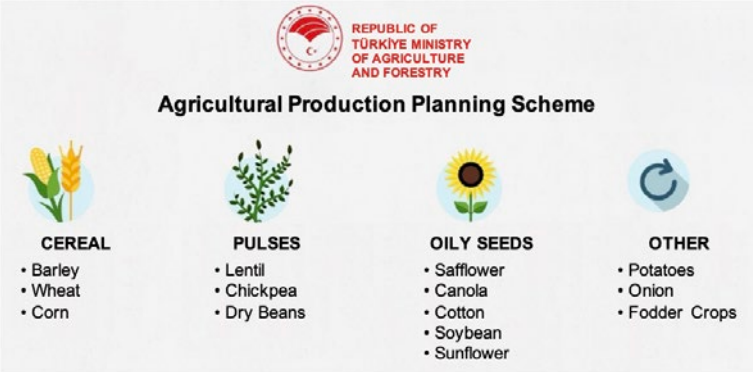
The **average cultivation area per farmer** of the 20 crops most preferred by farmers is presented in the graph below (Şekil 14). As in previous years, average plantings were higher for **field crops** (wheat, maize, cotton, etc.), where mechanisation is dominant in production, while lower averages were obtained in **fruit** and **vegetables**, where human labour is more intensive. Compared to 2023, in 2024 chickpea, alfalfa and potato are included in the crops with cultivation areas exceeding 100 decares. Thus, the 100 decare limit was exceeded for all field crops other than sugar beet and oats. The inclusion of **potato** and **pepper** on the top 20 crops lists produced based on the results of our field survey (Figure 11) and TURKSTAT production data (Figure 13) previously diverged, although the two seem to agree on the cultivation area per farmer.

[24]The average maize prices between 01.09-31.12.2023 and 01.09-31.12.2024 were analysed within the TOBB Commodity Exchanges Information System.

Figure 13: Average Cultivation Size per Farmer of the Top 20 Crops (decare)

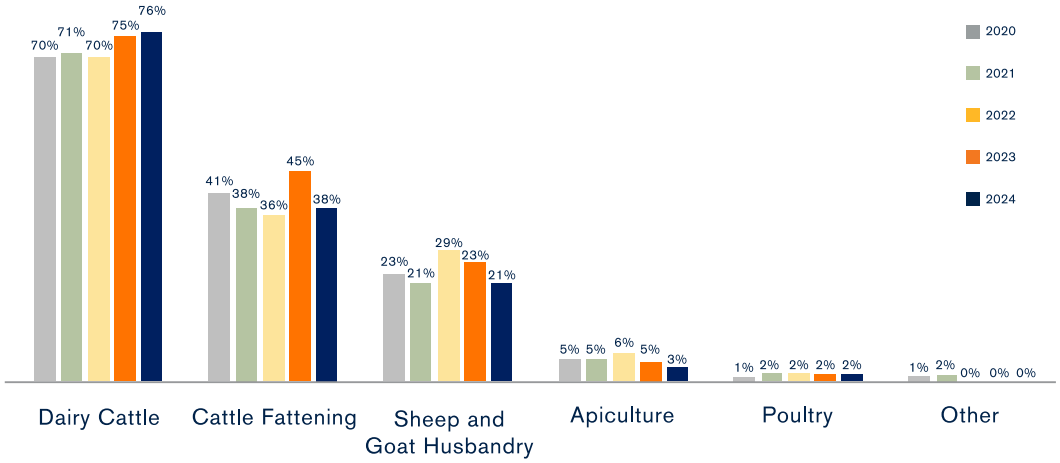


As of next year, the crop analyses carried out for our field research will be structured to cover the **"Agricultural Production Planning Model"** announced recently by the Ministry of Agriculture and Forestry. Covering all 81 provinces and 30 basins, the new production planning model aims to ensure security of supply in strategic field crops and the efficient use of our country's resources. The exclusion of fruit and vegetables is estimated to be due to the more mature market dynamics observed in these sectors. The "planning" list, which currently includes 13 crops+1 crop group (fodder crops), features 10 items that match the top 20 crop lists identified in our field research this year.



The type of animal husbandry performed by the livestock and mixed (crop + animal) enterprises previously detailed in Figure 8 is presented in Figure 15. The graph shows the ratio of each livestock type to the number of total livestock enterprises, allowing livestock enterprises to be compared separately from crop enterprises. Since there may be enterprises engaged in more than one type of animal husbandry (especially dairy and livestock breeding), the total rate for each year may reasonably exceed 100 percent. **Dairy cattle farming** (76%) maintained its highest proportion, as in previous years, followed by **cattle (beef) fattening**enterprises (38%). Given the frequency of micro and small scale, subsistence or semi-subsistence dairy farming in rural households, it is natural for dairy cow production to be high. While **ovine** breeding was historically widespread in our country, it has lost ground against cattle farming due to the decline in demand over time. For example, the share of sheep in total livestock of 38.2 percent in 1991 declined to 23.1 percent in 2018, but had increased again to 26.6 percent by 2024[25]. It should not be ignored that rapid changes and transitions are not possible in livestock production, as is the case in crop production, and that livestock investments require medium–long term planning as well as appropriate tools.

Figure 14: Distribution of Livestock Farming Types



[25]The ratio of ovine / (ovine + bovine) was calculated based on the bovine animal unit (BAU).

The average livestock holdings per enterprise among the livestock enterprises are presented in Table 4. An analysis of the averages from the last 5 years reveals that the data for 2023 may have become a sub-support point in bovine (milk, meat) and ovine breeding. The TURKSTAT data presented in Figure 5 supports this assumption. The Ministry of Agriculture and Forestry published a 10-article "Livestock Road Map (2024–2028)" on 26 February, 2024 aimed at accelerating domestic production in animal husbandry[26]. As a component of the roadmap, the "Rural Abundance, Livestock Support Project" was announced on 5 February, 2025 aimed at strengthening family businesses in rural areas[27]. It is believed that, with the implementation of the announced road map and the provision of the necessary tools, the targeted results can be achieved firstly in the domestic bovine population and then in milk and meat supply in the medium term.

Table 5: Average Number of Animals per Enterprise

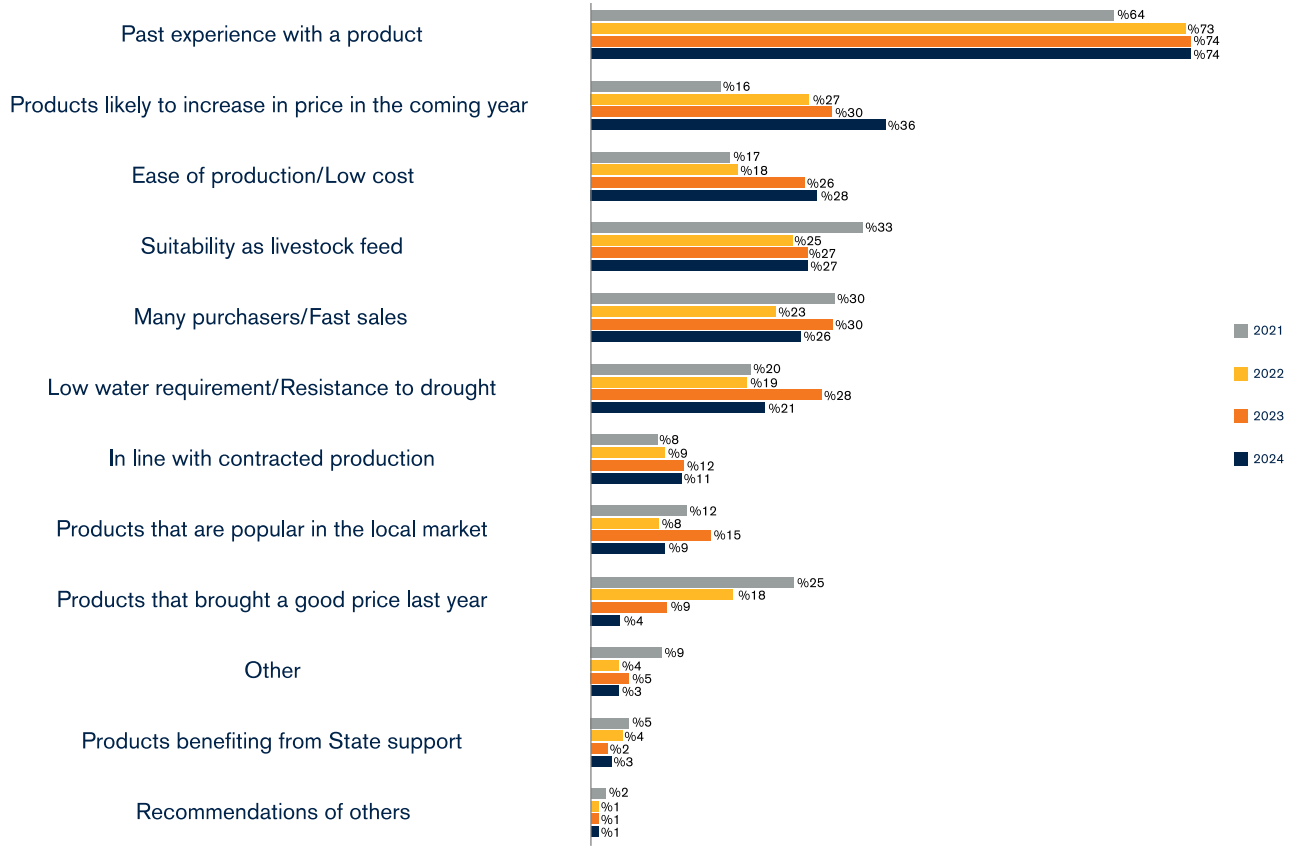
Livestock type	2020	2021	2022	2023	2024
Dairy farming	30 dairy cattle	29 dairy cattle	24 dairy cattle	21 dairy cattle	29 dairy cattle
Cattle fattening (broiler)	51 fattening cattle	59 fattening cattle	70 fattening cattle	44 fattening cattle	52 fattening cattle
Sheep and Goat Husbandry	210 sheep/goats	254 sheep/goats	280 sheep/goats	235 sheep/goats	246 sheep/goats
Apiculture	68 hives	96 hives	65 hives	97 hives	102 hives

Ministry of Agriculture and Forestry's "2024-2028 Livestock Road Map" (right) and flyer of "Rural Prosperity Support to Animal Husbandry Support" Project (left)

[26]https://www.tarimorman.gov.tr/Haber/6211/Bakan-Yumakli-2024-2028-Yillarinda-Uygulanacak-Hayvancilik-Yol-Haritasini-Acikladi
[27]https://www.tarimorman.gov.tr/HAYGEM/Haber/327/Kirsalda-Bereket-Hayvanciliga-Destek-Projesi-Kriter-Ve-Basvuru-Sartlari

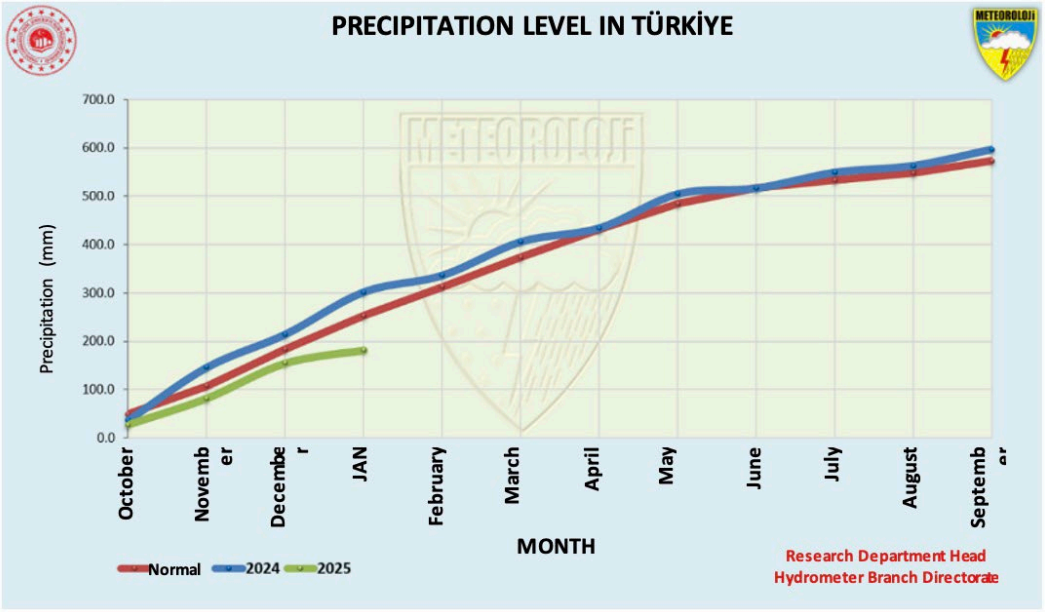
Understanding the dynamics affecting the crop preferences of farmers in crop production is vital for production forecasting and planning. In the financial sector, such planning serves as the basis for the development of products and services supporting crop production. The answers of the respondents to the question **“On what basis do you decide which product to produce?”** are presented in Şekil 16. The respondents were given 12 multiple-choice options, and could select up to a maximum of five to ensure a more qualified result.

Figure 15: “On what basis do you decide on a product?”



The leading factor directing product preferences among farmers, as reported in past field researches, was “Past experience with a product” (74%)[28]. In the period of relatively lower inflation, the answer **“Products likely to increase in price in the coming year”** (36%), which was ranked lower, gradually increased, while the importance of “Products that brought a good price last year” (4%) decreased. It is understood that farmers try to follow and predict future prices rather basing their decisions on actual prices. Owing to the increase in crop yields in 2023, there was as decline in the importance of **“Many purchasers/Fast sales”** and **“Products that are popular in the local market”** to close to 2022 levels in 2024 with the stabilisation of yields, especially in one-year crops. In 2024, the “Low water requirement/Resistance to drought” option (21%) retreated to the levels seen in previous years, which could be attributed to the above normal (red line) precipitation throughout 2024 aside from in the last 3 months (green line in Figure 17). The “Water year” definition of the General Directorate of Meteorology covers the period starting in October and ending in September.

Figure 16: Comparison of Monthly Precipitation in the 2024 Water Year with the Long-Year (1991–2020) Normal

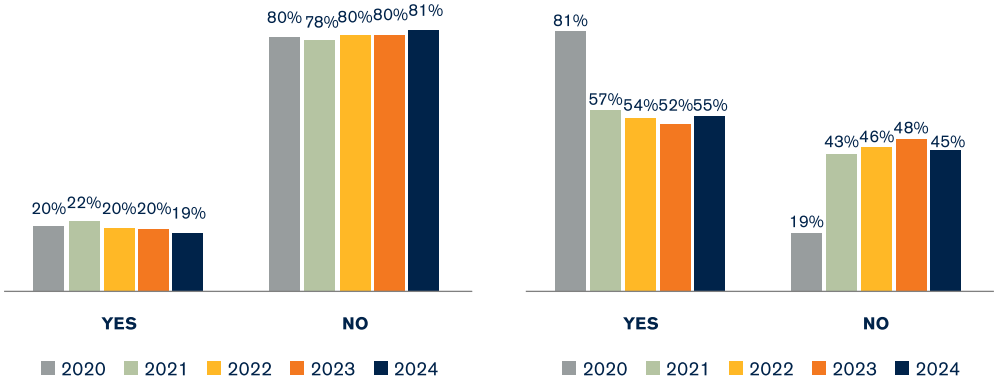


The influence of **“contracted production”** on crop preferences (11%) was similar to the levels seen in 2022–23. In order to make more detailed analysis in this field, the answers to the contracted production and product questions asked to the farmers in our research.

