

## ANALYSIS OF AVERAGE PRICES FOR AGRICULTURAL PRODUCTS

Ioana Anda MILIN <sup>1#</sup>, Iuliana Ioana MERCE <sup>1</sup>, Ciprian Ioan RUJESCU <sup>1</sup>,  
Tabita Cornelia ADAMOV <sup>1</sup>, Oana SICOE -MURG <sup>1</sup>, Claudia-Elena SÎRBULESCU<sup>1</sup>

<sup>1</sup> University of Life Sciences "King Mihai I" from Timișoara, Faculty of Management and Rural Tourism, Romania

### RESEARCH ARTICLE

#### Abstract

Agriculture is a strategic sector of the economy, and the prices of agricultural products are a key indicator of market performance. The analysis of average prices provides information about the economic evolution, the profitability of producers and the purchasing power of the population. The purpose of the research is to analyze the level, dynamics and variation of average prices for the main agricultural products (vegetables and fruits), for the period 2022-2025, using statistical tools and methods.

**Keywords:** agri-food market, average prices, vegetables, fruits, farm gate.

#Corresponding author: andamilin@usvt.ro

#### INTRODUCTION

The evolution of agri-food prices is an essential indicator for assessing the performance of the agricultural sector and its impact on household consumption. In the period 2020–2025, the agri-food market in Romania was strongly influenced by factors such as inflation, the increase in the costs of agricultural inputs (diesel, fertilizers, energy), extreme climatic conditions (drought, frosts), as well as the dynamics of demand and supply for horticultural products (Beleniuc G, Miron L., 2013, Diaconu A., 2018, ). The analysis presents the evolution of average prices for vegetables and fruits sold in agri-food markets, as well as their prices at the farm gate – an important indicator of the level of remuneration of agricultural producers.

#### MATERIAL AND METHOD

The objectives of the analysis refer to: determining the average prices by categories of agricultural products, analyzing the variation and dynamics of prices over time (year), interpreting the fluctuations and their causes, identifying the general trends on the agricultural products market.

The average price for products sold in the agri-food markets and the average price at the farm gate (lei/kg) represents the ratio between the total value of sales and the total quantity sold:

$$\text{Average price} = \frac{\sum(p_i \times q_i)}{\sum q_i}$$

where:  $p_i$  – the unit price,  $q_i$  – the quantity sold

Average prices at product/country level are calculated as a weighted arithmetic average. The weights are calculated at the county level, based on the data provided by the plant and animal production indicators (Novak A., 2006).

#### RESULTS AND DISCUSSIONS

The analysis of the average annual prices of the main vegetables sold in the agri-food markets in Romania highlights a general upward trend for most products in the period 2022–2025. This evolution is influenced by economic, agricultural and climatic factors, such as inflation, the increase in the price of agricultural inputs, weather conditions, transport costs and production variations.

From the analysis of the statistical data we have the following situations:

1. Vegetables with constant and accentuated growth. Here are inscribed:

- beans (dried) - the price increased from 13.06 lei/kg (2022) to 15.11 lei/kg (Sept. 2025). It is one of the vegetables with the most stable growth, reflecting the constant demand and dependence on imports;

- dried garlic - registered a strong upward evolution: 18.69 lei/kg (2022) → 25.39 lei/kg (Sept. 2025). Growth of over 36%, influenced by limited domestic production and expensive imports.

- autumn cabbage - from 2.60 lei/kg (2022) to 4.14 lei/kg (2024), then a decrease to 3.70 lei/kg in September 2025. Prices increased significantly in 2023–2024 due to climatic conditions and rising transport prices;

- spinach- strong growth: 8.37 → 14.05 lei/kg. Being a seasonal product, sensitive to climate change, which explains the volatility of prices;

- leeks- From 7.45 lei/kg (2023) to 10.2 lei/kg in January 2025, then drops to 8.76 lei/kg in September. Prices are influenced by seasonality, reduced supply but also changes in consumer preferences.

