

Changes in Agricultural Land Areas from 2004 to 2024 and Their Causes in Klaipėda County

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Abstract

Studies on agricultural land area changes are crucial for ensuring food security, promoting sustainable land use, protecting the environment, supporting economic growth, monitoring climate change impacts, and guiding policy development. They help identify challenges and plan long-term solutions to balance food production, environmental conservation, and economic development.

The change in agricultural land use is influenced by several key factors: economic (market fluctuations, subsidies, farm modernization), demographic and social changes (emigration, aging farmers, farm consolidation), natural factors (climate change, soil degradation), and urbanization (urban expansion, infrastructure development). Environmental policy also has a significant impact, promoting the restoration of natural ecosystems and reducing the agricultural impact on the environment.

After analyzing the changes in agricultural land areas in Klaipėda County between 2004 and 2024, it was determined that the area of agricultural land decreased by 9,775.89 ha or 3.46%. During this period, arable land decreased by 5,367.78 ha or 2.28%, orchard areas decreased by 4,240.15 ha or 83.89%, and the area of meadows and natural pastures also decreased by 167.96 ha or 0.41%.

Between 2004 and 2024, agricultural land in most municipalities of Klaipėda County has decreased. Notably, Klaipėda and Palanga municipalities saw the most significant declines, with reductions of 22.45% and 13.41%, respectively.

Key words: *Agricultural land, agricultural land use, area change, causes of changes in agricultural land use areas*

Anotacija

Žemės ūkio naudmenų naudojimo pokyčių tyrimai yra svarbūs užtikrinant maisto saugumą, skatinant tvarų žemės naudojimą, saugant aplinką, palaikant ekonomikos augimą, stebint klimato kaitos poveikį ir formuojant politikos kryptis. Jie padeda identifikuoti iššūkius ir planuoti ilgalaikius sprendimus, siekiant subalansuoti maisto gamybą, aplinkos apsaugą ir ekonominę vystymąsi.

Žemės ūkio naudmenų plotų kaitą lemia keli pagrindiniai veiksniai: ekonominiai (rinkos svyravimai, subsidijos, ūkininkavimo modernizacija), demografiniai ir socialiniai pokyčiai (emigracija, ūkininkų senėjimas, ūkių stambėjimas), gamtiniai veiksniai (klimato kaita, dirvožemio degradacija) ir urbanizacija (miestų plėtra, infrastruktūros kūrimas). Taip pat didelį poveikį turi aplinkosaugos politika, kurioje skatinama atkurti natūralias ekosistemas ir mažinti žemės ūkio poveikį aplinkai.

Išnagrinėjus žemės ūkio naudmenų plotų pokyčius Klaipėdos apskrityje nuo 2004 iki 2024 metų, nustatyta, kad žemės ūkio naudmenų plotas sumažėjo 9775,89 ha arba 3,46 %. Šiuo laikotarpiu ariamos žemės plotas sumažėjo 5367,78 ha arba 2,28 %, sodų plotai sumažėjo 4240,15 ha arba 83,89 %, o pievų ir natūralių ganyklų plotas sumažėjo 167,96 ha arba 0,41 %.

Nuo 2004 iki 2024 metų žemės ūkio naudmenų plotai daugelyje Klaipėdos apskrities savivaldybių sumažėjo. Didžiausia plotų kaita nustatyta Klaipėdos ir Palangos miestų savivaldybėse, kuriose žemės ūkio naudmenų plotai sumažėjo atitinkamai 22,45 % ir 13,41 %.

Reikšminiai žodžiai: *žemės ūkio naudmenos, plotų kaita, žemės ūkio naudmenų plotų kaitos priežastys.*

Introduction

Agricultural land refers to the combined area of arable land used for cultivating crops and pasture land used for raising animals (Ritchie, 2022).



Agricultural land plays a crucial role in supplying the majority of the world's food and delivering vital ecosystem services, such as providing food, fuel, and fiber. Additionally, agriculture, particularly when practiced sustainably, is vital for advancing other sustainable development goals. Unsustainable agricultural practices, which can lead to resource depletion or land degradation, may cause conflicts. Hence, effective and sustainable land management is essential (Viana *et al.*, 2022).

Agriculture plays a crucial role in human survival by providing food, materials, and income. Crop cultivation directly supports rural livelihoods and supplies both rural and urban communities through local and global supply chains. Land use in established agricultural areas is seldom fixed; in these regions, changes in agricultural land use can arise from factors like market-driven booms in specialty crops, farmland abandonment, or the global trend of cropland homogenization (Wartenberg, *et al.*, 2021).