Şekil 18 While the proportion of farmers engaged in contract farming of any kind has experienced a limited decline over the last 3 years, the level of satisfaction with contract farming has seen limited improvement. Agricultural input and output inflation, which started following a favourable path in 2024, are thought to have contributed to this improvement. Within the scope of the newly commissioned “Agricultural Production Planning Model[29], the development and functioning of the contracted production market, the legal infrastructure of which has been strengthened, will continue to be included in our studies in the coming years. The development of “contracted production”, which is affected by the multi-faceted (production, economic, commercial, cultural) dynamics of the agricultural product value chains to different extents, is an indicator for the deepening of the agricultural markets.

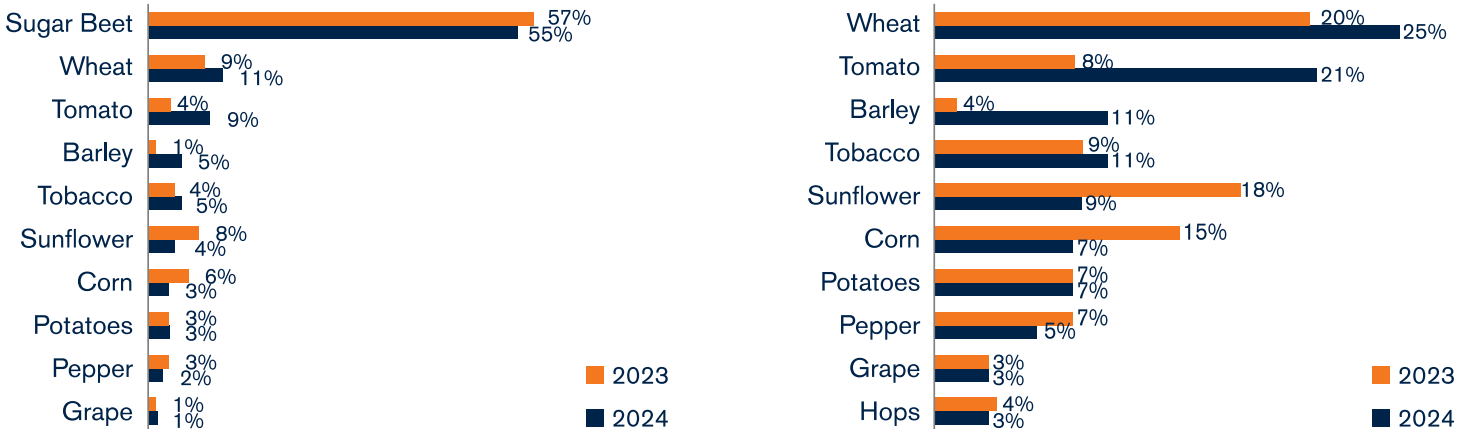
[28]https://www.kkb.com.tr/urunler/tarim-kredileri-degerlendirme-sistemi
[29]“Sözleşmeli Üretimin Usul ve Esasları Hakkında Yönetmelik”, 15.09.2023 tarih ve 32310 sayılı Resmi Gazete

Figure 17: Farmers Engaged in Contract Production (left) and Their Satisfaction with Contract Production (right)



Most of the farmers engaged in contract production reported growing **sugar beet** (55%), which can only be grown in this way under Turkish Law (Şekil 19, left-hand graph). When the products are reordered after disregarding sugar beet, the graph takes the appearance on the right side. **Tomato** is mostly grown under contracted production, and is used mostly for industrial products (tomato paste, canned food, sauces, etc.). It maintained a second or third place ranking after sugar beet in our field surveys before 2023, but fell to fifth place in our 2023 survey as a result of market developments. The possible reasons for the rise of this product, which returned to its previous levels in 2024, was speculated in the previous section (Figure 11).

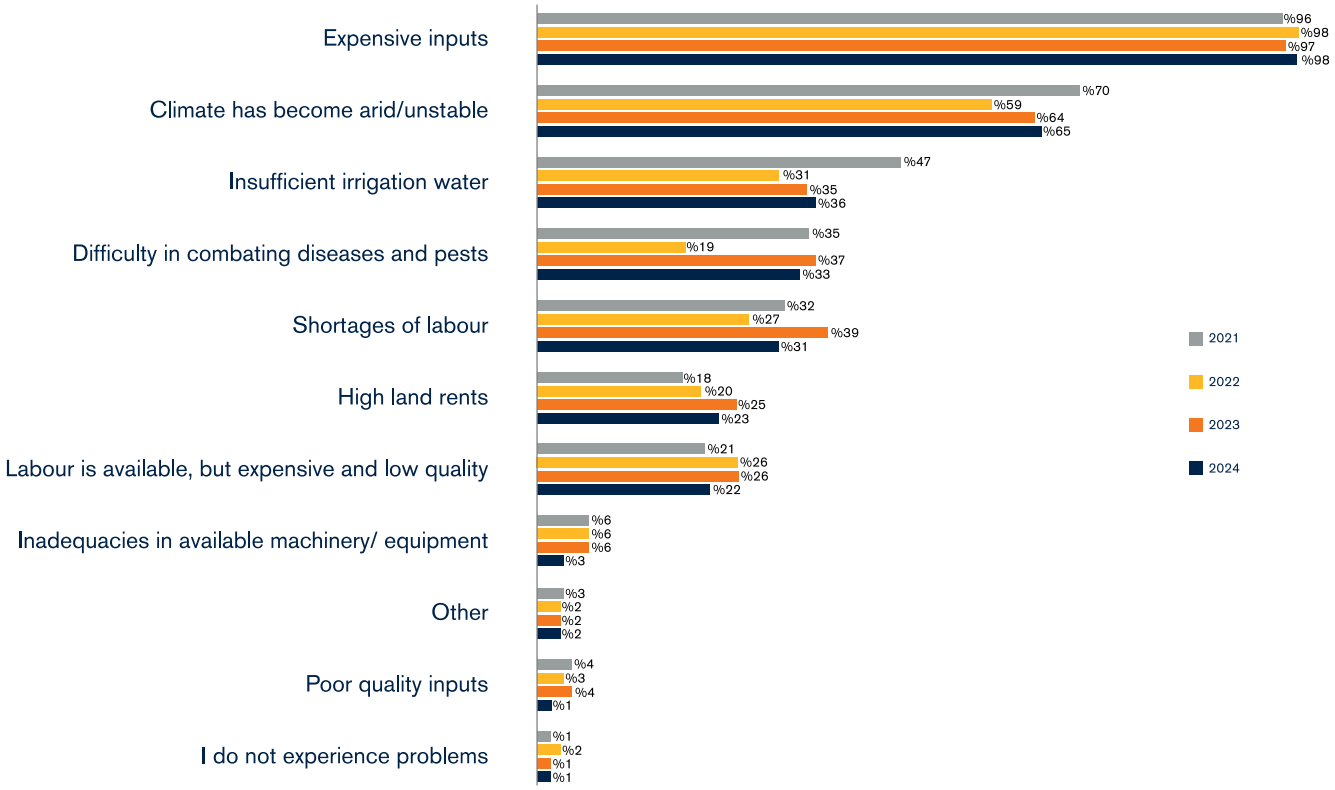
Figure 18: Top 10 Contracted Crops (left) and Top 10 Contracted Crops Excluding Sugar Beet (right)



4.3. Sectoral Problems of Farmers

The KKB Agricultural Outlook Field Surveys analyse the problems encountered by farmers both “during” agricultural production (Şekil 20) and “after” production (Figure 24), separately, for the two successive phases of the value chain. This allows production-based problems and post-harvest marketing-based problems to be analysed separately. The farmers were provided with a list of 10 possible problems they may encounter “during production”, including an “Other” option, while a further “I do not experience any problems” option was also provided. The farmers were allowed to choose five of the options to ensure the strength of the results.

Figure 19: Problems Experienced by Farmers “During” Production



The extent and trends in the problems affecting production in general did not change in the 2024 field survey. As in previous years, **"input costs"** (98%) were a common problem of almost all farmers, followed by **"climatic instability"** (65%) and **"water scarcity"** (36%). Although Türkiye experienced no widespread drought or rainfall heavy in 2024, it is understood that farmers now consider climate change to be a permanent problem to be addressed. Increases in average temperatures and unexpected and sudden changes in weather and precipitation levels are the two main characteristics of global climate change.

According to the General Directorate of Meteorology's Climate Assessment Report for 2024, the average temperature in Türkiye in 2024 was 15.6°C, breaking a record that had stood for 54 years. This value is higher than the long-term average (1991–2020: 13.9 °C) means a deviation of 1.7 °C (Figure 21). As previously stated in Figure 17, there were no problems related to precipitation in 2024, with above normal rainfall recorded in the first 9 months of the year. That said, the irregularities in monthly precipitation rates compared to normal did not escape the attention of farmers (Figure 22).

Figure 20: Annual Average Temperature Differences in Türkiye (General Directorate of Meteorology)

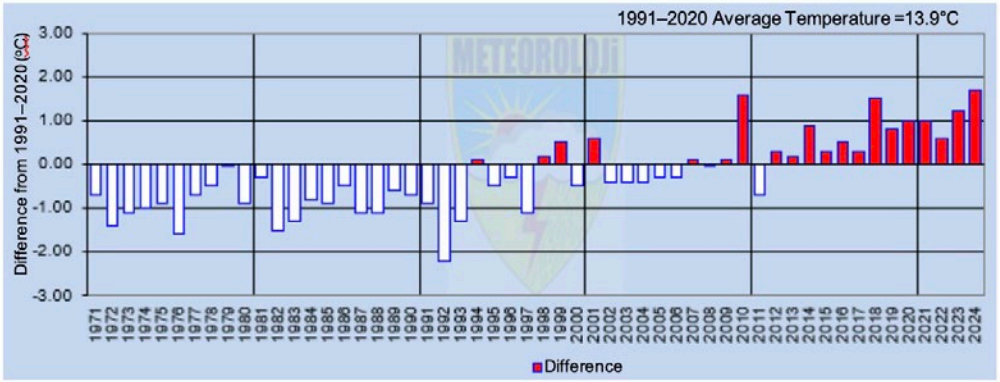
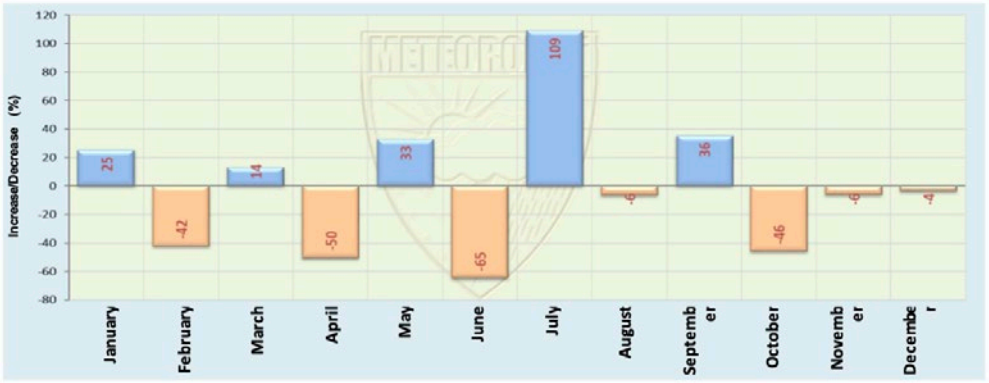


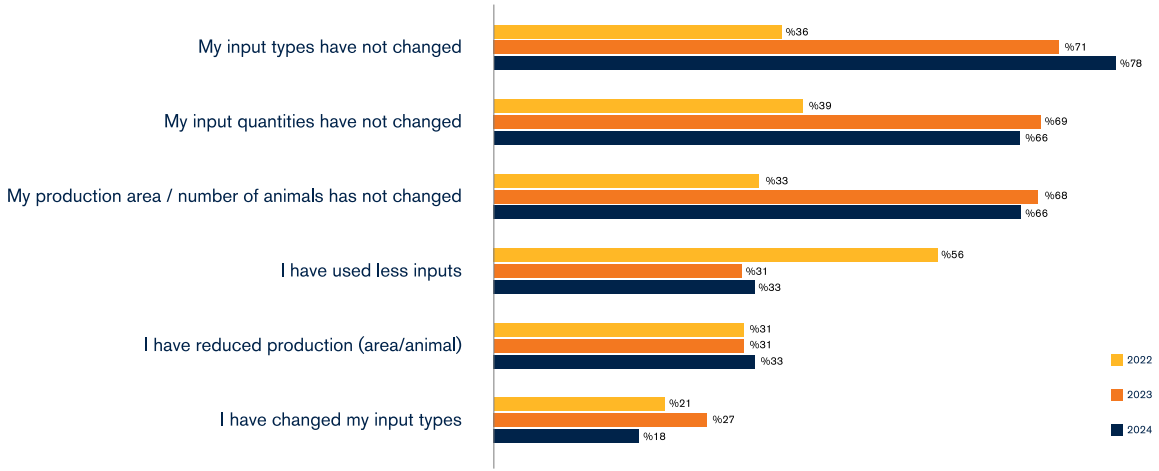
Figure 21: 2024 Monthly Precipitation Anomalies (General Directorate of Meteorology)



The level of the problems after the first three problems has decreased compared to 2023, and there have been changes in the ranking of these problems among themselves. A notable decline was observed in the **"finding labour"** (31%) and **"finding cheap/quality labour"** metrics (22%). Whether this situation signals a "return to the field", including the family labour force, will continue to be monitored in future researches. This possibility is strengthened by the fact that urban living costs have increased, while agricultural labour earnings rose significantly in 2023. In line with the earlier analysis of rental land in Table 2, the **"high land rents"** (23%) reported have seen a decline since 2023.

