# THE COURSE AND EVOLUTION OF THE AGRICULTURAL SYSTEM IN FÂRDEA, TIMIȘ COUNTY

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**Abstract**

*The paper presents the course and evolution of the agricultural system in Fârdea Commune, Timiș County, during the period 2022–2024, with a focus on crop structure, agricultural land use, and trends in plant production diversification. Fârdea Commune is located in the eastern part of Timiș County, on the northwestern slope of the Poiana Ruscă Mountains, in a transition zone between mountain and plain environments, characterized by fragmented relief and pedoclimatic conditions favorable to mixed agriculture. The data used were obtained from the Ministry of Agriculture and Rural Development (MADR), the Agency for Payments and Intervention in Agriculture (APIA), and the Agricultural Chamber of the Fârdea Town Hall. The results highlight that, during the analyzed period, areas cultivated with cereals for grains – especially corn – dominated the crop structure, followed by wheat, potatoes, vegetables, and fodder plants. Beginning in 2023, crop diversification became evident through the introduction of strawberries and the expansion of fodder plant areas, while in 2024, young orchards also appeared, confirming a gradual shift toward mixed and sustainable agriculture. The paper contributes to a better understanding of the dynamics of agricultural land use in the mountainous and submontane areas of Banat, providing a reference framework for future strategies in sustainable rural development.*

***Key words: Agricultural systems, rural development, strategy, soil.***

## INTRODUCTION

Agriculture is one of the fundamental branches of the national economy, playing an essential role in ensuring food security, providing raw materials for industry, and supporting ecological balance (Lal, 2020; O'Mara, 2012). Globally, agriculture is undergoing a continuous process of adaptation to climate change, socio-economic pressures, and increasingly stringent requirements for production sustainability (FAO, 2022; Riemens et al., 2022). In Europe, the Common Agricultural Policy (CAP) has promoted multifunctional agriculture, geared towards reducing inputs, protecting natural resources, and making the most of the rural landscape (European Commission, 2025). In this context, agriculture in Romania faces challenges related to land fragmentation, a low level of mechanization, and deficient agricultural infrastructure (Grad et al., 2014; Dumitru et al., 2019). At the same time, the lack of investment and the degradation of irrigation systems have contributed to a decrease in the competitiveness of the Romanian agricultural sector (Mihuț et al., 2018).

After 1990, the transition to a market economy led to the restructuring of the agricultural system, with a sharp decrease in the share of agriculture in GDP, but also with modernization trends in areas with high pedoclimatic potential (Duma-Copcea et al., 2022). In mountainous and submontane regions, agriculture continues to be a predominantly mixed activity, based on the cultivation of cereals, potatoes, and fodder crops, associated with animal

husbandry (O'Mara, 2012; Mircov et al., 2021).The Fârdea area, located in the eastern part of Timiș County, at the contact between the Lugoj Plain and the Poiana Ruscă Mountains, benefits from varied relief, fertile soils, and sufficient water resources for the practice of diversified agriculture. The geographical position, proximity to major transport routes, and the existence of productive arable land favor the development of agricultural and agrotourism activities (Grad et al., 2014; Mateoc-Sîrb et al., 2015).

Currently, the local agricultural system is characterized by a combination of traditional practices and the moderate use of modern technologies (Hatcher & Melander, 2003; Koning et al., 2019). The implementation of minimum tillage, crop rotation, and soil conservation measures is increasingly common on farms in the Fârdea area, reflecting the trend of alignment with the principles of sustainable agriculture (Riemens et al., 2022; Koricheva & Gurevitch, 2014). Sustainability is also discussed by Urlica et al. (2019) and Groszler et al. (2017).

The purpose of this paper is to analyze the evolution of the agricultural system in Fârdea Commune during the period 2022–2024 by evaluating changes in crop structure and identifying adaptation trends to local pedoclimatic conditions.

The specific objectives are:

(1) to identify the main agricultural crops practiced during the analyzed period;

(2) to evaluate the cultivated areas and their dynamics;

(3) to analyze the trend of crop diversification and the emergence of new species (strawberries, orchards);

(4) to correlate the results with sustainable rural development strategies in the Banat region.