Agricultural land use already constitutes one of the largest terrestrial biomes on Earth, and the FAO forecasts that cropland will expand globally by 7% by 2030. Certain countries and regions are prioritized for careful management and regulation (or prevention) of cropland expansion, particularly for the protection of biodiversity and the preservation of carbon storage. Although future cropland expansion may help improve food security, it often comes at the cost of biodiversity and/or carbon storage (Molotoks, *et al.*, 2018).

Agriculture covers more than a third of the Earth's land surface, and while its expansion and intensification have brought numerous benefits to humanity, these same factors have led to significant negative impacts on biodiversity and ecosystem services. As agricultural land use is projected to continue evolving and expanding due to human population growth and climate change, many currently cultivated areas are facing stress from issues like water scarcity, soil degradation, and the rise of extreme weather events (Bryant, *et al.*, 2020).

Historically, notable anthropogenic impacts are acknowledged to have appeared in landscapes after the advent of agriculture, with further landscape changes closely tied to agricultural progress. Over time, a series of landscape dynamics is expected in three stages: first, a natural landscape matrix is replaced by an agricultural one; then, urban patch types will increasingly dominate the matrix due to ongoing urbanization. The importance of agricultural development and its productivity in shaping the growth of settlements, villages, and cities is underscored. Human-driven changes to landscapes emphasize the finite nature of geographical space as a limited resource (Borgaert, *et al.*, 2014).

Rising anthropogenic pressure due to significant land-use changes is one of the most serious threats to terrestrial biodiversity globally. Agricultural land-use changes lead to habitat loss and fragmentation, which contribute to the extinction of species and the depletion of fauna across nearly all ecosystems, severely affecting their functions. The growing fragmentation of land ownership in rural areas also raises concerns for biodiversity conservation. The anthropogenic impact of habitat fragmentation caused by land-use change can influence species' biology, genetics, and interactions between different species (Galvez, *et al.*, 2021).

Land changes are a major factor driving global environmental change. The most significant form of land conversion involves the expansion of crop and pasture areas into natural ecosystems. From 1980 to 2000, more than half of the new agricultural land in the tropics came at the expense of intact forests, with an additional 28% originating from disturbed forests. This has raised concerns about the loss of environmental services and biodiversity on a global scale. As land becomes an increasingly scarce resource worldwide, there is a pressing need for more efficient land-use planning and agricultural innovation (Lambin, Meyfroidt, 2011).

Agriculture has significantly altered the Earth's surface over the past century. Concerns have emerged regarding the capacity of the global agri-food system to satisfy both current and future food demands while preserving biological diversity and meeting conservation needs. Since the



1960s, the widespread demand for and production of commercial crops in intensive farming systems has grown, leading to a reduction in the variety of crop species and a decline in genetic diversity across the globe (Spangler, *et al.*, 2020).

Unregulated conversion of agricultural land will pose a significant threat to food security at regional, provincial, and even national levels. Additionally, irregular land acquisition for the construction of community infrastructure that violates territorial space planning will likely become a major issue for the development of urban systems (Aryadi, *et al.*, 2021).

The transformation of rural private lands is shaped by several factors, including people's desire to live near natural amenities and small towns, the affordability of housing in these areas, an increased willingness to commute long distances, and the growing trend of telecommuting and greater mobility during retirement (Mockrin, *et al.*, 2017).

Future land use will have far-reaching effects on biodiversity, carbon storage, runoff, ecosystem services, agriculture, and the broader economy. Changes in land use arise from a range of pressures, influencing these aspects. The key drivers of land use changes include a mix of demand and supply factors, such as population growth, economic development, climate change, environmental and climate policies, land use regulations, increased consumption, changing dietary preferences, rising bioenergy demands, higher agricultural yields, livestock intensification, evolving international trade patterns, shifts in land ownership (Gurgel, *et al.*, 2021).

Agricultural land use models are essential tools for examining farmers' land use decisions in the context of climate change and evaluating the effectiveness of climate policies. These models are particularly important for assessing climate change adaptation strategies and the growing frequency of extreme weather events. However, existing modeling approaches face significant trade-offs, particularly in balancing behavioral factors, spatial resolution, and the data and computational resources required for accurate analysis (Stetter, *et al.*, 2024).

Understanding the dynamics of land use change is crucial for tackling global issues like food security, climate change, and biodiversity loss (Winkler, *et al.*, 2021).