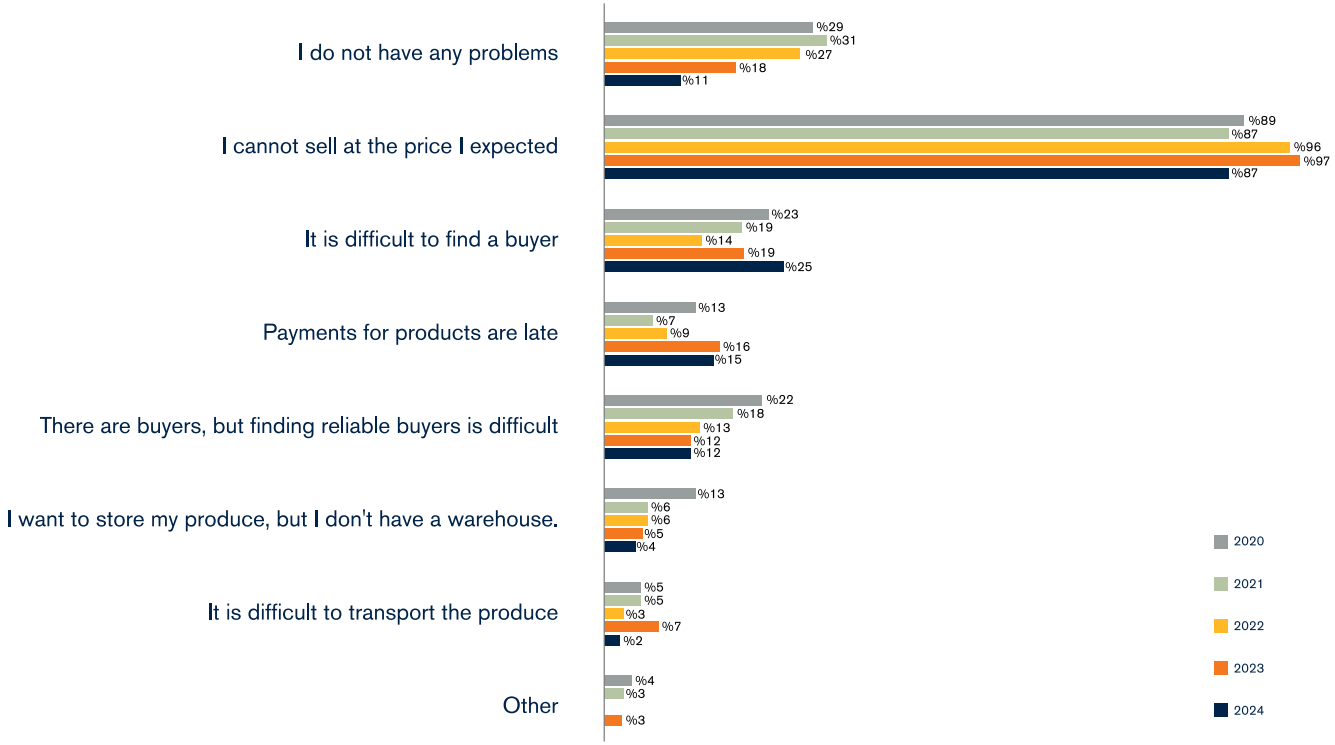
Since our 2022 study, farmers have been asked the question **"How have the high costs of inputs affected you?"** to understand the effect on their production decisions (Figure 23). This question aims to test the answers related to input cost in the previous question. The **"I used fewer inputs"** (56%) response was most common in 2022 when the annual agricultural input price index (Agricultural IPI) was measured at 91 percent, but decreased in the following 2 years to reach 33 percent in 2024. Consistent with this decrease were the increases in the responses **"my input type has not changed"** (78%), **"my input amounts have not changed"** (66%) and **"my production area/animal number has not changed"** (66%). Agricultural IPI was measured at 35 percent in 2023 and 32 percent in 2024. As of December 2024, the annual price increase of the three main inputs identified by the farmers was 20 percent for diesel (diesel oil), 21% for fertilisers and 22 percent for agricultural pesticides. With the stabilisation in input inflation, the proportion of farmers (18%) seeking different input types decreased in the 2024 survey.

Figure 22: Responses to the Question "How has the cost of inputs affected you?"



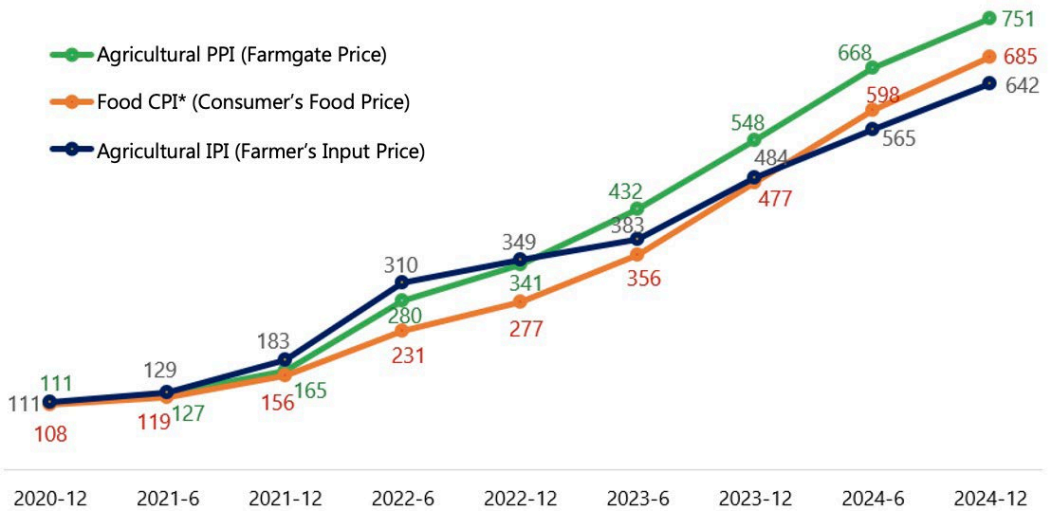
Coming to the second sectoral problem period, the distribution of the problems encountered by farmers **"after production"** is presented below (Figure 24). As in the previous section, each farmer was asked to select up to four of the total of eight options to ensure the identification of the most prominent issues. For the calculation of the ratios of the problems, only farmers who reported at least one problem were considered, while those who said **"I do not have any problems"** (11%) were excluded.

Figure 23: Problems Experienced by Farmers "After" Production



As in previous years, the answer **"I cannot sell at the price I expect"** had the highest rate, but the rate was reduced to 2021 level (87%). The inflation dynamics that influenced the responses to other questions also come into play here. When the price indices of the three markets (inputs, buyers, consumers) that affect farmers' perceptions of inflation are presented together in the same graph (Figure 25), it is seen that for the last 1.5 years, the Agricultural PPI, as the farmers' selling price, has been above both the **Agricultural IPI** (green line) and the **Food CPI** (green line). The expected the price perception of farmers who see their input costs (Agriculture IPI) increasing less than their sales prices (Agriculture PPI) is also stabilised. Consumer inflation of agricultural and food products (Food CPI) has two different perceptions on farmers. The first relates to the price paid by the consumer for produce (especially unprocessed/fresh produce) that farmers sell first to an intermediary. The second is the fact that farmers are also consumers.

Figure 24: Agriculture and Food Price Indices in Türkiye (2020=100)



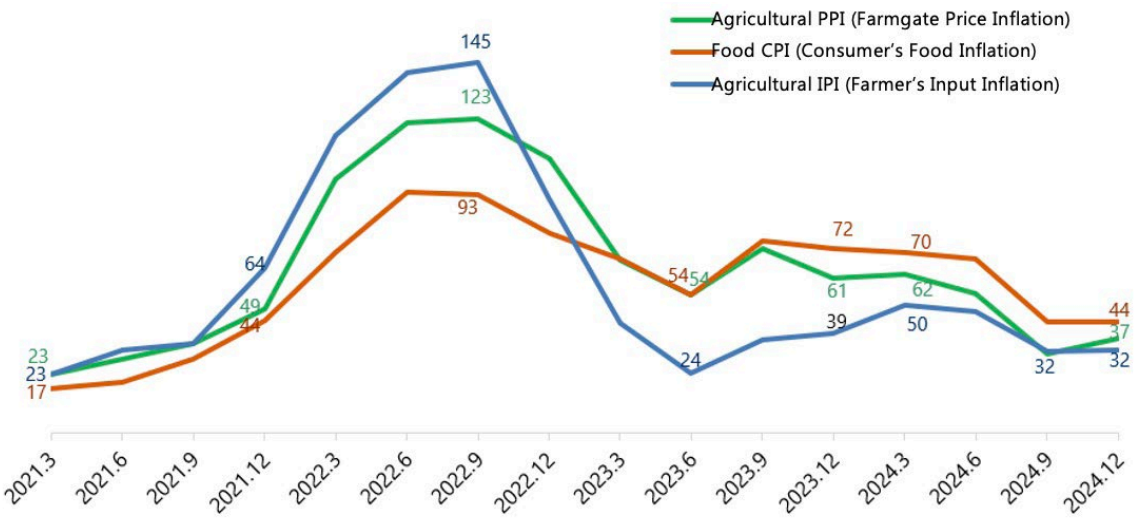
Source: TÜİK (TurkStat)

**The base year for Agricultural PPI and Agricultural IPI is 2020. The base year of the food CPI, which was 2003=100, has been recalculated as 2020.*

Complementary to the above inflation analysis are output quantities. The lack of decline in agricultural production, and hence, outputs, in 2024, together with the stabilised input inflation, changed the perceptions of inflation among farmers, but to a limited extent. Another parameter that needs to improve in the short term for further improvement is **loan and deposit rates**. According to Central Bank data, commercial loans (excluding those made through ODA and credit cards) and TL (1-month) deposit rates are still at 50 percent at the time of writing (March 2025). If interest rates converge to the Agricultural PPI levels shown in Figure 26, inflation perceptions and pricing behaviours will improve further. A detailed analysis of Figure 26 reveals that the indices started to converge to 2021 levels in the second half of 2024. By the end of 2024, leading indicators point to an increasing likelihood that[30] price indices will return to the levels of 4 years ago.

[30]D-PPI, D-PPI and H-PPI, and the negotiations led by the United States to bring about an end to the Russia-Ukraine War.

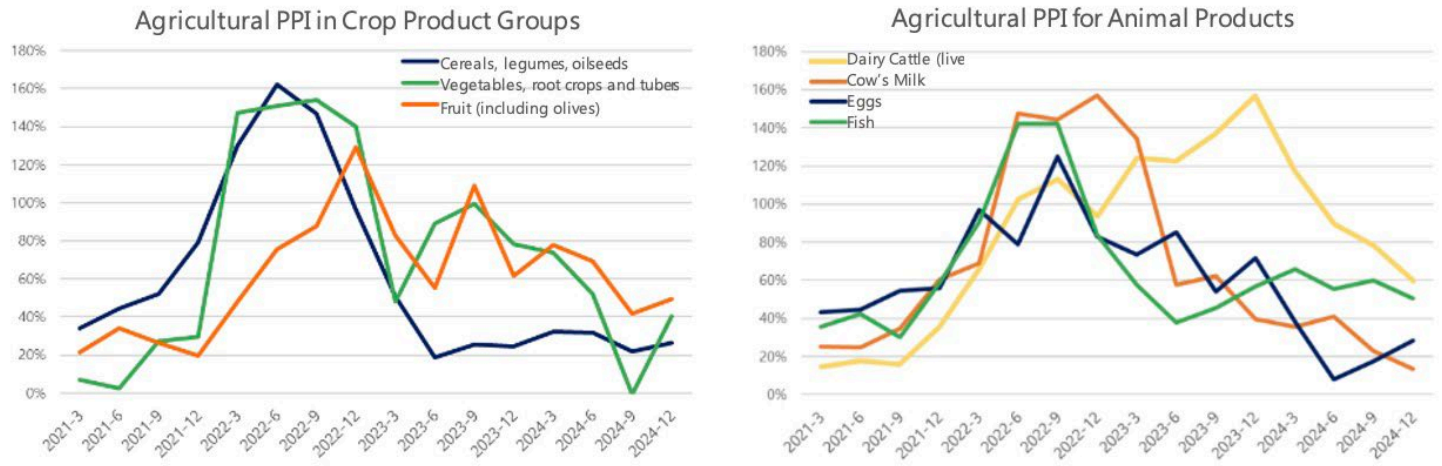
Figure 25: Agriculture and Food Price Inflation in Türkiye (%)



Source: TÜİK

Agricultural PPI is an index listing more than 100 agricultural, forestry and fishery products. A more detailed analysis is presented in this year's report based on calculations of the increases in selected crop groups and animal products over the last four years, the results of which are presented in two side by side graphs (Figure 27). The most noteworthy finding is the exorbitant increases observed in all products in 2022. The only exception to this finding is in **dairy cattle (live)** prices, which saw peak price increases with a one-year lag. The second finding that can be easily drawn from the graphs is that **fruit and vegetables** among crops, and **milk** and **eggs** among livestock produce have followed a more volatile course on a quarterly basis than other products. A significant proportion of fruit and vegetables are intended for fresh consumption, while the Milk and eggs also have a limited shelf life. The majority of cereals and other field crops are long-lasting (storable), and their supply and demand can be more easily balanced through foreign trade. Although it is not immediately apparent from the graph, calculating the index results on a product basis reveals that the highest price increase over the last 4 years among crops has been in the **vegetable** group, while for animal products, **dairy cattle (live) have seen the highest increase**. While TURKSTAT has yet to publish current meat prices, according to the price bulletins of the National Red MeatCouncil, beef and lamb prices have increased to levels close to those of live cattle prices in the last 4 years.

Figure 26: Agricultural PPI by Product Group (annual increase compared to the same month in the previous year)



Among the post-production problems encountered (Şekil 24), **"difficulties in finding a buyer / few buyers"** (25%) has maintained its upward trend over the last 2 years. This may be due to the reduction in the purchases of the TMO (from 2023) and to the private sector. **"I am paid late for my produce"** (15%) responses increased, which can be attributed to the high inflation in 2023, and continued to be a major concern for farmers in 2024.

