PRICE INDICES IN AGRICULTURE,
FOURTH QUARTER OF 2023

Producer price indices in agriculture

The producer price index in agriculture for the fourth quarter of 2023 decreased by 20.5% in comparison with the same quarter of 2022 as a result of a decrease in the price index of crop output by 25.6% while there is an increase in the index of animal output by 1.5%. Compared to the previous year, the prices of agricultural output decreased by 19.1%, as in crop output they decreased by 27.4% and in animal output they increased by 16.0% (Table 1).

In the fourth quarter of 2023, compared to the same quarter of 2022, a decrease was registered in the prices of cereals - by 33.3%, and industrial - by 29.2%, as a result of the decrease in the prices of soft wheat - by 34.8%, and sunflower - by 32.1%. An increase was reported in the prices of fresh vegetables - by 8.3%.

Compared to the corresponding quarter of 2022, the prices of live animals increased by 7.8% as a result of the increase in the prices of pigs - by 11.0%, and chickens - by 7.7%. The prices of animal products recorded a decrease of 6.1%, which is a result of the lower price of cow milk by 11.5% and hen eggs for consumption - by 6.6%.

In the fourth quarter of 2023, compared to 2022, the prices of cereals were lower - by 32.2%, as a result of the decrease in the prices of soft wheat - by 34.1%, and in the prices of the industrial crops, the decrease was 33.4% as a result of the decrease in the prices of the sunflower - by 36.3%. The prices of vegetables and fruits increased by 3.2%, as the price of potatoes increased by 22.4%
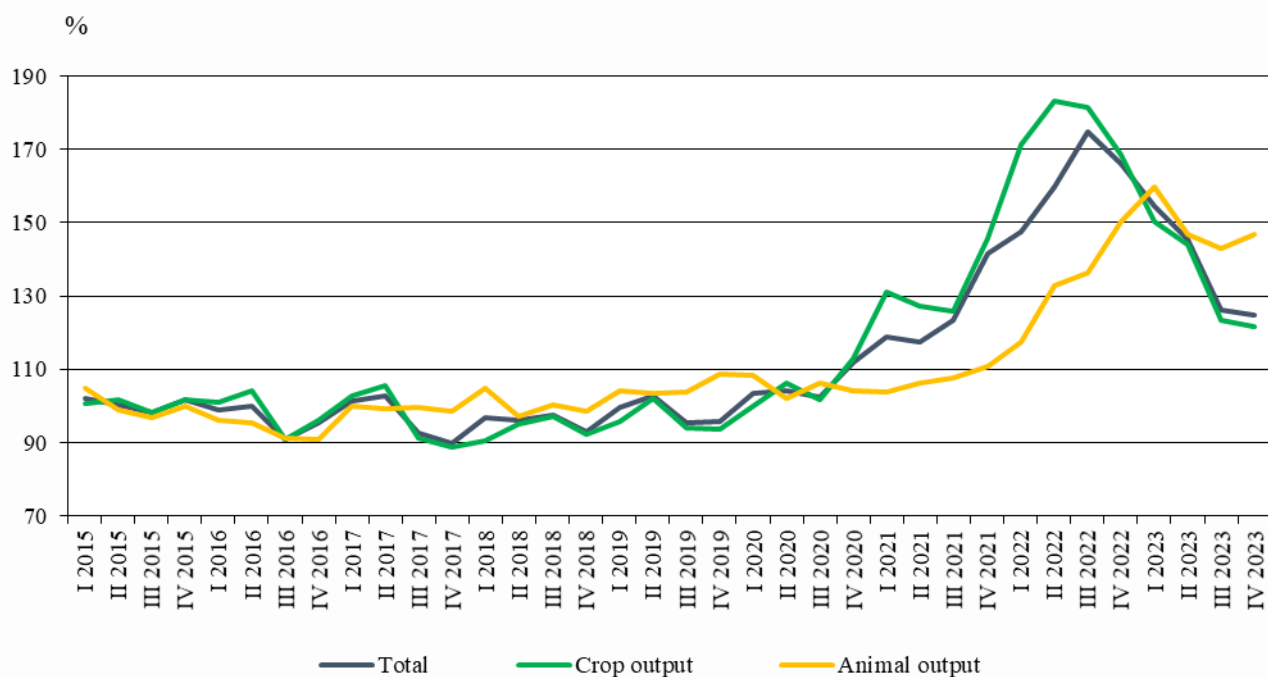
In animal output, in the fourth quarter of 2023, compared to 2022, the prices of the animals increased by 21.5%, as a result of the increase in the prices of pigs - by 30.1%, and poultry - by 17.7%. The prices of animal products increased by 9.5%, which is the result of the increase in the prices of cow milk - by 1.1%, and hen eggs for consumption - by 21.2%.