Recent scientific investigations reveal significant changes in agricultural land area, driven by a complex interplay of factors including population growth, economic shifts, and environmental concerns. Globally, agricultural land area increased by 7.6% between 1961 and 2020, occupying 32% of the world's total land area. This divergence is attributed to factors such as rising populations, changing food demands, technological advancements, and policy shifts (Jelliffe, *et al.*, 2024).

The expansion of agricultural land poses significant threats to climate and biodiversity. Land-use changes are estimated to emit about 17 gigatons of CO₂, nearly half of the current annual global CO₂ emissions. Biodiversity would also decline by 26% in the areas affected by land-use changes. Conservation measures can mitigate these effects, but preventing agricultural expansion into forests and wetlands could shift expansion to grasslands, negatively affecting their biodiversity (Kern, 2024).

In Estonia, the area of utilised agricultural land has remained relatively stable, fluctuating slightly between 871,213 hectares and 975,323 hectares over the last two decades. However, there has been a notable reduction in the number of farms, decreasing from 55,748 to 11,369 between 2001 and 2021, while the average size of land per farm has increased significantly, growing from 16 hectares to 86 hectares during this period. This trend towards consolidation reflects a global pattern where larger farms are more competitive in the market (Rasva, Jurgenson, 2022).

Similarly, Latvia has faced a decline in agricultural land use, although the total area of agricultural land remains significant, comprising 31.66% of the total land area in 2022. The country has experienced a dramatic decrease in the number of farms—over the past few decades, many smaller farms have been unable to compete, leading to land abandonment and a shift toward larger



agricultural enterprises. As a result, the ownership of agricultural land is increasingly concentrated among fewer, larger farms (Results..., 2022).

In Lithuania, the agricultural landscape has also been characterized by consolidation. Despite the high percentage of land classified as agricultural (approximately 46.92% in 2021, there is a growing trend of land being concentrated into the hands of larger agricultural businesses. Analysis indicates that while the total area of utilised agricultural land has remained stable, the number of farms has gradually declined, with many smallholders exiting the market due to economic pressures) (Results..., 2022).

Agricultural land in Lithuania represented approximately 46.5% of the total land area in 2022, slightly decreasing from 46.99% in 2020. This trend is reflective of a broader decline in agricultural land on a global scale, yet it also carries local nuances tied to Lithuania's unique agricultural practices post-independence. The historical context of Lithuania's farming practices has been primarily influenced by the dissolution of the Soviet collective farming system, which legitimized individual family farms and small private entities (European Commission, 2024).

European Union (EU) agricultural policies, particularly the Common Agricultural Policy, have influenced land use dynamics by incentivizing larger farm operations and affecting subsidy distributions. As larger farms benefit from economies of scale and enhanced access to EU funds, smaller enterprises often find themselves at a severe disadvantage, leading to land consolidation and displacement (Roosmaa, 2024).

The subject of this work is the agricultural land area in the Klaipėda County.

The aim of this article is to analyze the changes in agricultural land areas in the Klaipėda County from 2004 to 2024.

The objectives of the work are:

1. To analyze the current state of agricultural land areas in the Klaipėda County and its municipalities;
2. To examine the changes in agricultural land areas in the Klaipėda County and its municipalities from 2004 to 2024;
3. To assess the reasons behind the changes in agricultural land areas.

Research Methodology

The study analyzes the state and trends of agricultural land in Klaipėda County, Lithuania, focusing on its distribution and changes over time. The methods include:

1. Data collection:
 - agricultural land area data from official sources (2004-2024) and local reports, covering arable land, orchards, meadows, and natural pastures;
 - historical data (2004-2024) to identify trends in land use changes;
 - municipal breakdown of agricultural land in Klaipėda County's municipalities.
2. Quantitative analysis:
 - area calculation: the agricultural land area in hectares was calculated for each municipality and county in 2024, along with the percentage of agricultural land;
 - changes in agricultural land (2004-2024): compared land data to assess changes and calculate the percentage change.
3. Graphical methods: data visualized through tables and figures to highlight trends and changes in agricultural land.
4. Factors influencing land changes: analyzed demographic, policy, and environmental factors affecting land use, and examined trends.
5. Statistical methods:
 - percentage change and trends: calculated changes in agricultural land area from 2004 to 2024.



- comparative analysis: assessed variations in land areas across municipalities, identifying discrepancies and their causes.

These methods provide a comprehensive understanding of agricultural land in Klaipėda County, its changes over the past two decades, and the factors driving these trends.