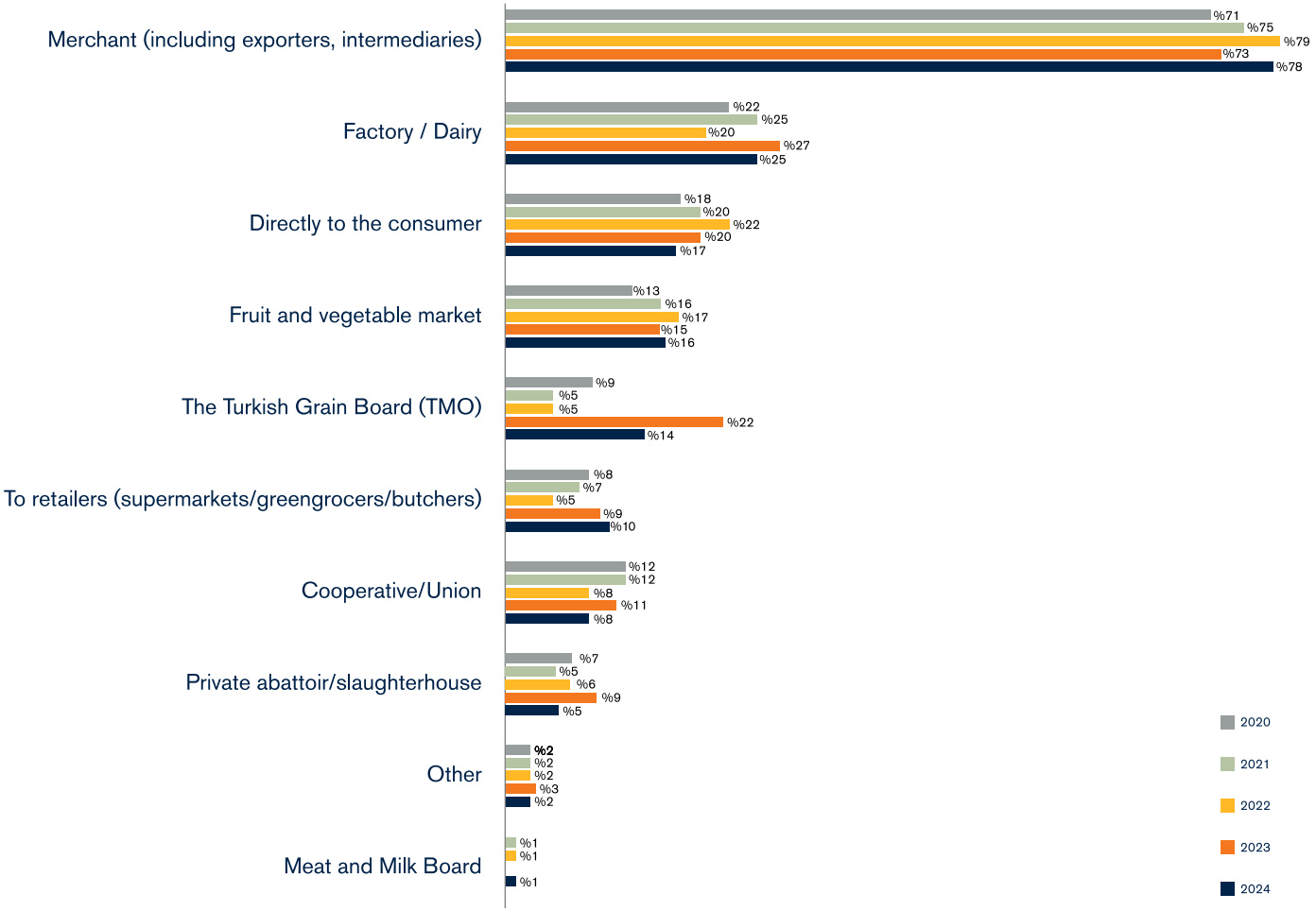
4.4. Farmers' product sales channels, collection methods and non-agricultural income

The next section of our field survey questionnaire contains questions related to "sales, collections and income". Before moving on to the results obtained in this section, it would be useful to provide a brief explanation of the general structure of the buyers' market in agricultural value chains.

In the agricultural sector, each product or group of products is part of an established and functioning value chain in which certain (same) types of buyers purchase products from farmers. The characteristics and numbers of buyers are shaped by such factors as the storability of the agricultural product in question, industry, consumption patterns, and the size/numbers of consumers. Depending on the characteristics of the product and the market, farmers may sometimes market their products to only one collector or processor, and sometimes to different types of buyers. For example, farmers may sell directly to retailers or consumers, in which case, the type of buyer is clear from the outset.

In our research, the respondent farmers were first asked where they sold their produce, regardless of the product. In this section, in which multiple options could be selected, the average number of buyer types was calculated as 1.76, calculated from the total number of sales channels indicated by the farmers divided by the number of respondent farmers. Since 2019, this number has hovered between a minimum of 1.6 (in 2020) and a maximum of 1.9 (in 2023). The final distribution of buyer types on a farmer basis is as follows (Figure 28): Intermediary enterprises who collect the produce of the farmers and are referred to as "traders" in our research, constituted the largest buyer group (78%) in 2024, as in every year. All intermediaries (including brokers, exporters, drovers, etc.) who buy produce wholesale from the farmer, and who carry out no processing, but rather sell it to other traders, processors or retailers, are classified under this heading.

Figure 27: Responses to the Question "Where do you sell your produce?"



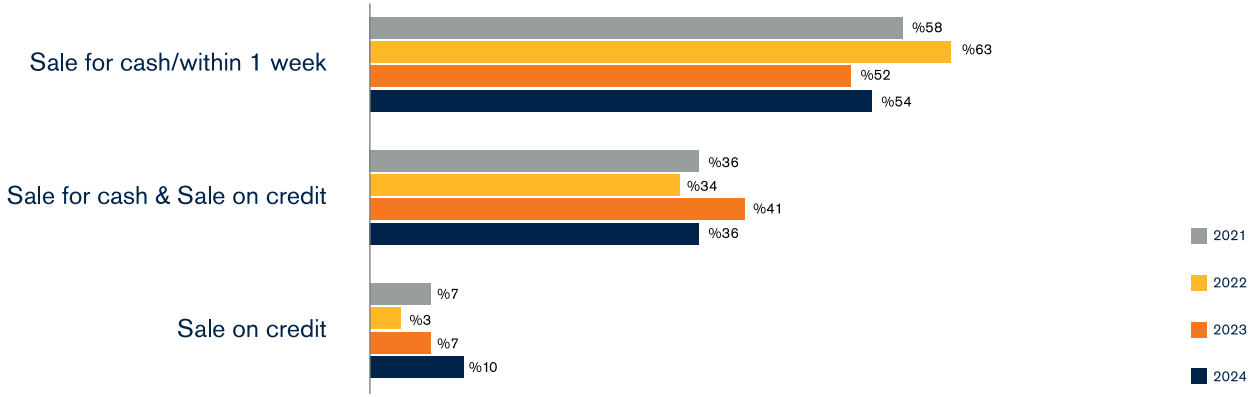
One notable change in the buyers' graph is the dramatic increase in sales to the Turkish Grain Board (TMO) in 2023, followed by a stabilisation at 14% in 2024. In our 2023 report, it was stated that as the record grain production (42 million tonnes) on a country basis in 2023 led to the TMO breaking records and through the purchase of nearly 13 million tonnes of grain from farmers. Entering the 2024 harvest period with already full warehouses, the TMO had purchased nearly 5 million tonnes of grain by the end of 2024. This amount, while above the historical average TMO purchases, was below that of 2023, and was in line with the trend observed in our research.

The proportion of farmers selling **"direct to consumer"**, which increased in our surveys during the pandemic, declined in 2023 and had reached 17 percent by in 2024. In inverse proportion to this, the proportion of farmers selling to **"retailers"** has been increasing over the last two years (10%). Depending on the market realities mentioned at the start of this section related to agricultural value chains, there are certain products that can be sold directly by the farmer to the retailer or consumer without intermediaries or processors, primarily fresh fruit, vegetables, milk and dairy products. As such, most of the farmers who increased their sales to retailers were the same as those whose sales directly to consumers declined. The inverse proportion between the two sales channels over the last 2 years suggests a return of the "producer-to-consumer" sales route seen during the pandemic to the situation before the pandemic. The rapid increase in cargo and transportation costs over the last 2 years can be thought to have strengthened this trend. In the 2-year period between 2020 and 2022, TURKSTAT's cargo and transport services index[31] increased by 133 percent, compared to 299 percent in the most recent 2-year period (2022–2024).

[31]TURKSTAT, Consumer Price Index, 07360 - Other purchased transport services (transport, cargo, etc.)

The following question relates to how long it takes for farmers to collect payments for their products from these buyers. When Figure 29 is analysed as a whole, it can be seen that **sales on credit** (partially+fully credit) have increased in the last 2 years when compared to 2021 and 2022, while **cash sales** have witnessed a relative decrease. In our, collections made up to one week in advance and payments made later are accepted as deferred payments. The most important difference of the last two years compared to the market conditions is the increase in interest rates as part of the efforts to fight inflation. It is thought that the TMO, as the biggest buyer of cereals, may also have an impact on the collection data. The TMO made its grain price payments within 10 days in 2022, however this increased to 30 days in 2023 and 45 days in 2024 – the year it broke historical purchasing records. During their field visits, the KKB agricultural experts found that purchases of many field crops and vegetables (especially potatoes, onions, tomatoes, watermelons, melons) were made almost entirely on credit.

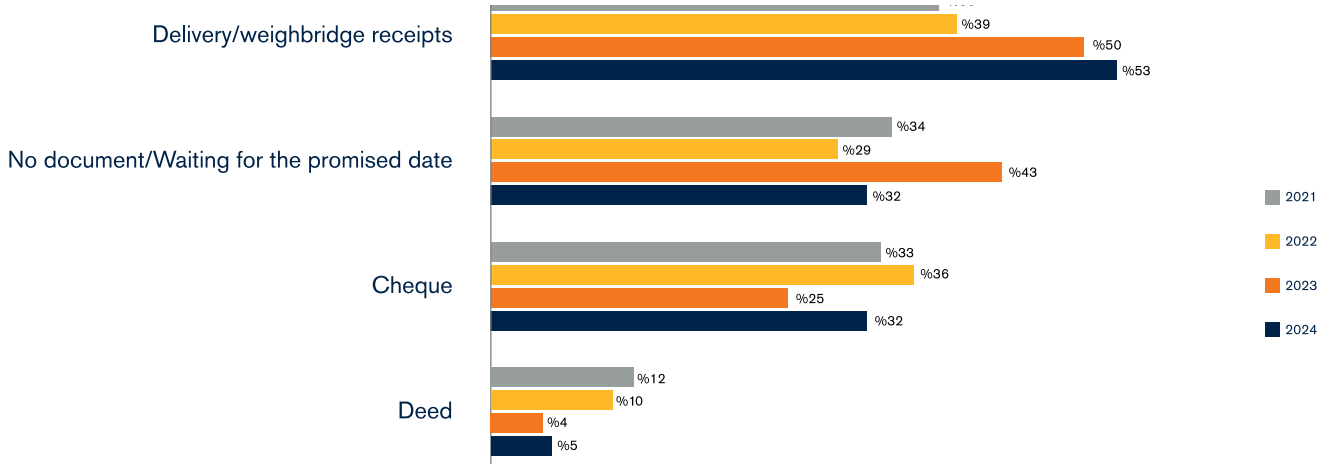
Figure 28: Collection method of farmers' agricultural sales proceedings



In agricultural value chains, buyers generally have the power to determine payment conditions, influenced by parameters such as supply-demand balance, inflation and loan interest rates. Of course, there may also be market conditions or products in which the parameters favour the farmer. Our field research aims to produce a picture of the general outlook every year without discriminating between products, and to analyse long-term trends through comparisons with different parameters. Although our data set, which has entered its 6th year, has not reached the ideal size for long-term analyses, the results obtained to date seem to be in line with the current outlook and market conditions.

In the following question, which excluded farmers making exclusively cash sales, the farmers who made sales based on full or partial credit were asked what "document" was provided by buyers in exchange for their receivables (Figure 30). This question was designed to measure the types of credit documents used in the agricultural sector and to gain an idea of the financial literacy levels of farmers. In 2024, the proportion of farmers who **"did not receive a receipt"** (32 per cent) decreased, while the proportion of those who received a **"delivery/scale receipt"** (53%), which is not actually a type of receivable document, remained at the same level as in 2023. The responses **"cheques"** (32%) and **"promissory notes"** (5%), which are considered legal receipts for goods (negotiable instruments), also increased.

Figure 29: Type of Security Obtained by Farmers who Sell Wholly or Partially on Credit



In this question, **"Delivery/Scale receipt"**, which was not offered as a response option in our researches before 2021, was added to the options for the first time in 2021 after being persistently mentioned by farmers in our field researches in 2019 and 2020.[32] A delivery receipt serves as practical proof of the delivery of farmers' produce to the buyer, indicating the name of the farmer, the name and type of produce, the quantity (often based on weighbridge data) and the time of delivery. Delivery receipts may also include the price to be paid by the buyer to the farmer for the product at the price agreed between the two. All this information suggests that a "delivery" is considered a de facto "sale". The fact that buyers issue delivery receipts rather than invoices (producer receipts), cheques or promissory notes on behalf of the farmer raises questions about whether agricultural trade is being carried out in accordance with the law and in a transparent manner. The fact that buyers refrain from incurring legal and financial obligations at the time of delivery should be considered a source of great in terms of protecting the financial rights of the farmer. If sales prices are not to be paid in advance by the buyer, the buyer should be expected to provide a future dated cheque or promissory note together with any producer receipt, or a purchase and sale agreement should be signed between the parties stating the maturity period. Financial exchanges between farmers and purchasers can be overseen in the 113 commodity exchanges in different provinces and districts of Türkiye. In such cases, it would be possible to register forward contracts made at the time of delivery of the product, or if the product is to be delivered later, the forward contract may be registered with the stock exchange. In practice, however, due to the small scale of the many agricultural holdings scattered across rural areas and the low financial literacy of farmers, the transactions made through stock exchanges are primarily between large scale farmers and traders, traders and traders, traders and processors, and traders and exporters. For this reason, the most practical and reliable solution for small- and medium-sized farmers would seem to be forward sales using **"cheques"**. The fact that **cheques** are issued by banks to merchants up to a certain limit, and that information such as the cheque payment history and cheque score (index) of the cheque holder (drawer) can be instantly provided to the cheque bearer (beneficiary) by **KKB**[33] makes cheques more credible than purchase or sales contracts or promissory notes.