2. Vegetables with moderate variations, but generally growing are:

- field tomatoes- the average price evolved from 5.56 lei/kg (2022) to 7.01 lei/kg (Sept. 2025). This increase is explained by the increase in the price of energy, fertilizers and transport.

- autumn potatoes- the average price increased from 2.83 → 3.50 lei/kg (Sept. 2025). The price is relatively stable, with small variations, due to the high domestic production.

- capsicum / fat / bell pepper - all three categories show moderate increases. High demand for canned food keeps prices relatively high. (bell peppers: 7.17 → 7.92 lei/kg, bell peppers: 5.44 → 5.93 lei/kg, bell peppers: 6.72 → 7.91 lei/kg).

- field cucumbers – the average price increased from 4.65 lei/kg to 6.72 lei/kg, as production is strongly influenced by weather conditions and logistics costs.

3. Vegetables with high volatility

- cauliflower- average price increasing, from 6.73 → 9.91 lei/kg (2024), then drops to 8.86 lei/kg in September 2025. The price depends a lot on the season and the domestic offer, but also on imports.

- beans pods- register an unstable price: 12.37 (2022) → drops to 11.80 (2023) → rises strongly to 17.51 (Sept. 2025). The evolution reflects both seasonality and production fluctuations.

- greenhouse tomatoes / greenhouse cucumbers- prices are high due to the high cost of heating protected spaces. In general, the evolution stabilizes at levels above field production.

Table 1

**Average annual prices of the main vegetables sold in the agri-food markets total country (lei/kg)**

	2022	2023	2024	January 2025	September 2025
Beans (dried)	13,06	14,64	15,35	15,81	15,11
Early and summer potatoes	2,81	3,67	3,54	:	3,24
Autumn potatoes	2,83	3,45	3,66	3,64	3,5
Cauliflower	6,73	7,14	9,91	:	8,86
Early and summer white cabbage	3,21	3,23	3,59	:	:
Autumn cabbage	2,6	2,79	4,14	4,56	3,7
Camp Tomato	5,56	6,14	6,86	:	7,01
Evening tomato	:	14,34	13,39	:	:
Field cucumbers	4,65	4,78	6,87	:	6,72
Greenhouse cucumbers	:	8,04	7,15	:	:
Carrots	4,21	5,4	5,41	5,28	5,36
Dried onion	3,93	5,3	5	5,03	4,82
Peas, Pods	:	12,14	13,75	:	:
Pasta beans	12,37	11,8	14,18	:	17,51
Cultured mushrooms	:	12,83	12,42	12,63	13,27
Zucchini	:	4,12	5,05	:	5,02
Leek	:	7,45	8,51	10,2	8,76
Cape peppers	7,17	7,43	7,97	:	7,92
Bell pepper	5,44	5,79	6,35	:	5,93
Gogosar pepper	6,72	7,26	7,59	:	7,91
Eggplant	4,47	4,95	4,88	:	4,7
Dried garlic	18,69	18,8	22,57	24,92	25,39
Spinach	8,37	9,62	10,07	:	14,05