The Results of the Study and Their Discussion

Research problem. Agricultural land is a crucial resource for food production, economic stability, and ecological balance. However, its availability and sustainability are increasingly under threat due to various socio-economic and environmental factors. Klaipėda County, like many other regions, has experienced a steady decline in agricultural land over the past two decades, raising concerns about the long-term viability of farming in the region.

One of the primary challenges facing agricultural land in Klaipėda County is urbanization. As cities expand, agricultural areas are being repurposed for infrastructure, residential, and industrial development. The data show a significant reduction in agricultural land. This trend reflects a broader issue of balancing urban growth with the need to sustain agricultural production.

The current state of the agricultural land areas. Agricultural land is foundational not only for feeding the world but also for supporting economic growth, maintaining biodiversity, and providing ecosystem services. Its sustainable management is key to addressing challenges like food security, climate change, and environmental conservation.

The composition of agricultural land includes arable land, orchards, natural meadows, and pastures.

In 2024, agricultural land in Klaipėda County covered an area of 272,406.92 hectares, accounting for 52.17% of the total area of Klaipėda County. In 2024, arable land covered 230,569.63 ha, making up 44.15% of the county's area. Orchards occupied 814.16 ha, which accounted for 0.16% of the analyzed county's area. Meadows and natural pastures covered 7.86%, occupying 41,023.13 ha. Thus, the largest area of agricultural land was arable land, while the smallest was orchards.

Based on the data on agricultural land areas in the Republic of Lithuania (Nacionalinė..., 2024), it was determined that in 2024 these lands accounted for 51.64% of the country's territory: arable land made up 46.00%, orchards - 0.27%, and meadows and natural pastures - 5.36%.

So, in 2024, agricultural land covered 52.17% of the total area of Klaipėda County, which is slightly higher than the national average of 51.64% in Lithuania. This indicates that the County has a relatively high proportion of land dedicated to agriculture.

The largest portion of agricultural land in Klaipėda County was occupied by arable land (44.15% of the county's total area), which mirrors the national trend, where arable land also takes up the most significant share (46.00% of Lithuania's total territory). This suggests that crop production is a major agricultural activity in both the county and the country.

Orchards in Klaipėda County accounted for only 0.16% of the county's area, a proportion much smaller than the national average of 0.27%. This highlights that fruit farming, particularly orchards, plays a minimal role in the agricultural landscape of the region.

Meadows and natural pastures in Klaipėda County covered 7.86% of the total area, which is larger than the national proportion of 5.36%.

Overall, Klaipėda County exhibits a similar agricultural land distribution to the national trend, with arable land being the dominant land use, but the county has a higher proportion of meadows and pastures compared to the national average.

Analyzing the agricultural land areas in the municipalities of Klaipėda County, it was found that the distribution of agricultural land varies significantly between municipalities.



In Klaipėda municipality agricultural land covers 1,924.72 ha, representing 19.65% of the municipality's total area (Table 1). This is the smallest percentage (excluding Neringa municipality) among all municipalities, highlighting its predominantly urban character.

With 68,015.24 ha of agricultural land (51.40%), Klaipėda district aligns closely with the county's overall agricultural land proportion (52.17%). It suggests a balanced use of land for agricultural and non-agricultural purposes.

In Kretinga district agricultural land makes up 54,231.30 ha or 54.82% of the district's total area. This is higher than both the county and national averages, indicating that agriculture plays a slightly more significant role in this district.

In Neringa municipality only 22.70 ha (0.16%) of land is designated as agricultural, the lowest in both absolute and percentage terms. This reflects the municipality's focus on conservation, tourism, and other non-agricultural uses due to its unique geographical and ecological characteristics.

Agricultural land of Palanga municipality occupies 2,343.01 ha, accounting for 29.62% of the area. Although larger in percentage than Klaipėda, it is still below the county average, indicating a lesser emphasis on agriculture in favor of tourism and urban activities.

With 81,710.16 ha of agricultural land (48.56%), Šilutė district is slightly below the county average. Its significant agricultural area suggests a focus on farming, but the proportion indicates diverse land use.

Agricultural land covers 64,159.79 ha or 70.43% of the Skuodas district, the highest among all municipalities. This highlights Skuodas district as the most agriculture-intensive area in Klaipėda County.

These differences suggest that while agriculture remains a significant land use in Klaipėda County, urbanization, tourism, and conservation efforts influence land distribution, leading to region-specific agricultural dynamics.