Farmers who sell on credit were also asked over **"how many months"** (collection period) and **"how many times"** (number of collections) they collect their receivables. Since 2020, the collection period has ranged between 2.8 and 3.5 months, and is calculated as 3.1 months in 2024 (Table 5). It is believed that the longer collection period in 2024 than in 2023 is related to the stabilisation of inflation. The number of collections was 1.6 in 2024, unchanged from 2023. In the

[32] kkb.com.tr/en/products/agriculture-loan-assessment-system
[33] For KKB's cheque-related services, see: https://www.kkb.com.tr/urunler

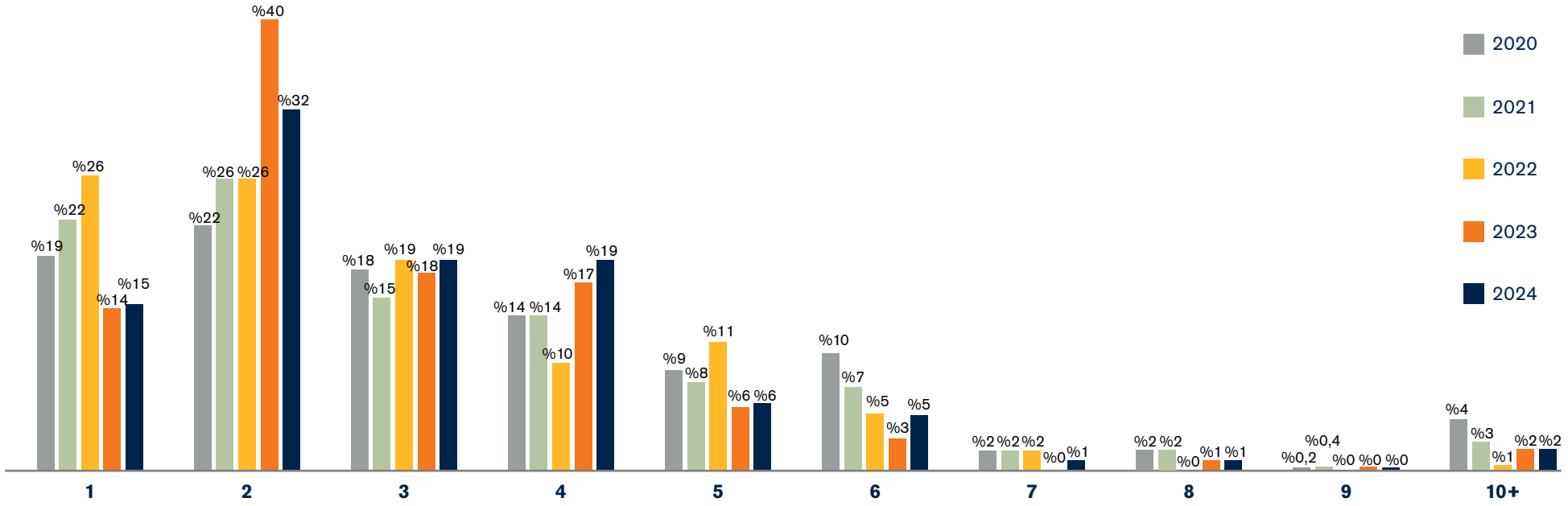
2024 field survey, the average collection period of farmers who reported receiving a “delivery receipt” was 2.7 months and 2.8 months for those who did not receive any document, while this period was measured as 4 months on average for those who received cheques and promissory notes. It is thus understood that buyers tend to refrain from giving cheques or promissory notes to farmers for shorter-term sales, whereas cheques or promissory notes are provided for longer terms.

Table 6: Farmers who Sell Wholly or Partially on Credit

	2020	2021	2022	2023	2024
Average collection period	3.5 months	3.3 months	2.8 months	2.8 months	3.1 months
Average number of collections	2.6 times	2.8 times	2.0 times	1.6 times	1.6 times

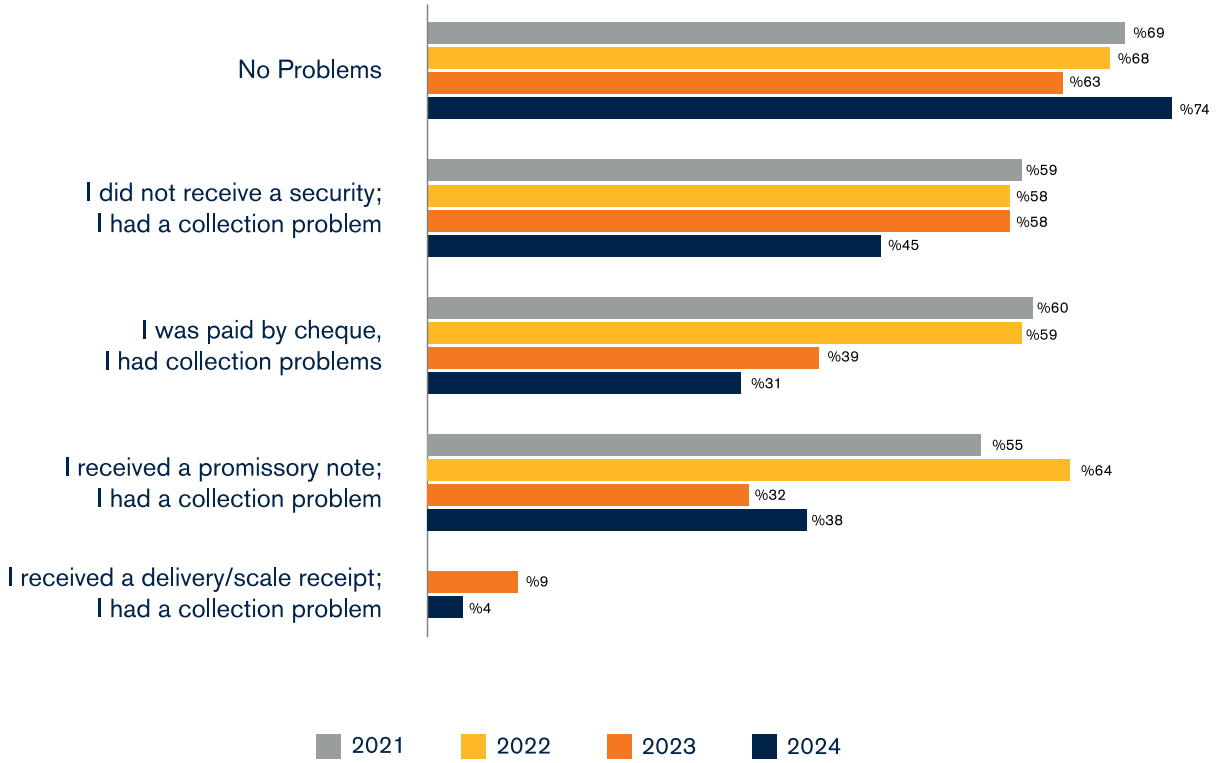
The distribution of collection months is shown in the graph below. (Şekil 31) As a general trend observed over the last 5 years, collections made both within 1 month and in 5 months or more have shifted between 2 and 4 months.

Figure 30: Collection Period of Farmers Selling on Credit (number of months)



In our research, when farmers who sell on credit were asked whether they had any **collection problems**,[34] 26 percent reported at least one collection problem.[35] The proportion of farmers who had not experienced any problems was thus 74 percent. The collection problem rate of farmers who reported collection problems related to receivable documents was measured as follows (Şekil 32). The measured rate is the ratio of collection problems to the number of farmers receiving only the relevant document type. For example, 31 percent of farmers who were paid by cheque in 2024 reported experiencing collection problems. In 2024, the number of farmers who experienced collection problems in other categories decreased when compared to 2023, other than those who received promissory notes. Looking at the graph as a whole, it can be seen that collection problems have decreased over the last 2 years compared to the 2021–2022 period, when supply (especially for field crops) was more limited and inflation and exchange rates witnessed a rapid increase.

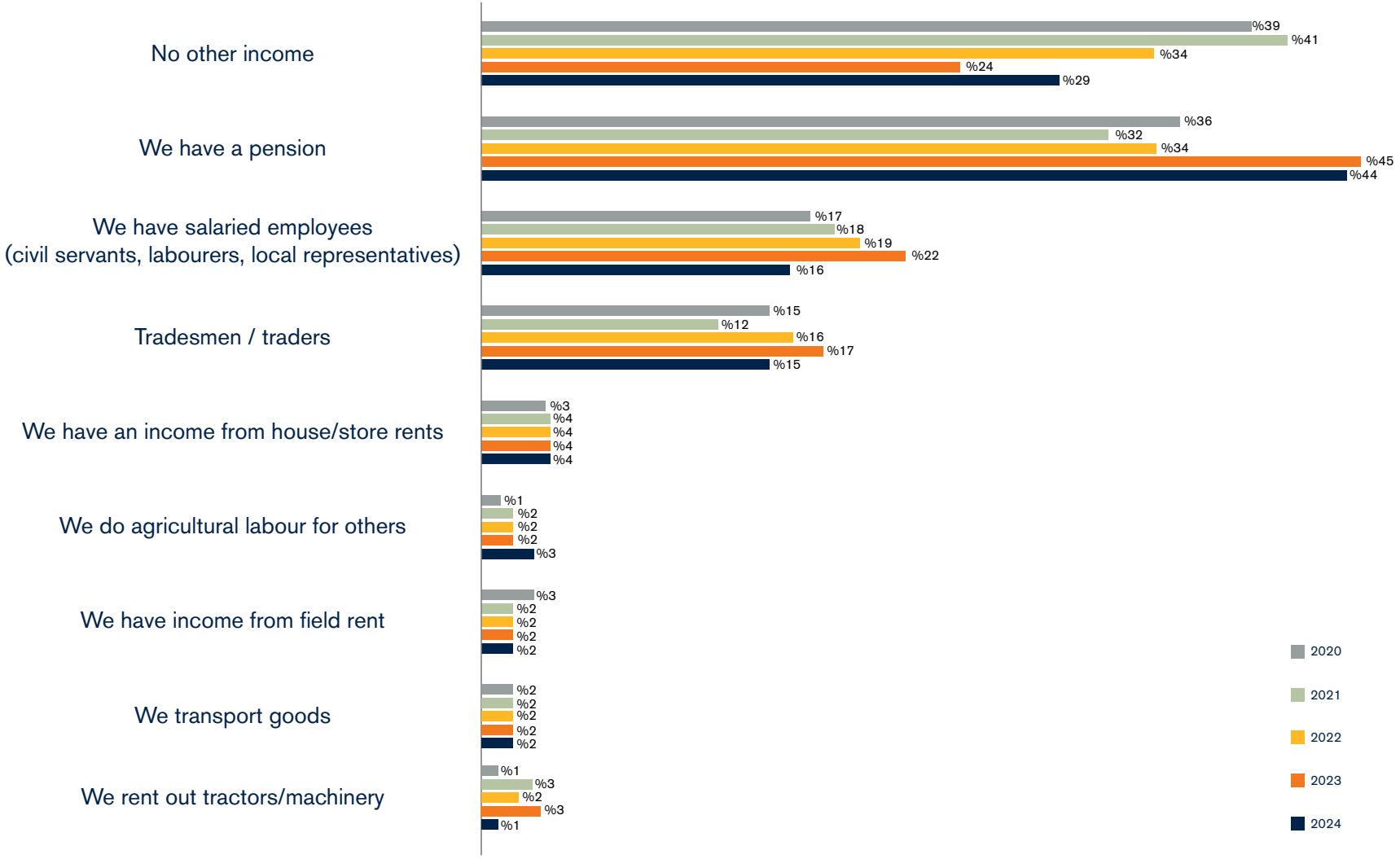
Figure 31: Collection Problems of Farmers who Sell on Credit



During our field surveys, the farmers were asked about **activities other than agricultural production** activities and household income sources (including those of other family members) other than from agriculture (Şekil 33). The rate of respondents who reported **"no other income"** in 2024 increased to 2023 (29%), it can be understood from the graph that the long-term downward trend has not been broken. Secondly, the ranking of the top three activities that provide income to households other than agriculture (pension, labourer/employee salary, tradesman/trade income) remained unchanged. It can be understood that the share of those who benefitted from the pension arrangement (44%) that entered into effect on 3 March, 2023, known commonly as EYT, remains high.

[34]The reported collection problems took three forms: delays, partial non-payments and total non-payments.
[35]The option "I received a delivery/scale receipt, and had a problem" was added to the options for the first time in 2023. Delivery/scale receipts are not receivable documents, and so were excluded form the options in previous years. To maintain consistency with the "type of receivable document" question (Figure 25), it was added to the data collection options in this year.

Figure 32: Non-Farm Income Sources in Farmer Households



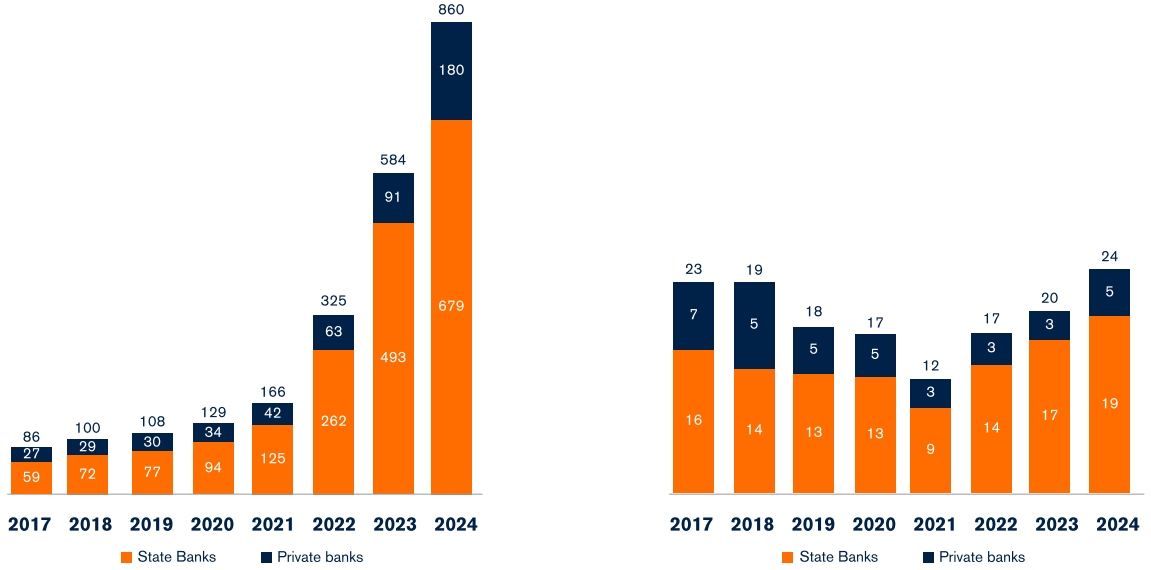
Engaging in “agricultural labour for others” (3%) as an additional income source to agricultural production is following an increasing trend, although it is less common than other income/activity types. Family members earning additional income by helping other farmers for a fee at the same time as their own production or during downtime from their own farm work Şekil 20”labour” problems in Turkey can be addressed together with a partial reduction of “labour” problems in Turkey.

4.5. Farmers' use of Credit and Insurance

This section presents the data garnered during our field research measuring the access of farmers to financing and insurance. Since the accumulation of cash or cash-like capital in the agricultural sector is lower than in other sectors, the equity capital (internal financing) of farmers alone is not sufficient for the growth of the sector. Agricultural enterprises need external financing (credit, state support, grants) to support their energy and resource efficiency, modernisation and adaptation to climate change, and to meet the changing demands of consumers. The main goal of KKB TARDES is to meet the various financing needs of such enterprises. Banks in Türkiye provide more than 20 different types of agricultural loans to agricultural enterprises through TARDES. TARDES member banks can regulate the types and limits of the loans based on their individual credit policies, customer segments and risk appetite.