## MATERIAL AND METHOD

The research was based on the analysis of statistical data provided by the Ministry of Agriculture and Rural Development (MADR), the Agency for Payments and Intervention for Agriculture (APIA), and the Agricultural Chamber of the Fârdea City Hall for the years 2022, 2023, and 2024. Data on cultivated areas, crop structure, diversification, and the evolution of the local agricultural system were analyzed.The methodology included:

- Multiannual comparative analysis (2022–2024) of cultivated areas by crop categories (cereals, vegetables, fodder plants, potatoes, orchards);
- Descriptive statistical interpretation of data by calculating weights, variations, and trends in surface change;
- Correlative analysis between pedoclimatic conditions (altitude, relief, fertility) and the structure of agricultural crops;
- Documentary analysis of specialized studies on the dynamics of agricultural systems (Grad et al., 2014; Mihuț et al., 2018; Duma-Copcea et al., 2024).

The data were systematized in tables and graphs, reflecting the evolution of cultivated areas and the emergence of new crops, in order to identify the development directions of local agriculture.

## RESULTS AND DISCUSSIONS

The course and evolution of the agricultural system in Fârdea, Timiș County, are reflected in the crop structure during the years 2022, 2023, and 2024. The largest harvested areas in all three analyzed years were recorded for cereal grain crops, with corn for grains representing the crop with the most extensive areas. Field vegetable crops are also present, but they occupy relatively small harvested areas.

Table 3.1.

Area cultivated with cereals in 2022

| Name of crops | Harvested area ha |
|---|---|
| **Grain cereals** | 505 |
| Common Autumn Wheat | 98 |
| Autumn triticale | 35 |
| Spring oats | 22 |
| Corn for grains | 350 |

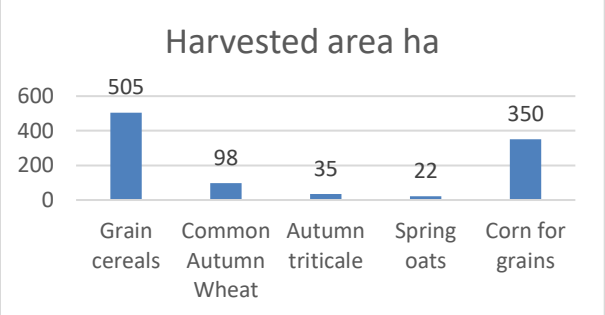


Fig. 3.1. Area cultivated with cereals - ha, for 2022

As shown in Table 1 and Figure 1, in 2022 the area occupied by cereals was 505 ha, of which corn for grains accounted for 350 ha, common winter wheat 98 ha, spring triticale 35 ha, and spring oats 22 ha.

Table 2.Area cultivated with potatoes in 2022

| Name of crops | Harvested area ha |
|---|---|
| **Potatoes** | 27 |
| Early and semi-early potatoes | 27 |

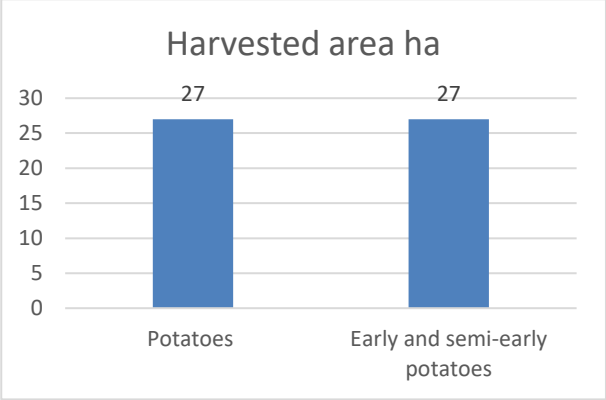


Fig. 2. Area cultivated with potatoes (ha) in 2022

As shown in Table 2 and Figure 2, within Fârdea Commune, the area cultivated with potatoes is 27 ha, of which early and semi-early varieties occupy the entire cultivated area.