Table 1. Agricultural land areas in hectares and percentages across the municipalities of Klaipėda County in 2024
1 lentelė. Klaipėdos apskrities savivaldybių žemės ūkio naudmenų plotai hektarais ir procentais, 2024 m.

| Municipalities of Klaipėda County | The area of the agricultural land in ha | The area of the agricultural land in percent |
|-----------------------------------|---|--|
| Klaipėda | 1,924.72 | 19.65 |
| Klaipėda district | 6,8015.24 | 51.40 |
| Kretinga district | 5,4231.30 | 54.82 |
| Neringa | 22.70 | 0.16 |
| Palanga | 2,343.01 | 29.62 |
| Silute district | 81,710.16 | 48.56 |
| Skuodas district | 6,4159.79 | 70.43 |

Source: compiled by author (Nacionalinė..., 2024)

Šaltinis: sudaryta autorės (Nacionalinė..., 2024)

The changes in the agricultural land area in Klaipėda County from 2004 to 2024. The agricultural land area in Klaipėda County has steadily decreased from 2004 to 2024. In 2004, the County had 282,182.81 ha of agricultural land, which decreased to 272,406.92 ha by 2024 (Figure 1). This represents a total decrease of 9,775.89 ha, or 3.46% over the 20-year period.

Looking at the yearly changes, the largest reduction occurred between 2012 and 2016, where the area decreased by 4,008.14 ha. Smaller decreases were observed from 2004 to 2012 (1,726.38 ha), from 2016 to 2020 (1,350.85 ha), and from 2020 to 2024 (2,690.52 ha).

The area of agricultural land has been declining over time, with the most significant drop occurring in the period between 2012 and 2016. The reduction in recent years (2020-2024) seems to be larger than the previous period, suggesting an acceleration in the rate of decrease.



This decline in agricultural land could be attributed to various factors such as land abandonment, urbanization, reforestation, or shifts to other forms of land use.

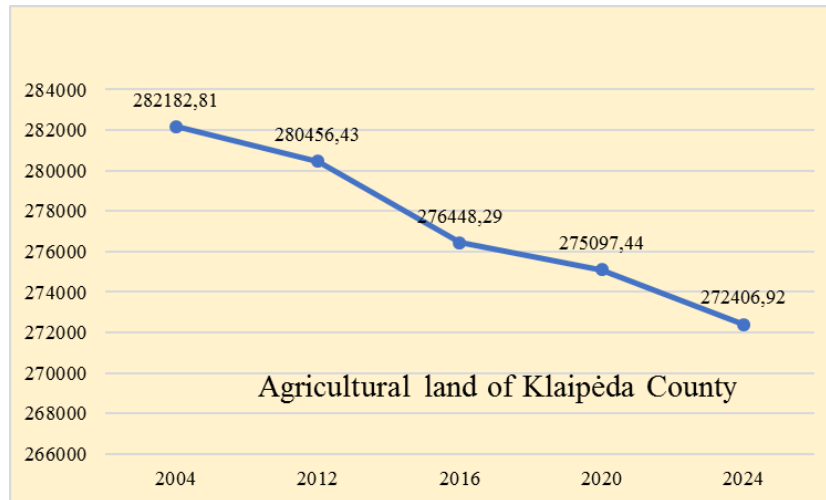


Fig. 1. The variation in the agricultural land area in Klaipėda County from 2004 to 2024, measured in hectares
1 pav. Klaipėdos apskrities žemės ūkio naudmenų plotų kaita hektarais 2004-2024 m.

Source: compiled by author (Nacionalinė..., 2004–2024)

Šaltinis: sudaryta autorės (Nacionalinė..., 2004–2024)

After analyzing the changes in agricultural land use areas in the municipalities of Klaipėda County, it was found that in Klaipėda municipality, the agricultural land area has fluctuated, with a notable decrease from 2012 to 2016, dropping from 2,449.68 ha to 1,799.56 ha. After 2016, the area increased slightly to 2,047.69 ha in 2020 but decreased again to 1,924.72 ha in 2024. The overall change from 2004 to 2024 is a decrease of 557.14 ha, from 2,481.86 ha to 1,924.72 ha (Figure 2).