1. Producer prices indices in agriculture in the fourth quarter of 2023

(Per cent)

	2015 = 100	Corresponding quarter of 2022 = 100	2022 = 100
Total	**124.9**	**79.5**	**80.9**
Crop output	121.8	74.4	72.6
Animal output	146.7	101.5	116.0

Figure 1. Producer prices indices in agriculture, by quarters
(2015 = 100)

2 "P. Volov" Str., 1038 Sofia, Bulgaria, +359 2 9857 111, info@nsi.bg, www.nsi.bg

Price indices of goods and services currently consumed in agriculture

The price index of products and services for current consumption in agriculture for the fourth quarter of 2023 was lower by 2.3% compared to the same quarter of the previous year and by 7.6% compared to 2022.
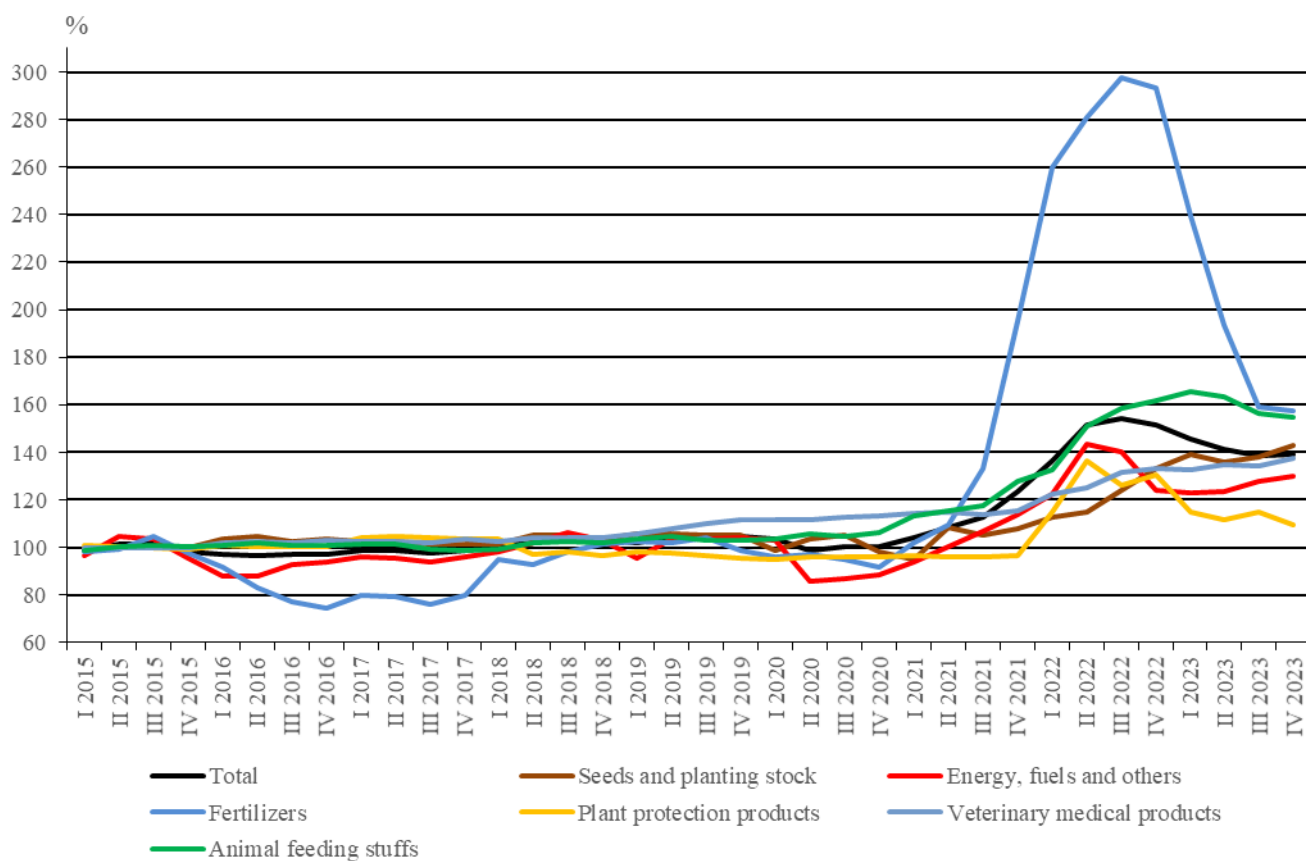
In the fourth quarter of 2023, compared to the corresponding quarter of 2022, an increase was reported in the prices of: seed and planting material - by 7.1%, electricity and fuels - by 4.5% and veterinary expenses - by 3.5%. The prices of: mineral fertilizers - by 15.9%, plant protection products - by 5.1%, and animal feedingstuffs - by 3.9%, have decreased.