Before moving on to the results of this year's survey, we provide an idea of the scale of the financial market in Türkiye through a look at the total agricultural credits issued in Türkiye at Şekil 34. According to BRSA data, the total **loans provided by banks to the agricultural sector** in Turkey had amounted to TL 860 billion by end 2024 (left graph). Agricultural loans over the last 4 years have increased by 567 percent, as of year end 2020. This rate is very close to the increase in Agricultural PPI (577%) and higher than the increase in Agricultural IPI (478%) and Food CPI (534%) in the same period. The increase in loans extended by banks in Türkiye to sectors other than agriculture and to individuals in the same period was only 123 percent. As a result, despite the many adverse events (the pandemic, drought, earthquakes, and regional wars and tensions) and inflation in the global markets and Türkiye over the last 4 years, there has been no problem in **accessing agricultural financing**, and a credit market has been formed in line with the increase in farming outputs. Most agricultural financing is provided by public banks, which can be attributed to the interest support (subsidies) provided by the State for agricultural loans being passed on to farmers by the public banks. When the same loan sizes are calculated using the US dollar exchange rate for the relevant years (right graph), the lowest level (US$12 billion) achieved in 2021 had almost doubled by the end of 2024.

Figure 33: Total Agricultural Credits in Türkiye TL Billion (left) US$ Billion (right)



Source: (BDDK)

The first question asked to the agricultural enterprises participating in our field research in this section related to the external financing (borrowing) sources they used (Figure 35). In 2024, 28 percent of the respondent farmers stated **“I have never take out loans”**. As in previous years, the most common source of financing was **“banks”** (61%), followed by **“agricultural credit cooperatives (TTKs)”(23%)**. Since a farmer can access different sources of financing at the same time, the sum of the percentages of Banks, TKKs and other sources exceeds 100 percent in the graph. One noteworthy development in 2024 was the simultaneous decrease in **“input dealers”** (21%), **“buyers”** (4%) and **“family/relatives/friends”** (4%) as sources of financing for farmers through different means other than banks and TKKs when compared to 2023 to the approximate levels seen in the 2019–2021 period. This decline may be attributed to the fact that private banks increased their share of the agricultural loan market in 2024. A detailed analysis of Figure 34 above reveals that the approximate 25 percent agricultural loan market share of private banks in previous years had declined to 15 percent by 2023, and with the growth in 2024, manage to increased their share in total loans to 21 percent. It will be shown in the following section that many farmers use credits from more than one bank.(Şekil 38) It can thus be concluded that private banks play a complementary role to public banks for some farmers in increasing the total credits that farmers can access from the banking sector.

Figure 34: Sources of Finance Used by Farmers

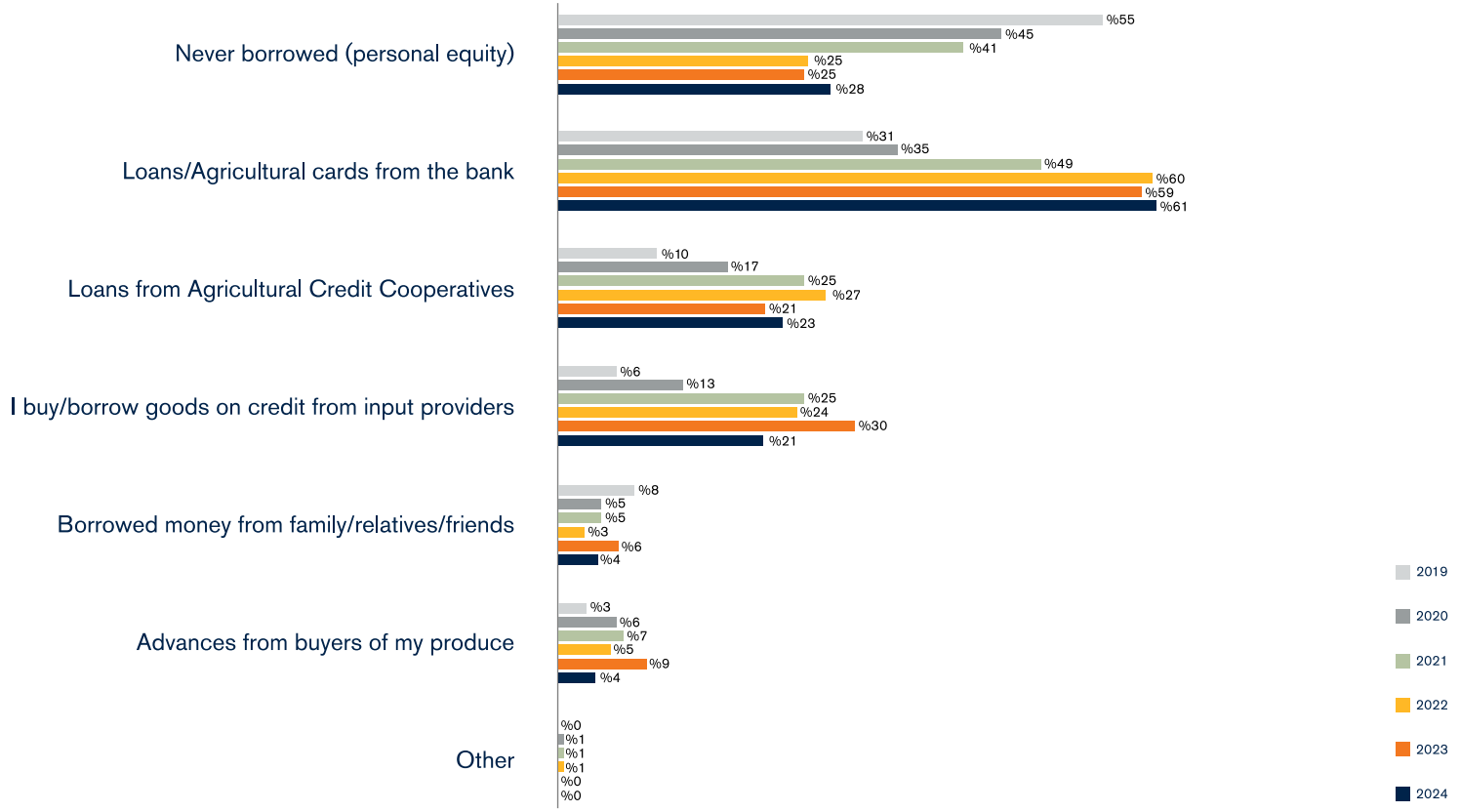
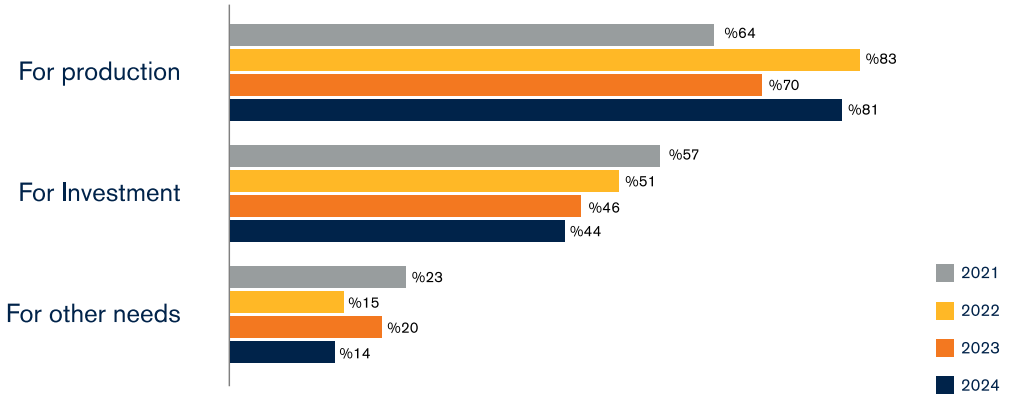


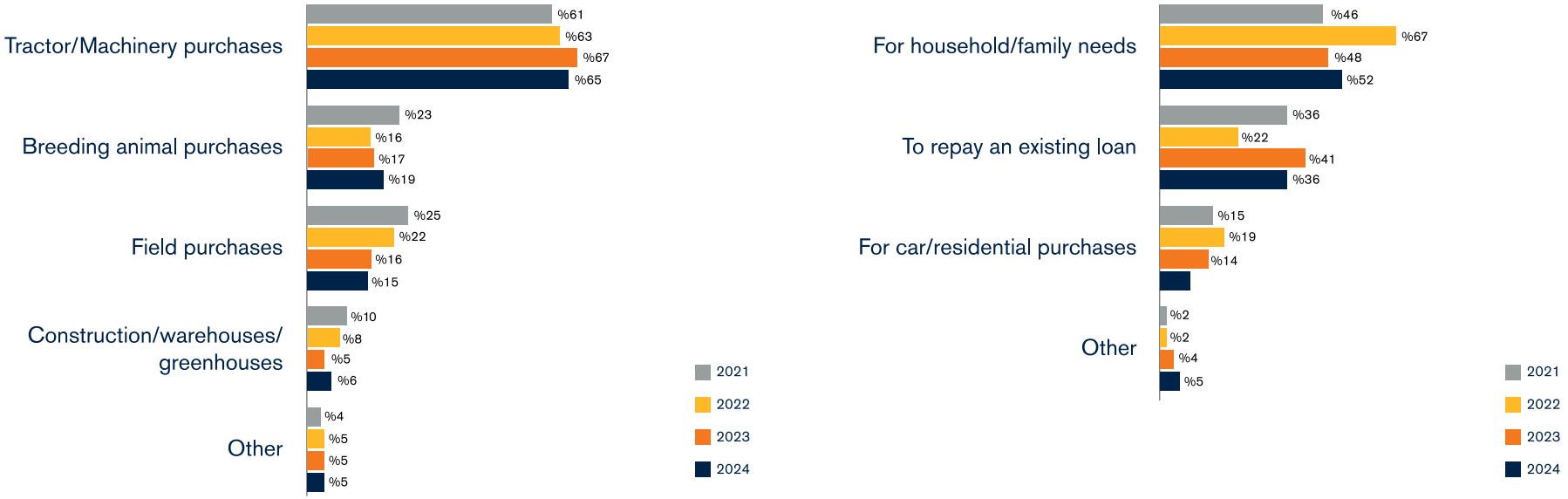
Figure 35: Type of Credits Used by Farmers



When farmers who used loans from banks were asked about the purpose of their loans, the most common response was **"for agricultural production (enterprise)"** (81%), mirroring previous years. **"Agricultural investment"** loans (44%) maintained the downward trend seen over the last 3 years. It is thought that this may be due to the fact that farmers still find current loan interest levels to be too high for long-term borrowing. It is observed that farmers who use non-agricultural loans to satisfy **"other needs"** (14%) have followed a downward trajectory over the last 4 years, albeit fluctuating.

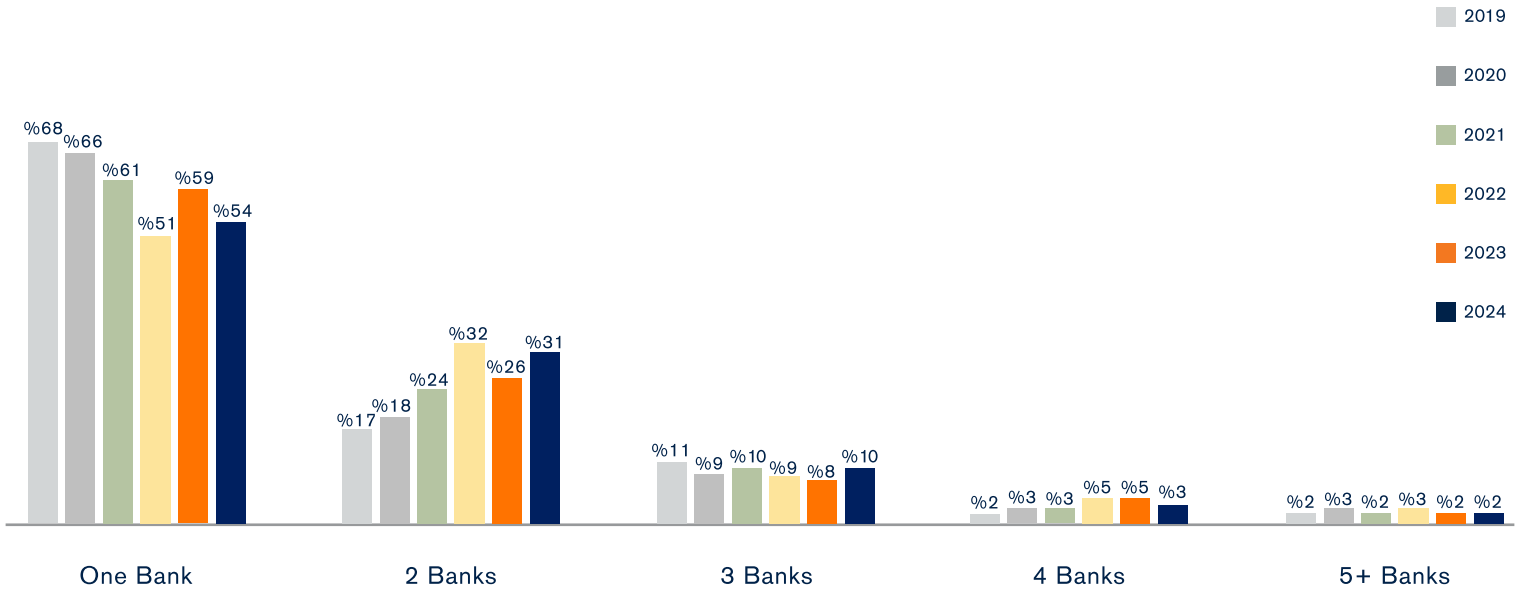
As in previous years, farmers used investment loans mostly for **"purchases of tractors/agricultural machinery"** (65%), followed by **"purchases of breeding animals"** (19%) (Figure 37 left graph). As can be seen form the graph, the trend observed in loans for breeding animal over the last 4 years is in line with the total number of animals (Figure 5), which was prepared for the first time this year based on TURKSTAT data and presented in the first part of this report. Credits for "other needs" outside agriculture (Figure 37 right graph) were mostly for **"household/family needs"** (52%), while the option **"paying off and existing loan debt"**, which had increased significantly in 2023, saw a partial decline this year (36%). In the same **"Other"** (5%) category, which saw a slight increase this year, a significant proportion of farmers stated that they had used loans to pay off **"other/market debts"**.

Figure 36: Farmers Using Agricultural Investment Loans (left) and Non-Agricultural Loans (right)



When the farmers who used loans from banks were asked how many different banks they worked with, (Şekil 38) the **"single bank"** option was the most popular, as was the case in previous surveys, although a partial decrease was noted when compared to 2023 (54%). The proportion of farmers working with two (31%) and three (10%) banks saw an increase. Although the names of the banks were not asked in our research, it is thought that Ziraat Bank would be the most common among those working with a single bank, considering its current market share. Due to the increase in the number of farmers working with more than one bank this year, **the average number of banks** per farmer was 1.7 this year, up from 1.6 last year.