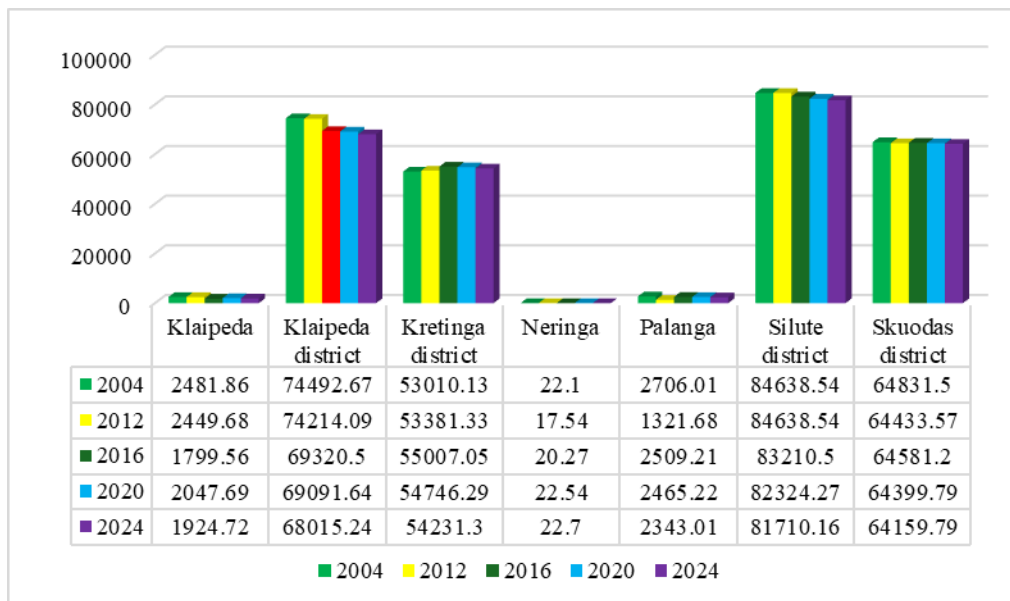


Fig. 2. The change in agricultural land areas in Klaipėda County municipalities from 2004 to 2024, in hectares
2 pav. 2004 - 2024 metų žemės ūkio naudmenų plotų kaita Klaipėdos apskrities savivaldybėse, hektarais

In Klaipėda district, the agricultural land area has gradually decreased from 74,492.67 ha in 2004 to 68,015.24 ha in 2024. The largest drop occurred between 2012 and 2016, where the area decreased from 74,214.09 ha to 69,320.5 ha. The total decrease from 2004 to 2024 is 6,487.43 ha.

In Kretinga district, the agricultural land area has generally increased from 53,010.13 ha in 2004 to 54,231.3 ha in 2024, with some minor fluctuations. The largest increase happened between

2004 and 2008, after which the area stabilized. The overall increase over the 20 years is 1,230.17 ha.

In Neringa municipality, the agricultural land area has remained relatively stable, fluctuating between 17.54 ha in 2012 and 22.7 ha in 2024. The variation is minimal, with a small increase in the area over the period.

In Palanga municipality, there has been a significant decrease in agricultural land, from 2,706.01 ha in 2004 to 2,343.01 ha in 2024. The largest drop occurred between 2004 and 2012, with a decrease from 2,706.01 ha to 1,321.68 ha. The total decrease over 20 years is. The total decrease in agricultural land area from 2004 to 2024 is 363 hectares.

In Šilutė district, the agricultural land area has remained relatively stable, with only slight decreases over the years. From 2004 to 2024, the area decreased by 928.38 ha, from 84,638.54 ha to 81,710.16 ha. The decline occurred gradually without significant fluctuations.

In Skuodas district, the agricultural land area has remained stable, with slight decreases each year, but no major changes. From 2004 to 2024, the area decreased by 671.71 ha, from 64,831.5 ha to 64,159.79 ha.

This analysis highlights the general trend of decreasing agricultural land in most municipalities, with Kretinga district as an exception.

Factors such as urbanization, changes in land use, and land abandonment could explain these trends. The most significant reductions in agricultural land have occurred in Klaipėda and Palanga municipalities, where urban expansion has repurposed farmland for residential, commercial, and industrial development. The growth of Klaipėda city and its suburbs, as well as increased tourism-related construction in Palanga, has led to the conversion of agricultural land into urban areas.

In some parts of Klaipėda County, agricultural land has been converted into forested areas due to national and EU policies promoting afforestation and biodiversity conservation.

The influence of tourism, particularly in Palanga and Neringa, has shifted land use priorities. Agricultural land has been repurposed for tourism infrastructure.

Overall, the decrease in agricultural land in Klaipėda County has been primarily driven by urban expansion, economic shifts, and environmental policies. These trends suggest that balancing development with sustainable agriculture will be a key challenge for the region in the coming years.

The majority of municipalities in Klaipėda County have experienced a decline in agricultural land over the 20-year period from 2004 to 2024. Notably, Klaipėda and Palanga municipalities have seen the most significant reductions, with decreases of 22.45% and 13.41%, respectively (Table 2). These declines indicate a broader trend of diminishing agricultural land in urbanized or rapidly developing areas.