In the fourth quarter of 2023, compared to 2022, an increase was reported in the prices of: seed and planting material - by 16.3%, veterinary expenses - by 7.7% and animal feedingstuffs - by 2.8%. The prices of: electricity and fuel - by 2.3%, mineral fertilizers - by 42.5% and plant protection products - by 9.3% have decreased (Table 2).

2. Price indices of the goods and services currently consumed in agriculture, fourth quarter of 2023

(Per cent)

	2015 = 100	Corresponding quarter of 2022 = 100	2022 = 100
Total	**138.9**	**97.7**	**92.4**
Seeds and planting stock	142.8	107.1	116.3
Energy, fuels and others	129.7	104.5	97.7
Fertilizers	157.3	84.1	58.5
Plant protection products	109.7	94.9	90.7
Veterinary medical products	137.7	103.5	107.7
Animal feeding stuffs	154.9	96.1	102.8
Maintenance of materials	141.4	108.8	107.9
Maintenance of buildings	150.6	105.7	111.3
Other goods and services	137.9	106.6	110.8

Figure 2. Prices indices of the goods and services currently consumed in agriculture, by quarters

(2015 = 100)

Methodological notes

Methodology and main definition

The surveys about the prices in agriculture are carried out in accordance with the main requirements of the EU Handbook for Agricultural Price Indices. In this way harmonization with the EU practices in the domain of agricultural price statistics is achieved from the point of view of:

- Definitions used;
- Techniques of price registration;
- Type of calculated indices;
- Survey periodicity;
- Nomenclatures used;
- Defining the selected products by their quality, quantity, variety and other price characteristics.

The objects of observation are the producer prices of the produced by the farm crops, live animals and animal products and prices of products and services of goods and services currently consumed in agriculture.

Producer price in agriculture is the price received by a farm selling its own agricultural products/live animals. It is recorded at the first market stage of goods - 'farm gate price'. Producer price excludes subsidies on agricultural products/animals, transport costs and taxes. VAT is also excluded from the price.

The examination of prices of goods and services currently consumed in agriculture (Input I) includes five surveys which supply information about the prices of:

- Mineral fertilizers;
- Feeding stuffs;
- Plant protection products;
- Veterinary medicinal products;
- Seeds and planting stocks.

The object of observation is the purchase price of goods and services currently consumed in agriculture. The observed unit price is the price that the buyer actually paid for the means of production. It includes taxes and fees and excludes subsidies and VAT refunded.