Figure 37: Number of Banks Farmers Using for Credit

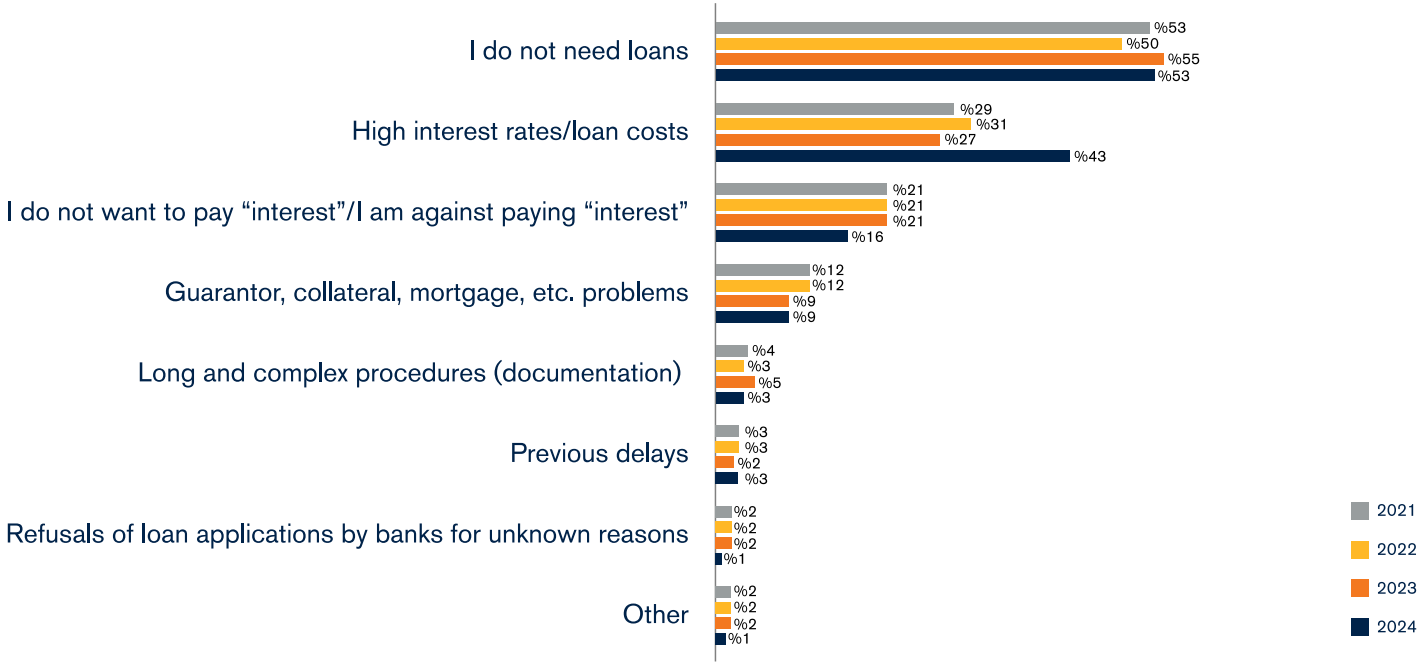


When all the findings of Figures 37 and 38 are considered together with the rising private bank market share in 2024 (Figure 34) and declining non-bank and non-TRT financing sources (Figure 35), it seems plausible to make the following assumption for the 2023–2024 period: In 2023, when a rapid increase was seen in loan interest rates, some farmers attempted to close their loans with private banks by trying to obtain refinancing loans from the State bank (subsidised) or through financing from non-bank and non-TKK sources (input dealers, family/friends, etc.). In 2024, after the state-owned bank had sought to reduce its lending in 2023 and the risk appetite of private banks was increased, the same farmers tried to re-establish their credit lines in the private banks that they had left behind in 2023, and start to repay the non-bank and non-TKK debts they had acquired in 2023. The consistency of this reading and the credit behaviour of farmers will continue to be measured in future researches.

When all farmers who were found not to use bank loans (39% of the total sample in 2024) were asked why, approximately half responded each year with "I don't need to" (53% in 2024). (Şekil 39). The most significant change observed in the responses to question between 2023 and 2024 was related to the increase in **"High loan interest/expenses"** (43%). The loan interest rates in Türkiye started to increase in 2023, and the explanation for the increase in 2024 is hidden in the timing. After keeping the policy rate below 10 percent in the first half of 2023, the Central Bank initiated its first rate hike on 23 June 2023, raising it to 15 percent. The rate was then gradually increased to 35 percent by the end of October 2023 and to 50 percent by the end of March 2025. Depending on the agricultural production cycle, the agricultural credit cycle in Türkiye starts in autumn every year and continues intensively until June when it slows down noticeably with the harvest season. The answers given by farmers related to the interest rates in the 2023 field survey relate to the period when the Central Bank kept the rates at an average of around 10 percent.

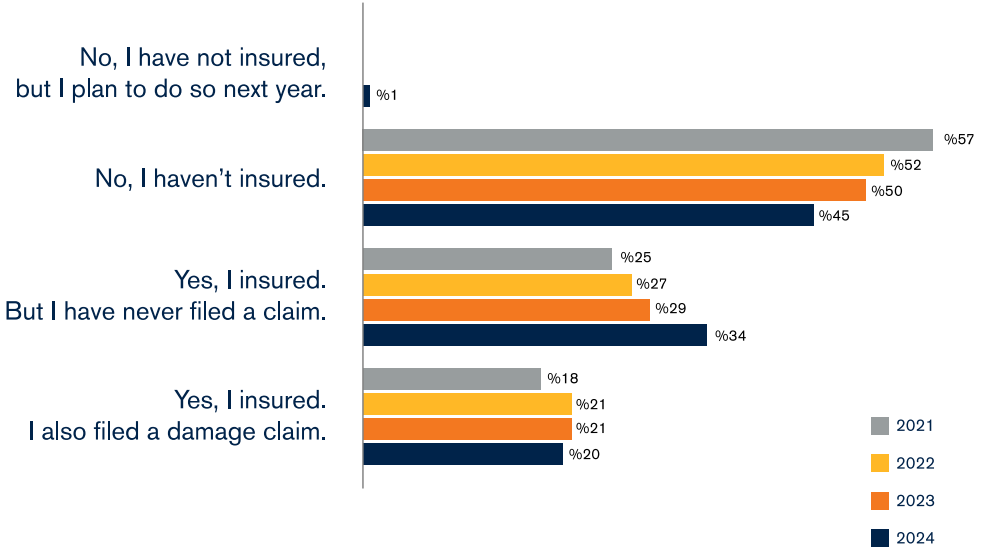
In the last field survey in 2024, despite the continuation of the subsidy scheme operated by state-owned banks and TKKs, the agricultural interest rates in the same financial institutions increased gradually up to 45 percent, in line with the CB policy rate, while inversely proportionally, the cash loans extended by the same institutions between October 2023 and June 2024 decreased significantly compared to the previous cycle, causing farmers to feel the high market interest rates for the first time in real terms. On 27 December, 2024, the CB re-entered the policy rate cut path and is expected to continue to gradually lower the interest rates in 2025.

Figure 38: Reasons why Farmers Do Not Use Bank Credits



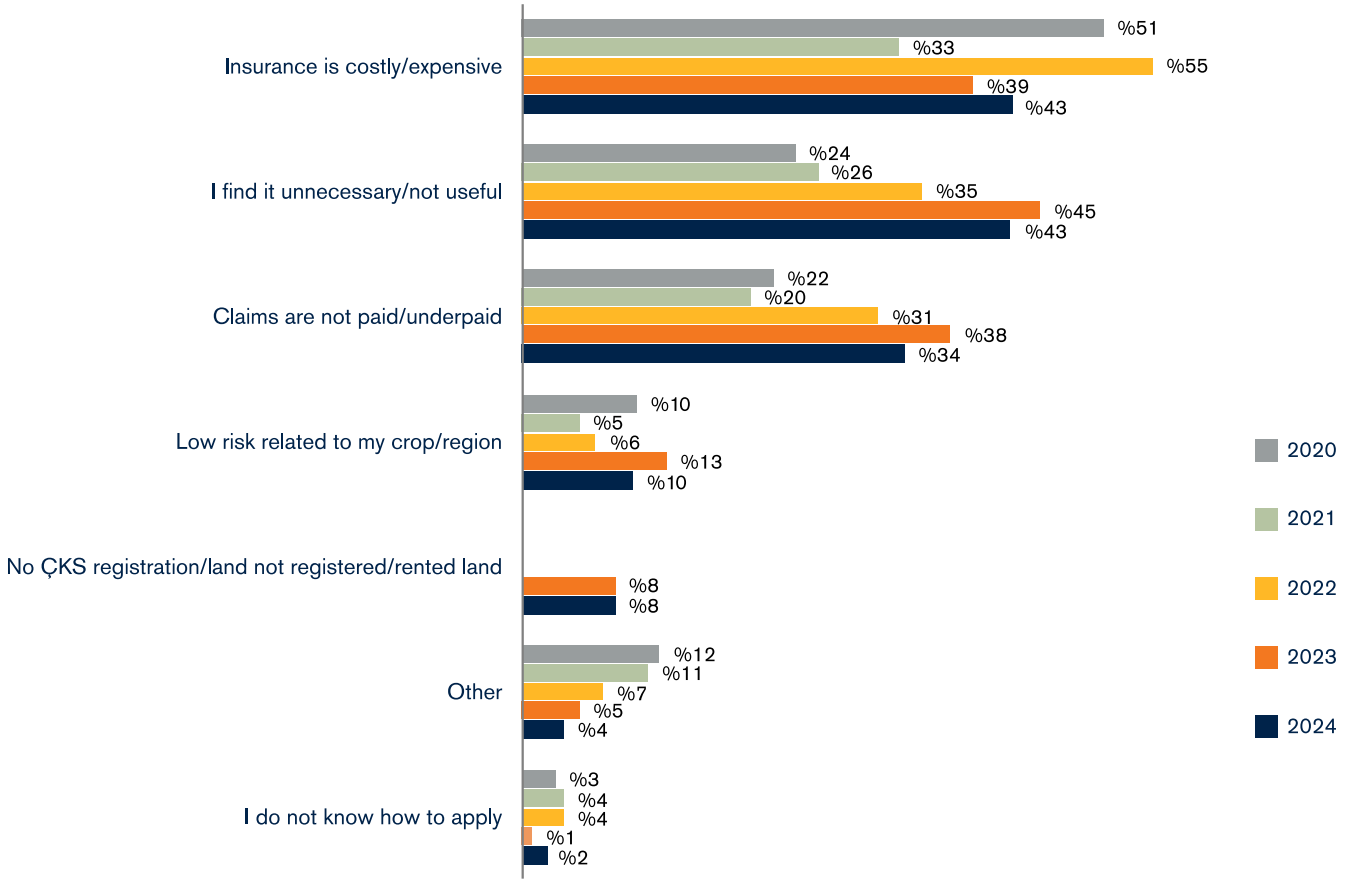
In addition to financing questions, the farmers participating in the field survey were also asked about their use of **agricultural insurance (TARSİM)**. The proportion of farmers taking out agricultural insurance through TARSİM has continued to increase over the years (Şekil 40). In the survey conducted in 2023, the total rate of those who said “Yes” (claiming + not claiming) was 50 percent, while the same rate was 54 percent in 2024. In line with the sufficient precipitation in 2024 and the decrease in extreme weather events when compared to 2023, the number of insured participants who made claims from TARSİM also decreased. For the first time in our survey, an additional option was added to this question to measure the number of farmers who did not take out TARSİM in 2024, but who were willing (“No, I did not take out insurance, but I plan to next year”). Developments in this area will continue to be followed in future researches.

Figure 39: Proportion of Farmers with TARSIM and Claiming Damage to TARSIM



In the survey, the farmers who do not have TARSIM (Figure 41) were asked why, and gave the following responses: **"Insurance is expensive"** (43%) and **"I find it unnecessary"** (43%) as the main reasons, as in the previous year. Compared to 2023, the number of those who considered insurance unnecessary in 2024 partially decreased, while those who found it expensive partially increased. Decreases were also observed in other justifications. The option **"I do not have a ÇKS/enterprise registration"** (8%), which was separated from **"Other"** for the first time in 2023 and made a new option, maintained the same level in 2024. It is expected that this response rate may decrease in the coming years due to the effect of the measures taken by the Ministry of Agriculture and Forestry to increase registration.

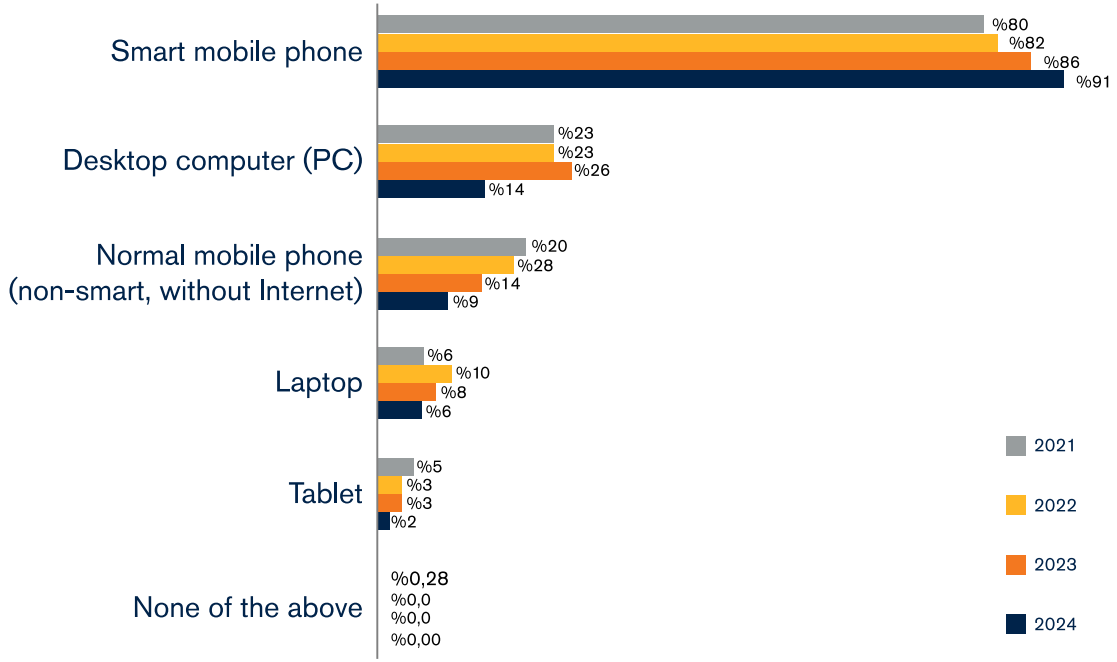
Figure 40: Reasons for not having TARSIM



4.6. Farmers' use of Technology and the Internet

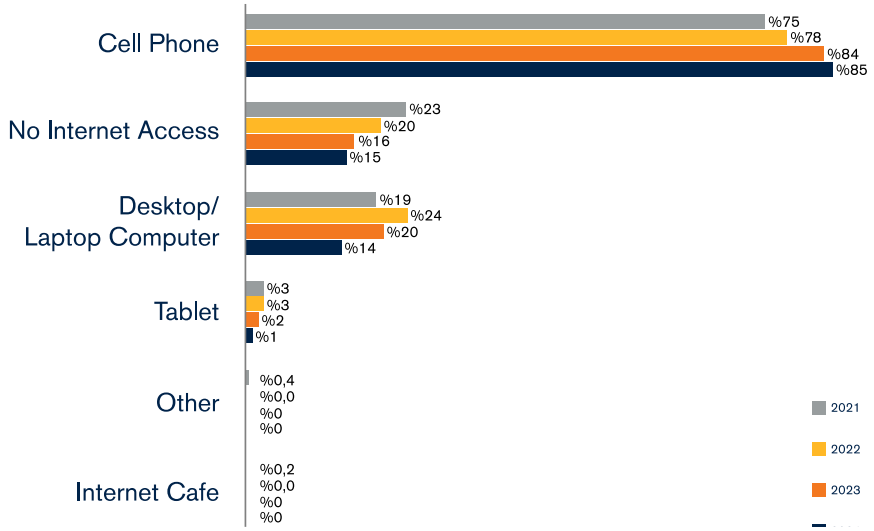
Digital literacy is important for all segments of society, and particularly for agricultural enterprises in terms of sustainability, efficiency and participation. One of the main objectives of the KKB agricultural field research is to measure the level of digital literacy among farmers, and to identify the needs and opportunities in this area for agricultural enterprises for presentation to the relevant stakeholders. With this in mind, the respondent farmers were first asked which technological devices they use (Şekil 42). The ownership of **"smart mobile phones"** among farmers has been increasing every year, and had reached 91 percent by 2024. In other words, nine out of every 10 farmers now own a smart phone. In inverse proportion, the proportion of farmers with **"non-smart (non-internet) mobile phones"** decreased to 9 percent.