Table 2. The change in agricultural land areas in Klaipėda County municipalities from 2004 to 2024, in hectares and percentages

2 lentelė. Klaipėdos apskrities savivaldybių žemės ūkio naudmenų kaita savivaldybėse 2004-2024 m., hektarais ir procentais

| Municipalities of Klaipėda county | The change in the anthropogenic landscape in hectares | The change in the anthropogenic landscape in percent |
|-----------------------------------|---|--|
| Klaipėda | - 557.14 | - 22.45 |
| Klaipėda district | - 6487.43 | - 8.71 |
| Kretinga district | +1230.17 | + 2.32 |
| Neringa | + 0.6 | + 0.27 |
| Palanga | - 363.00 | - 13.41 |
| Silute district | - 928.38 | - 1.10 |
| Skuodas district | - 671.71 | - 1.04 |

Source: compiled by author (Nacionalinė..., 2004–2024)

Šaltinis: sudaryta autorės (Nacionalinė..., 2004–2024)



Kretinga district stands out as the only municipality to show a 2.32% increase in agricultural land, which suggests a positive trend in maintaining or expanding agricultural activity in this district, contrasting with the general decline seen elsewhere.

Neringa municipality has experienced a minimal increase in agricultural land, with only a 0.27% rise. This indicates that while agricultural land has remained relatively stable, there has been little to no significant change, reflecting a balanced but unchanging agricultural landscape.

Šilutė and Skuodas districts have seen smaller declines in agricultural land (1.10% and 1.04%, respectively). These reductions are less severe than in Klaipėda and Palanga municipalities, but still point to an overall decrease in agricultural activity in these areas.

The overall trend of declining agricultural land in most municipalities suggests that urbanization, land use changes may be contributing factors to the reduction in agricultural areas. The relatively minor increase in Kretinga district contrasts with this trend and may be indicative of a more agriculture-focused approach or slower development in the district.

The reasons for the change in agricultural land area. After analyzing the changes in agricultural land areas in Klaipėda County and identifying the causes, the main groups of factors influencing the changes in the examined areas can be outlined:

1. Urbanization and infrastructure development: cities grow and infrastructure expands (roads, industrial zones, residential areas), some agricultural land is being used for urbanization purposes. The expansion of Klaipėda city has particularly impacted surrounding agricultural areas. Between 2004 and 2024, the area of built-up territories, roads, and degraded land in Klaipėda County increased by 8,349.60 hectares, or 30.76 percent.

2. Depopulation: According to data from the Official Statistics Portal (Klaipėdos..., 2025), Klaipėda County had a population of 319,950 in 2021, compared to 385,768 in 2001. Over the 20-year period, the population of Klaipėda County decreased by 65,818, or 17.06 percent. The decline in population is caused by emigration, decreasing birth rates, and migration to other major cities.

3. Farmers may choose to abandon farming due to economic difficulties, labor shortages, environmental regulations, decreasing land fertility, need for capital, climate change, and high land prices. These reasons, including low profitability, an aging farmer population, and difficulties adapting to technological and environmental changes, can lead to long-term consequences for agriculture and the vitality of rural areas.

4. Impact of EU subsidies and policies: European Union policies promoting agricultural modernization or environmental initiatives can indirectly contribute to the reduction of agricultural land. For example, some farmers are encouraged to switch to organic farming, which requires less land; in some cases, land is converted into forests to preserve biodiversity.

5. Land use changes: In Klaipėda County, from 2004 to 2024, the forest area increased by 8,404.83 hectares or 6.55%. Meanwhile, the area occupied by tree and shrub plantations grew by 5,775.13 hectares or 115.18%. A portion of agricultural land is reallocated for other purposes, such as industrial, commercial, or recreational uses.

6. Naturalization: some land naturally regenerates due to lack of cultivation, with shrubs or forests growing in these areas. This is especially noticeable in less fertile or economically unfavorable regions.

The reduction of agricultural land in Klaipėda County is driven by economic, demographic, environmental, and political factors, as well as urbanization and a changing population structure. To preserve agricultural land in the districts of Klaipėda County, it is important to provide adequate support to farmers, promote sustainable agriculture, and address issues related to retaining the rural population. When it comes to the cities of Klaipėda County, sustainable planning and management of the Klaipėda, Palanga, and Neringa municipalities are essential to ensure the long-term development of these areas, preserve natural and cultural heritage, and improve the quality of life for local residents.