Table 3.Area cultivated with vegetables in 2022

| Name of crops | Harvested area -ha |
|---|---|
| **Field vegetables** | 19 |
| Dried onion | 4 |
| Dried garlic | 1 |
| Peas pods | 4 |
| Pepper | 4 |
| Cucumbers | 1 |
| Beans (pods) | 5 |

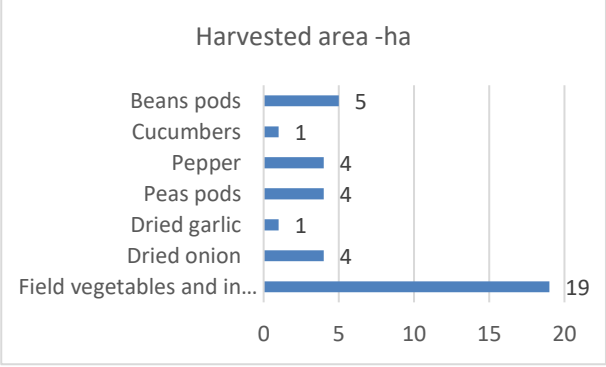


Fig. .3. Area cultivated with vegetables – ha, for 2022

As can be seen in Table 3. and Figure 3. within Fârdea commune the area occupied by vegetables is 19 ha, of which dried onions 4 ha, dried garlic 1 ha, peas 4 ha, peppers 4 ha, cucumbers 2 ha, cucumbers 1 ha, beans 5 ha.

Table 4.Area cultivated with cereals in 2023

| Name of crops | Harvested area - ha |
|---|---|
| **Grain cereals** | 410 |
| Common Autumn Wheat | 80 |
| Spring triticale | 15 |
| Spring barley | 18 |
| Corn for grains | 297 |

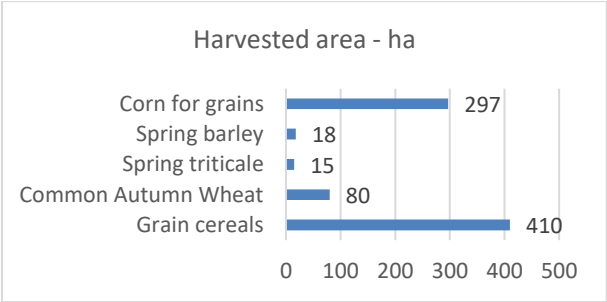


Fig. 4. Area cultivated with cereals (ha) in 2023

As shown in Table 4 and Figure 4, within the commune, the area cultivated with cereals is 410 ha, of which corn for grains accounts for 297 ha, common autumn wheat 80 ha, spring triticale 15 ha, and spring barley 15 ha.

Table 5.Area cultivated with vegetables in 2023

| Name of crops | Harvested area - ha |
|---|---|
| **Field vegetables** | 17 |
| Dried onion | 6 |
| Dried garlic | 2 |
| Autumn cabbage | 3 |
| Pepper | 2 |
| Cucumbers | 2 |
| Carrots | 1 |
| Beans (pods) | 1 |

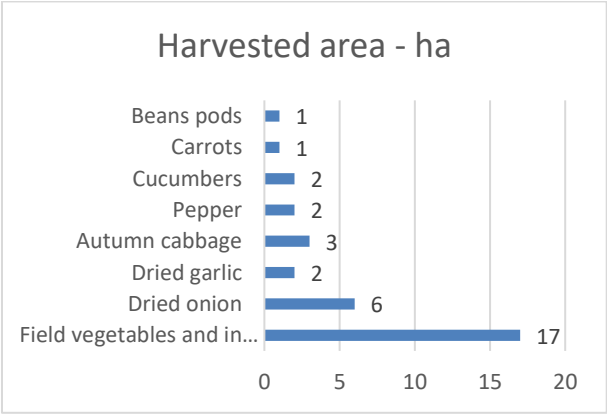


Fig. 5. Area cultivated with vegetables (ha) in 2023

As shown in Table 5 and Figure 5, within Fârdea Commune, the area cultivated with vegetables is 17 ha, of which dried onions occupy 6 ha, dried garlic 2 ha, autumn cabbage 3 ha, peppers 2 ha, cucumbers 2 ha, carrots 1 ha, and beans 1 ha.