Figure 41: Technological Devices used by Farmers



It is not surprising that farmers mostly access the Internet via **"smart mobile phones"** (85%),(Şekil 43) although some farmers access the Internet via **"desktop computers/laptops"** (14%) or **"tablets"** (1%) in addition to their mobile phones. The fact that 15 percent of farmers state that they **"do not use the Internet"** reveals that there are opportunities to deepen the use of existing Internet services and to develop new ones.

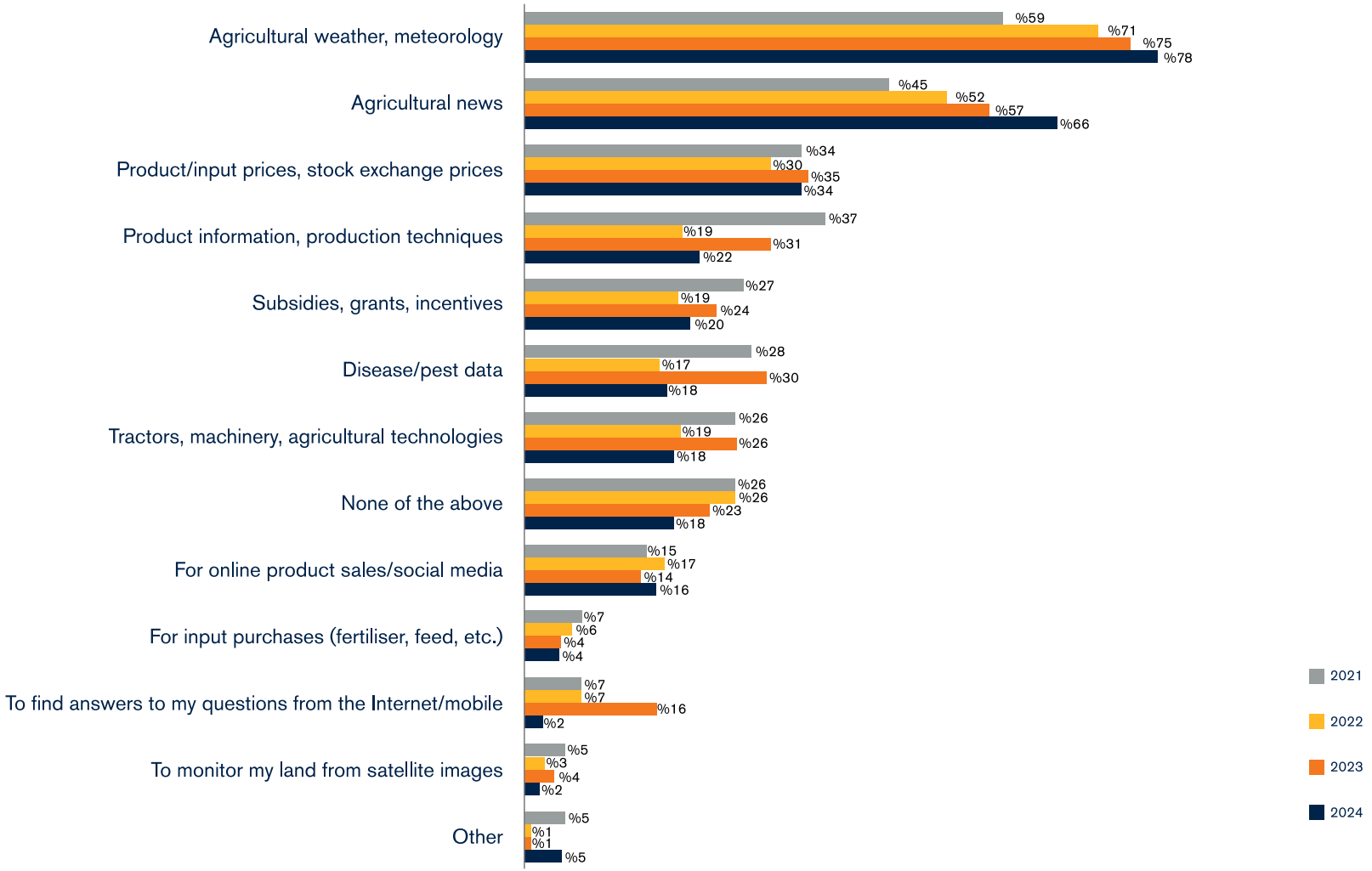
Figure 42: Internet Access Among Farmers



Finally, the research measured the areas in which farmers are interested in digital information services, based on the consecutive questions seeking data on the **"currently used"** services (Figure 44) and services that are not currently used, but in which there is **"interest"**. (Figure 45) In this regard, both the ranking of the currently used services can be measured, as well as the demand for other services.

It is satisfying to see that the proportion of farmers answering **"none"** to the question of currently used digital services is decreasing every year (18%). Naturally, it can be understood that the rest of the farmers (82%) use at least one digital service. In the responses to this question, in which multiple responses were possible, **the average number of digital services** per farmer fluctuated between 3.2 and 4.1 over the years, while this ratio was measured as 3.5 for 2024.

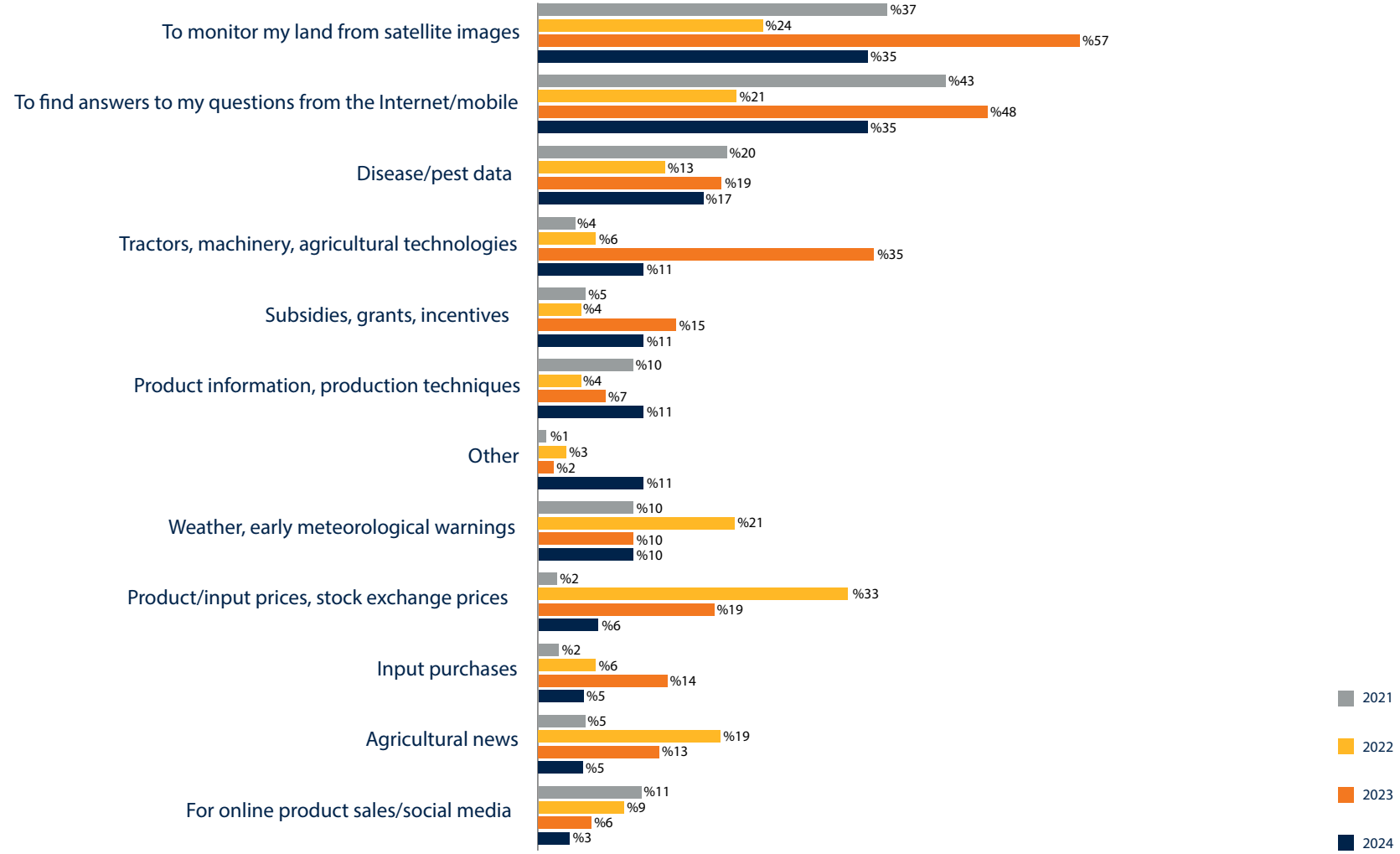
Figure 43: Digital Services used by Farmers



Among the currently used services, **“agricultural weather (meteorology)”** (78%) and **“agricultural news”** (66%) held the top slots this year, with increased rates on the previous year. The rates of services accesses other than these have mostly decreased or remained at a similar level. Services providing digital information on **“diseases and pests”** (18%) and **“agricultural technologies”** (18%), which were ranked fifth and sixth in 2023, dropped one place this year. The decline in the first of these can be attributed to the favourable climatic conditions this year, and the second due to the decrease in agricultural investments. The **“To find answers to my questions from the Internet”** response (2%), which saw an unexpected increase in 2023, noticeably lost ground this year. This year, most of the increase in the **“Other”** (5%) option, for which the farmers gave their own responses to our surveyors, was attributable to **“social media product groups/communities”**. The respondents stated that agricultural product-based groups on platforms such as Facebook, X, WhatsApp have gained popularity as sites where farmers can share their experiences and information.

When farmers were asked in which services **they may be “interested”** in addition to the digital services they currently use, the responses were as follows (Figure 45). Before evaluating the ratios in the graph, it should be reminded that the number of farmers who reported additional demands in this question decreased significantly when compared to the previous question, for example, 7% of those who answered the previous question for 2024. The primary reason for the annual fluctuations in rates is this decrease in frequency. The second reason is the marketing activities carried out by new or existing initiatives for a new service option in the relevant year in any option. Our field experts observed and increase in rates coinciding with the launch of advertising/promotion of initiatives related to any of the following areas, while the interest expressed by the farmers decreased with the decrease or termination of such activities. A third reason is that macro dynamics (inflation/interest rates, new support policy, climate, etc.) specific to a given year trigger demands in certain areas in specific years.

Figure 44: Digital Services in which Farmers are "Interested"



Despite the above-mentioned factors that increase the volatility of the responses to this question, it is seen that **"satellite land tracking"** services (35%) and **"asking questions to experts online"** (35%) have maintained their popularity in recent years in all cases. It is thought that the amount of data garnered over time through our field researches identifying digital services of interest will serve as an important output for new initiatives.

The survey collection and analysis services were provided by Frankfurt School of Finance & Management.

About Frankfurt School

For more than 50 years, the Germany-based Frankfurt School of Finance & Management has been providing undergraduate, postgraduate and doctoral level education in all areas related to banking and finance, while also being engaged in consultancy, professional qualification, research and training activities.

Frankfurt School's International Advisory Services (IAS) department, which has been active since 1992, is committed to the development of the financial markets in developing countries and emerging markets, and to increasing the access to financing of the low-income populations in all these countries. For more information, go towww.frankfurt-school.de. The IAS Regional Office for Türkiye, Caucasus & Central Asia provides research, vocational training and technical co-operation services in the field of agricultural finance in Turkey.

TARDES
KKB Tarım Kredileri
Değerlendirme Sistemi

This publication has been prepared with the support of the Credit Bureau (KKB). The contents of this publication are the sole responsibility of Frankfurt School of Finance & Management and can in no way be taken to reflect the views of KKB.

This research and publication was funded by KKB Credit Bureau.

About the Credit Bureau

KKB was established on 11 April, 1995 as a partnership of nine leading banks in the sector. KKB has nearly 200 members, including banks, consumer finance companies, leasing, factoring and insurance companies, as well as the Risk Centre and its members. The main function of KKB is to combine and process the customer information collected from its members and to share it with its members for use in credit risk management and credit assessment processes. Developed in 2013 in line with this mission, TARDES continues to play an important role in the development of the agricultural finance market in Türkiye. With the entry into service of also the Cheque Report, Risk Report and Electronic Report System in 2013, KKB started to offer services not only to financial institutions but also individuals and the real sector. Adding to the important tools it offers aiding individuals and organisations in bolstering their financial reputations, KKB launched Findeks, a new financial services platform designed for individuals and the real sector, in 2014. Findeks provides a unique service based on one of the world's most advanced authentication structures. Launched in 2015, the Findeks QR Code Cheque System, which became mandatory by law in 2016 and entered into force on 1 January, 2017, is an important step towards a more transparent and secure commercial life. Finally, the KKB Anadolu Data Centre, which launched its operations in December 2016, provides data centre, disaster recovery and Cloud services to all sectors, particularly the banking and finance sector, as well as centralised products and bespoke technological infrastructure services to institutions.

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