Conclusions

1. In 2024, agricultural land in Klaipėda County made up 52.17% of the total area, which is slightly higher than the national average of 51.64%. This reflects a relatively higher proportion of land dedicated to agriculture in the county compared to the overall country. In Klaipėda County, the municipality with the largest proportion of agricultural land is Skuodas district, with 70.43% of its land dedicated to agriculture, making it the most agriculture-intensive area in the county. The municipality with the smallest share of agricultural land is Neringa municipality, which has only 0.16% of its land designated for agriculture, focusing instead on conservation and tourism due to its unique ecological characteristics.

2. Agricultural land in Klaipėda County has experienced a steady decline from 2004 to 2024, with a total decrease of 9,775.89 ha, or 3.46%. The most significant reduction occurred between 2012 and 2016 (4,008.14 ha). Most municipalities in Klaipėda County have witnessed a reduction in agricultural land between 2004 and 2024. In particular, Klaipėda and Palanga municipalities have experienced the largest declines, with reductions of 22.45% and 13.41%, respectively.

3. The decrease in agricultural land in Klaipėda County from 2004 to 2024 is due to several factors. Urbanization, particularly in Klaipėda city, led to a 30.76% increase in built-up areas, roads, and degraded land. Depopulation, with a 17.06% population decline, also contributed. Economic challenges for farmers, EU policies on agricultural modernization, and climate change further influenced land use. Additionally, forest area increased by 6.55%, and tree plantations grew by 115.18%, while natural land regeneration reduced agricultural land. These factors collectively shifted land use patterns and reduced agricultural land in the county.

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Klaipėdos apskrities žemės ūkio naudmenų plotų 2004-2024 metų kaita ir jos priežastys

(Gauta 2025 m. sausio mėn.; atiduota spaudai 2025 m. vasario mėn.; prieiga internete nuo 2025 m. gegužės 9 d.)

Santrauka

Šio darbo objektas yra Klaipėdos apskrities žemės ūkio naudmenų plotas. Šio straipsnio tikslas – išanalizuoti žemės ūkio naudmenų plotų kaitą Klaipėdos apskrityje nuo 2004 iki 2024 metų. Straipsnio uždaviniai:

1. Išnagrinėti žemės ūkio naudmenų plotų esamą padėtį Klaipėdos apskrityje ir jos savivaldybėse;
2. Ištirti žemės ūkio naudmenų plotų kaitą Klaipėdos apskrityje ir jos savivaldybėse nuo 2004 iki 2024 metų;
3. Įvertinti priežastis, lėmusias žemės ūkio naudmenų plotų pokyčius.

Žemės ūkio naudmenų plotų pokyčių tyrimai yra itin svarbūs siekiant užtikrinti maisto saugumą, skatinti tvarų žemės naudojimą, saugoti aplinką, palaikyti ekonomikos augimą, stebėti klimato kaitos poveikį ir formuoti politikos gaires. Šie tyrimai padeda atpažinti iššūkius ir planuoti ilgalaikius sprendimus, siekiant suderinti maisto gamybą, aplinkos apsaugą ir ekonominę vystymąsi. Analizuojant žemės ūkio naudmenų plotų pokyčius Klaipėdos apskrityje nuo 2004 iki 2024 metų, nustatyta, kad žemės ūkio naudmenų plotas sumažėjo 9775,89 ha, tai sudaro 3,46 %. Per šį laikotarpį ariamos žemės plotas sumažėjo 5367,78 ha (2,28 %), sodų plotai sumažėjo 4240,15 ha (83,89 %), o pievų ir natūralių ganyklų – 167,96 ha (0,41 %). Nuo 2004 iki 2024 metų žemės ūkio naudmenų plotai daugelyje Klaipėdos apskrities savivaldybių sumažėjo, ypač Klaipėdos ir Palangos savivaldybėse, kuriose analizuojami plotai sumažėjo atitinkamai 22,45 % ir 13,41 %. Bendras žemės ūkio naudmenų plotų mažėjimas daugelyje Klaipėdos apskrities savivaldybių rodo, kad urbanizacija ir žemės naudojimo pokyčiai gali būti veiksniai, prisidedantys prie žemės ūkio plotų sumažėjimo. Žemės ūkio naudmenų plotų mažėjimas Klaipėdos apskrityje taip pat yra lemiamas ekonominių, demografinių, aplinkosauginių ir politinių veiksnių. Norint išsaugoti žemės ūkio naudmenas, būtina suteikti tinkamą paramą ūkininkams, skatinti tvarų žemės ūkį.