Table 6.Area cultivated with fodder plants in 2023

| Name of crops | Harvested area ha |
|---|---|
| Fodder plants | 20 |
| Lucerne | 6 |
| Clover | 6 |
| Fodder beets | 1 |
| Feed pumpkins | 7 |

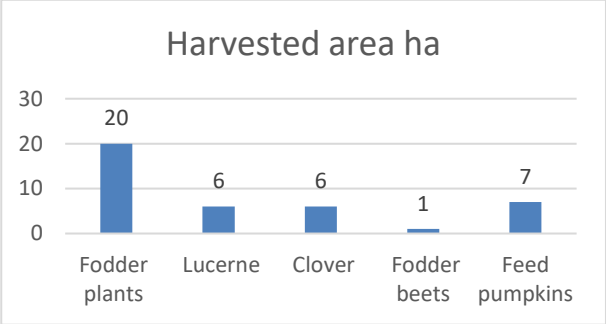


Fig. 6. Area cultivated with fodder plants (ha) in 2023

As shown in Table 6 and Figure 6, within Fârdea the area cultivated with fodder plants is 20 ha, of which alfalfa occupies 6 ha, clover 6 ha, fodder beets 1 ha, and fodder pumpkins 7 ha.

Table 7.Area cultivated with strawberries in 2023

| Name of crops | Harvested area ha |
|---|---|
| **Strawberries** | 1 |
| Strawberries (fruit) | 1 |

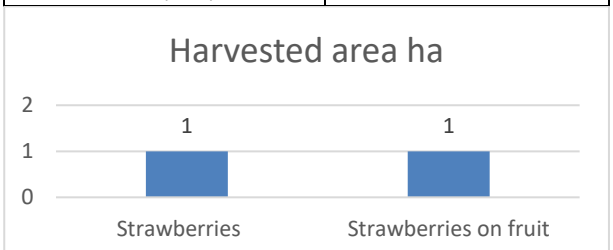


Fig. 7. Area cultivated with strawberries – ha, for 2023

As can be seen in Table 7. and figure 7 within Fârdea commune, the area occupied with strawberries is 1 ha, of which strawberries per fruit occupy the entire cultivated area.

Table 8.Area cultivated with cereals in 2024

| Name of crops | Harvested area - ha |
|---|---|
| **Grain cereals** | 456 |
| Common Autumn Wheat | 60 |
| Spring triticale | 30 |
| Spring oats | 16 |
| Corn for grains | 350 |

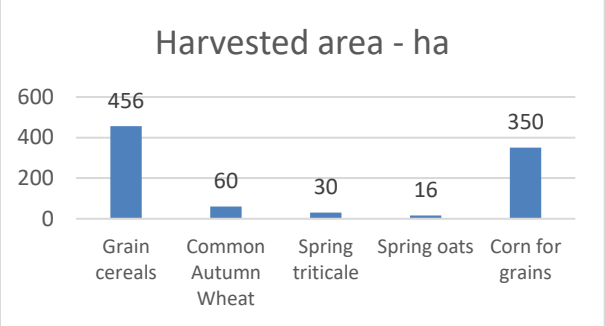


Fig. 8. Area cultivated with cereals (ha) by 2024

As shown in Table 8 and Figure 8, within Fârdea Commune, the area cultivated with cereals is 456 ha, of which corn for grains accounts for 350 ha, common autumn wheat 60 ha, spring oats 16 ha, and spring triticale 30 ha.

Table 9.Area cultivated with potatoes in 2024

| Name of crops | Harvested area ha |
|---|---|
| **Potatoes** | 32 |
| Autumn potatoes | 32 |

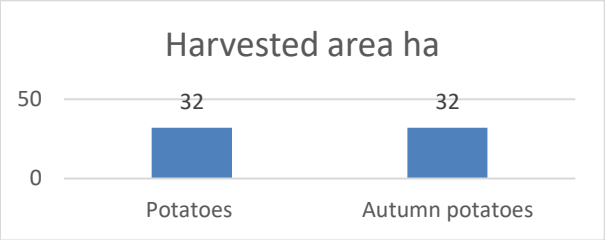


Fig. 9. Area cultivated with potatoes (ha) in 2024

As shown in Table 9 and Figure 9, within Fârdea Commune, the area cultivated with potatoes is 32 ha, of which autumn potatoes occupy the entire harvested area.