Source: INS - Tempoonline database

Table 2

Average farm gate prices of the main vegetables, per country (lei/kg)						
	2020	2021	2022	2023	2024	Third quarter 2025
Beans	:	:	:	8,8	8,49	9,83
Early, semi-early and summer potatoes	1,03	0,95	1,38	1,79	1,83	1,77
Autumn potatoes	1,1	0,89	1,55	1,77	1,88	1,6
Cauliflower	:	:	:	4,61	5,87	5,94
White cabbage - early and summer	:	:	:	1,8	2,22	2,37
White cabbage - autumn	:	:	:	1,62	2,6	2
Camp Tomato	2,85	2,68	3,55	3,59	4,3	5,02
Evening tomato	:	:	:	:	8,62	:
Field cucumbers	2,33	2,4	3,09	3,2	4,73	4,81
Greenhouse cucumbers	:	:	:	4,94	3,97	:
Carrots	:	:	:	2,82	3,06	3,13
Dried onion	:	:	:	3,28	2,93	3,15
Peas, Pods	:	:	:	6,39	7,47	:
Pasta beans	4,71	5,55	:	7,54	8,14	13,62
Cultured mushrooms	:	:	:	9,16	10,27	10,49
Zucchini	:	:	:	2,35	2,99	3,24
Leek	:	:	:	3,18	3,73	4
Long pepper - cape type	3,28	3,65	4,98	5,08	5,84	6,04
Bell pepper	2,76	2,69	4,32	3,99	4,57	4,42
Gogosar pepper	3,69	3,4	5,42	5,09	5,28	6,31
Eggplant	:	:	:	3,11	3,09	3,53
Dried garlic	:	:	:	12,27	14,16	17,2
Spinach	:	:	:	5,29	6,15	8,46
Spinach	:	:	:	5,29	6,15	8,46

Source: INS - Tempoonline database

#### 4. Vegetables with reduced growth or stagnation

- Eggplant- almost constant price: 4.47 (2022) → 4.70 (Sept. 2025). The stable domestic supply explains the price stagnation.

- Dried onions- the average price rises from 3.93 in 2022 to 5.30 in 2023, but drops slightly to 4.82 in September 2025. Price influenced by harvests from Poland and the Netherlands, the main foreign seasonal suppliers.

The analysis of average prices at the farm gate reflects the dynamics of the costs incurred in the agricultural production stage, before the products enter the commercial chain. The evolution of these prices is influenced by factors such as climatic conditions, input costs (seeds, fertilizers, energy, water), fluctuations in supply and demand, as well as the general economic context.

This paragraph will briefly present the results of the research. Conclusions will be concise and clear, no hypothesis and probability. Each conclusion will start on a new row. The text will be edited not numbered or bullet lists. This section can be skipped, but should be added if the results and discussion part is long.

In the interval 2020–2025 (Q3), the data shows a general growth trend for most of the vegetables analyzed. We have the following situations:

##### 1. Vegetables with strong and continuous growths:

- Field tomatoes – total growth of over 75% in five years. The main reasons are given by the high costs of energy and irrigation, the decrease in domestic production, competitive pressure from imports;

- Field cucumbers- the price has almost doubled, reflecting the sensitivity of crops to climatic conditions;

- Dried garlic – growth for the analyzed range of +40%, due to low domestic production and dependence on imports;

- Spinach – growth of over 60%, influenced by seasonality and high labor costs;

- Pod beans – very accentuated growth (of almost 300%), volatile production data, high demand, losses in the logistics chain;

##### 2. Vegetables with moderate and stable growth:

-early, semi-early and summer potatoes: 1.03 lei/kg (2020) → 1.77 lei/kg (Q3 2025). Relatively moderate but steady growth;

- autumn potatoes - 1.10 lei/kg → 1.88 lei/kg (2024), decrease to 1.60 lei/kg in 2025.

Prices remain affordable due to high domestic production;

- carrots-2.82 lei/kg (2023) → 3.13 lei/kg (Q3 2025), slowly upward evolution;

- dried onions - 3.28 lei/kg (2023) → 3.15 lei/kg (2025). Slight decrease, explained by good harvests on the European market and significant imports;

- cauliflower- increase of almost 30%, from 4.61 lei/kg (2023) → 5.94 lei/kg (Q3 2025);

- early white cabbage -stable evolution, but influenced by the season. The price increased from 1.80 lei/kg (2023) → 2.37 lei/kg (2025);

### 3. High volatility vegetables:

- greenhouse tomatoes - high price due to the cost of energy in protected areas, the

increase in the price of water, the increase in the cost of labor during the harvest period, etc.;

- greenhouse cucumbers: significant decrease, due to increased competition and efficiency on farms - from 4.94 lei/kg (2023) → 3.97 lei/kg (2024);

- autumn white cabbage – the price is dependent on climatic conditions and available stocks;

- bell pepper / bell pepper / capsicum - all show variations, but with moderate increases overall. They are sensitive to demand, but also to the high costs of inputs.