Statistical unit

Observation units within the surveys of agricultural prices are farms - juridical and physical persons and agricultural and veterinary pharmacies. For each survey, a list of respondents is established and during the years stable number of price registrations of products/livestock categories and means of production is maintained.

The conducted surveys are exhaustive and include all units above a certain threshold defined in value terms. For the survey on the producer prices in agriculture as selection criteria, a value of sales of agricultural products/animals is used and for the surveys on the prices of goods and services currently consumed in agriculture - the expenditures rising from purchases of goods and services for intermediate consumption. The representativeness of prices is assured, both by maintaining a regular number of price

registrations and coverage of at least 50% of the value of sales for each product/livestock category or purchase value of goods and services for intermediate consumption in the respective year.

Data sources

The sources of information are statistical questionnaires for the collection of qualitative and quantitative characteristics of agricultural products/live animals and goods and services currently consumed in agriculture and quarterly questionnaires supplying information about the producer prices of agricultural products/live animals and purchasing prices of goods and services currently consumed in agriculture.

The questionnaires on the qualitative and quantitative characteristics of agricultural products/live animals and goods and services currently consumed in agriculture supply data for the establishment of a list of representative products defined by their quantitative and qualitative, variety and other characteristics which may influence the variation of prices. The established lists of products are periodically updated, as usual in the years ending to 0 or 5, when the Eurostat weighting scheme is rebased.

The quarterly questionnaires supply regular data about the prices of the agricultural products/live animals or goods and services currently consumed in agriculture, included in the scope of surveys.

Calculation of average prices

Within the quarterly surveys, average monthly and quarterly prices are calculated. The average monthly prices are calculated as arithmetical mean derived from all registered prices. The quarterly prices are calculated as arithmetical mean from monthly prices.

Type of index and calculation

The calculation of price indices is carried out by the Laspeyres formula. This type of index has a constant weighting scheme so that the base period of weights and prices is the same. For the calculation of producer price indices as weights the value of sales of agricultural output is used and for the indices of prices of goods and services currently consumed in agriculture - the value of purchased intermediate consumption. The weights are calculated within satellite economic accounts for agriculture.

The indices are calculated on three bases: the previous year, the corresponding quarter of previous year and the year ending in 0 or 5 (Eurostat base).

The total index of goods and services currently consumed in agriculture (Input I) is calculated on the base of price indices of five groups of products as well as on the indices of goods and services calculated within the Survey on consumer prices index.

Classifications

For the survey of producer prices in agriculture, the National Classification of Production in Agriculture, Forestry and Fisheries (PRODAGRO) is used. Classification PRODAGRO is used as a basis for further product breakdown in accordance with their qualitative and quantitative characteristics. For the surveys on prices of goods and services currently consumed in agriculture own proper classifications are used. These

classifications are compiled within the surveys for the establishment of lists of representative products. For calculation and providing Eurostat with harmonized data of price indices in agriculture classification PRAG (Nomenclature of agricultural prices in the Eurostat New CRONOS database) is used.

Consideration of the impact of quality on the prices of agricultural products

To eliminate differences in prices associated with changes in the quality, type, quantity, and packaging, selected products are defined by quality, quantity, species and other characteristics that affect the changes of prices. When a particular product is dropped down from the list it has to be replaced by a new one defined by the same or approximately similar characteristics. The new product should also be representative.

The calculation of the indices of goods and services contributing to the agricultural investments (Input II)

The calculation of the price index of goods and services contributing to agricultural investments is also done by a Laspeyres formula. As weights the values of goods and services purchased by farms for further investments, calculated within the satellite economic accounts for agriculture are used. For calculation of the total index of goods and services contributing to agricultural investments indices from other surveys conducted by NSI in the domain of the Consumer prices Statistics, Foreign trade statistics and Short-term business statistics are also used.

The total index of prices of means of production used in agriculture is calculated based on indices of goods and services for current consumption in agriculture and goods and services with investment intention in agriculture.