Table 10.Area cultivated with vegetables in 2024

| Name of crops | Harvested area -ha |
|---|---|
| Field vegetables and in solariums | 64 |
| Dried onion | 5 |
| Autumn cabbage | 2 |
| Cucumbers | 3 |
| Beans pods | 2 |
| Garlic | 52 |

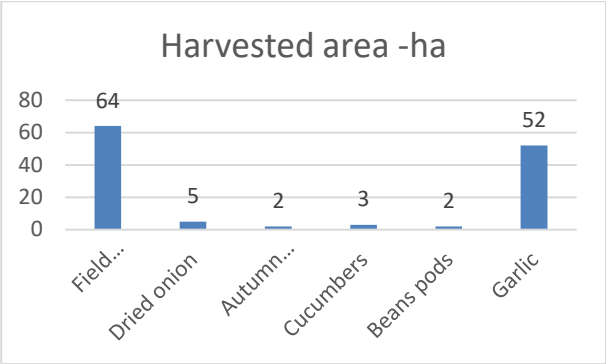


Fig. 10. Area cultivated with vegetables (ha) by 2024

As shown in Table 10 and Figure 10, within Fârdea Commune, the area cultivated with vegetables is 12 ha, of which autumn cabbage occupies 2 ha, dried onions 5 ha, cucumbers 3 ha, pod beans 2 ha, and garlic 52 ha.

Table 11.Area cultivated with fodder plants in 2024

| **Name of crops** | **Harvested area ha** |
|---|---|
| Fodder plants | 41 |
| Yearly areas for hay and green table | 25 |
| Feed pumpkins | 16 |

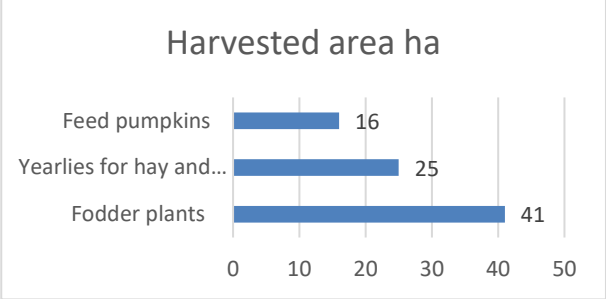


Fig. 11. Area cultivated with fodder plants (ha) in 2024

As shown in Table 11 and Figure 11, within Fârdea Commune, the area cultivated with fodder plants is 41 ha, of which 16 ha are fodder pumpkins and 25 ha are occupied by annual plants for hay and green fodder.

Table 12.Area cultivated with orchards in 2024

| **Name of crops** | **Harvested area ha** |
|---|---|
| **Fruits from orchards** | 54 |
| Apple | 10 |
| Pears | 4 |
| Plum | 40 |

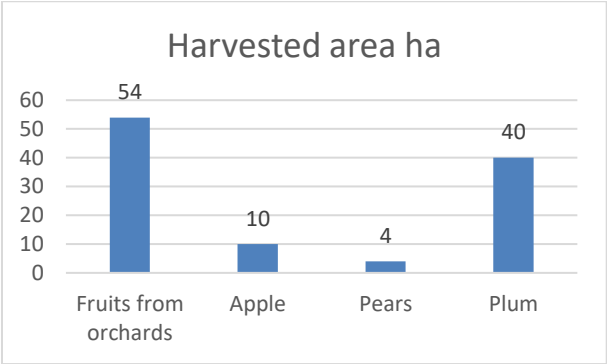


Fig. 12. Area cultivated with orchards (ha) in 2024

As shown in Table 12 and Figure 12, within Fârdea Commune, the area occupied by orchards is 54 ha, of which 4 ha are planted with pears, 10 ha with apples, and 10 ha with plums.

## CONCLUSIONS

1. Agriculture in Fârdea Commune is dominated by corn cultivation for grains, which recorded the largest cultivated areas in all three years analyzed (2022–2024).
2. Wheat occupies a constant area of about 90–100 ha, maintaining its role as a basic species in crop rotation.
3. Vegetables show marked diversification, with garlic becoming the main crop in 2024, occupying an area of 52 ha.
4. The positive dynamics of the areas cultivated with fodder plants (2023–2024) indicate an orientation towards mixed farms and livestock growth.
5. The emergence of young orchards and strawberry crops is a favorable trend, contributing to the expansion of sustainable agriculture and the exploitation of local resources.
6. The results highlight the transition of the local agricultural system towards mixed agriculture, with elements of diversification and economic stability, in line with the principles of sustainable rural development. Data on fodder

crops are available for the years 2023 and 2024.

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