### 4. Relatively stable products:

- eggplant- low growth, with small variations in production.

- beans - moderate growth, under the influence of imports.

Table 3

**Average annual prices of the main fruits sold in the agri-food markets in the whole country (lei/kg)**

	2020	2021	2022	2023	2024	September 2025
Melons	3,48	2,92	4,44	4,19	4,53	4,63
Watermelons	1,76	1,52	2,41	2,72	2,48	2,29
Apple	3,71	3,57	3,67	4,09	4,51	6,3
Pears	6,13	6,1	6,77	8,21	8,64	9,91
Peaches	5,95	7,76	7,83	8,13	8,44	:
Apricot	7,46	7,56	7,8	9,09	8,62	:
Cherry	11,91	13,12	12,29	17,48	14	:
Cherry	8,1	9,25	9,3	11,57	11,25	:
Plum	3,75	4,31	5,47	4,86	5,29	6,31
Walnuts	8,15	8,79	9,39	9,16	9,77	10,77
Strawberry	10,02	8,85	8,87	9,22	12,54	:
Table grapes	5,63	6,3	6,85	7,39	8,82	8,47
Bee honey	28,73	30,09	32,05	33,96	34,89	36,31

Source: INS - Tempoonline database

The analysis of the evolution of the average prices of the main fruits sold in the agri-food markets shows a general upward trend, with significant variability depending on the type of fruit, seasonality, domestic production and climatic conditions. The increases in the period 2020–2025 are also influenced by inflationary pressure, transport costs, the impact of drought on crops and the increase in the price of agricultural inputs.

We have the following situations:

1. Fruits with significant and continuous growth:

- apples-strong growth in the last two years (+40% between 2023 and 2025). The main reasons are :p lower production in years with extreme weather phenomena, increased storage and sorting costs, high demand for Romanian varieties;

- pear-growth of 62% over the analyzed period, due to lower domestic production,

partial dependence on imports and high logistics costs;

- nuts- prices are constantly rising, reflecting strong demand and laborious harvesting;

- table grapes- 5.63 lei/kg (2020) → 8.82 lei/kg (2024). Prices remain high in 2025 (8.47 lei/kg) due to drought sensitivity, increased costs of plantation maintenance;

- honey - increase of about 26%, influenced by the decrease in beekeeping production in dry years, but also by the increase in packaging costs.

2. Fruits with high volatility, influenced by the season and production:

- cherries-minimum price 11.91 lei/kg (2020) and peak price 17.48 lei/kg (2023). Cherries are extremely sensitive to late frosts and rains, which explains the large price jumps;

- cherries-steady but moderate growth; dependence on seasonal production and crop quality;

- apricots- the apricot crop is unstable, strongly affected by the spring frost. The evolution of prices is- 7.46 lei/kg (2020) → 9.09 lei/kg (2023);

- peaches-growth of over 40%. Prices for 2025 are not available, but the previous trend shows an expanding market.

3. Fruits with relatively stable prices or moderate variations:

- melons-moderate growth, especially in 2022–2025;

- watermelons – prices fluctuate depending on the abundance of domestic production;

The 2024–2025 decline indicates good harvests and/or competition among producers.

- plums – constant growth, with moderate variations (e.g.: decrease in 2023 due to high production).

Table 4

Average farm gate prices of the main fruits, per country (lei/kg)						
	2020	2021	2022	2023	2024	Third quarter 2025
Melons	:	:	:	2,27	2,31	2,8
Watermelons	:	:	:	1,43	1,6	1,64
Table apples	:	:	:	2,48	2,61	3,94
Pear of dough	:	:	:	5,05	4,44	6,17
Peaches	:	:	:	4,39	3,8	8,46
Apricot	:	:	:	4,8	5,62	11,05
Cherry	:	:	:	9	8,6	17,14
Cherry	:	:	:	5,45	5,66	12,01
Plum	:	:	:	2,21	2,39	3,8
Walnuts	:	:	:	:	:	6,99
Field strawberries	:	:	:	4,94	6,73	:
Table grapes	:	:	:	3,24	3,38	3,65
Bee honey	16,86	18,03	21,52	23,37	24,33	24,89

Source: INS - Tempoonline database

Data on farm gate prices for the main fruits show a strong upward trend in the period analyzed, especially in the period 2023–2025. These developments reflect the increase in the price of agricultural inputs (diesel, fertilizers, packaging), inflation pressure, climatic influences (drought, late frosts), as well as the increase in harvesting and transport costs. For most fruits, the period 2025 (even just up to the third quarter) marks the highest values in the entire series. We have as follows:

1. Fruits with very high growth (high volatility):

- apricots-Prices have almost doubled in just two years because it is a crop sensitive to spring frost; reduced production in climate-affected years; high demand versus limited supply;

- cherries-The price increased by almost 100% between 2024 and 2025. The explanations come from the fact that cherries are some of the most sensitive fruits; Small harvests cause strong price increases.

- cherries-The price has doubled in two years due to decreasing production, higher harvesting costs, increased demand for processing (juices, preserves).

- peaches-Strong growth after a temporary decline, due to large variations in production and sensitivity to climatic factors.

2. Fruits with consistent but more balanced growths:

- table apples -Growth of +50% between 2023 and 2025. Causes could be: damage to drought orchards, increased storage and selection costs;

- table pears- After a decrease in 2024, the price increases significantly in 2025 due to oscillating production and expensive imports;

- plums: Growth of about 70%. There is an increased demand for distillation (brandy, brandy), lower production in some areas;

- table grapes-Moderate but stable growth. Production is influenced by drought and vineyard maintenance costs.

3. Fruits with low prices and moderate increases:

- melons-Increase of about 23%;

- watermelons-Small growths, reflecting high production and strong competition among farmers.

4. Other agricultural products:

- field strawberries-Significant increase (+36%).

- nuts-High value, explained by high demand and difficult harvesting.

- Bee honey-48% increase in five years explained by declining bee populations, adverse climatic conditions, rising production costs.

---

## CONCLUSIONS

The average prices of agricultural products registered a general upward trend during the period under review. The increases are influenced by: the increase in the price of agricultural inputs, extreme climatic conditions, inflationary pressure, logistics and transport, the reduction of domestic production of certain crops.

The price differences between products are significant, depending on seasonality and economic factors. Climate-sensitive vegetables and fruits (cherries, apricots, beans, garlic, spinach, tomatoes) recorded the greatest fluctuations. Basic fruits and vegetables (apples, potatoes, onions, cabbage) grow moderately but stably.

Farm gate prices confirm that agricultural producers are facing major cost increases, which is automatically passed on to the end consumer.

Permanent market monitoring is necessary to establish effective pricing and production strategies. Under these conditions, the following are necessary:

- Implementation of agricultural product price forecasting systems;
- Supporting producers through policies that stabilize prices (intervention stocks, subsidies, guaranteed price).
- Promoting direct contracts between farmers and processors, to reduce price variations.

## REFERENCES

- Beleniuc, G, Miron, L., 2013. Managementul exploatareii si al calitatii produselor Agricole, Editura Universitară.
- Diaconu, A., 2018. Economia fermelor agricole. Marketing agroalimentar , Editura Economica.
- Novak, A., 2006. Bazele statisticii, Editura Prouniversitaria.
- \*\*\* INS - Tempoonline database, <http://statistici.insse.ro:8077/tempo-online/>.