



## PRICE INDICES IN AGRICULTURE, FOURTH QUARTER OF 2018<sup>1</sup>

### Producer price indices in agriculture

**The producer price index in agriculture** in the fourth quarter of 2018 increased by 2.9% in comparison with the same quarter of 2017. The crop output index increased by 4.5%, while the prices of animal output went down - by 4.0%. In comparison with previous year the prices of agricultural output went down by 1.8% as result of the drop down of the prices in crop output - by 1.4% and in animal output - by 3.3% (Table 1).

In fourth quarter of 2018 compared to the same quarter of 2017 decrease was observed in the prices of industrial crops - by 4.2%, forage plants - by 24.7% and fresh fruit - by 1.7%. Lower were the prices of sunflower - by 4.4%, fodder maize - by 33.8%, hay from meadow - by 21.5%, lucerne - by 8.1%, walnuts - by 9.7%, and desert grapes - by 29.0%. Higher were the prices of cereals - by 10.0%, fresh vegetables - by 23.3%, potatoes - by 29.0%, and grapes - by 14.7%. Increase was registered in the prices of soft wheat - by 14.8%, barley - by 11.9%, grain maize - by 2.8%, rice - by 9.4%, tomatoes under glass - by 11.0%, cucumbers under glass - by 12.8%, carrots - by 40.3%, apples - by 11.3% and grapes for wine production - by 16.1%.

Compared to the corresponding quarter of 2017 decrease was observed in the price of live animals - by 3.7%, and animal products - by 4.3%. Lower were the prices of pigs - by 11.8%, sheep - by 10.5% and goats - by 7.4%. Increase was reported in the prices of cattle - by 13.9% and poultry - by 1.0%. In animal products the price of cow milk went down - by 6.3%, as well as the price of eggs for human consumption - by 19.4%. Increase was observed in the prices of buffalo milk - by 4.6%, sheep milk - by 4.7%, goat milk - by 25.6% and honey - by 3.1%.

Compared to 2017 in the fourth quarter of 2018 decrease was registered in the prices of industrial crops - by 10.0%, forage plants - by 24.6% and fresh vegetables - by 9.8%. Lower were the prices of sunflower - by 12.6%, fodder maize - by 47.0%, hay from meadow - by 12.3%, lucerne - by 3.3%, tomatoes under glass - by 25.4%, cucumbers under glass - by 10.5% and carrots - 2.1%. Increase was observed in the prices of cereals - by 6.1%, potatoes - by 7.7%, fresh fruits - by 15.2% and grapes - by 3.2%. Higher were the prices of soft wheat - by 13.0%, barley - by 13.8%, rice - by 16.4%, pears - by 33.3%, walnuts - by 20.8% and grape for wine production - by 4.4%.

In animal output in fourth quarter of 2018 compared to 2017 decrease was observed in the prices of live animals - by 8.0%, while the prices of animal products went up - by 1.3%. Lower were the prices of almost all livestock categories. The prices of pigs decreased by 13.8%, sheep - by 8.3%, goats - by 4.0% and poultry - by 6.3%. Increase was reported only in the price of the cattle - by 8.8%. In animal products output higher were the prices of goat milk - by 27.6%, buffalo milk - by 8.3% and cow milk - by 1.0%, while the price of sheep milk registered decrease - by 4.6%. Increase was reported in the prices of eggs for consumption - by 1.5% and honey - by 2.3%.

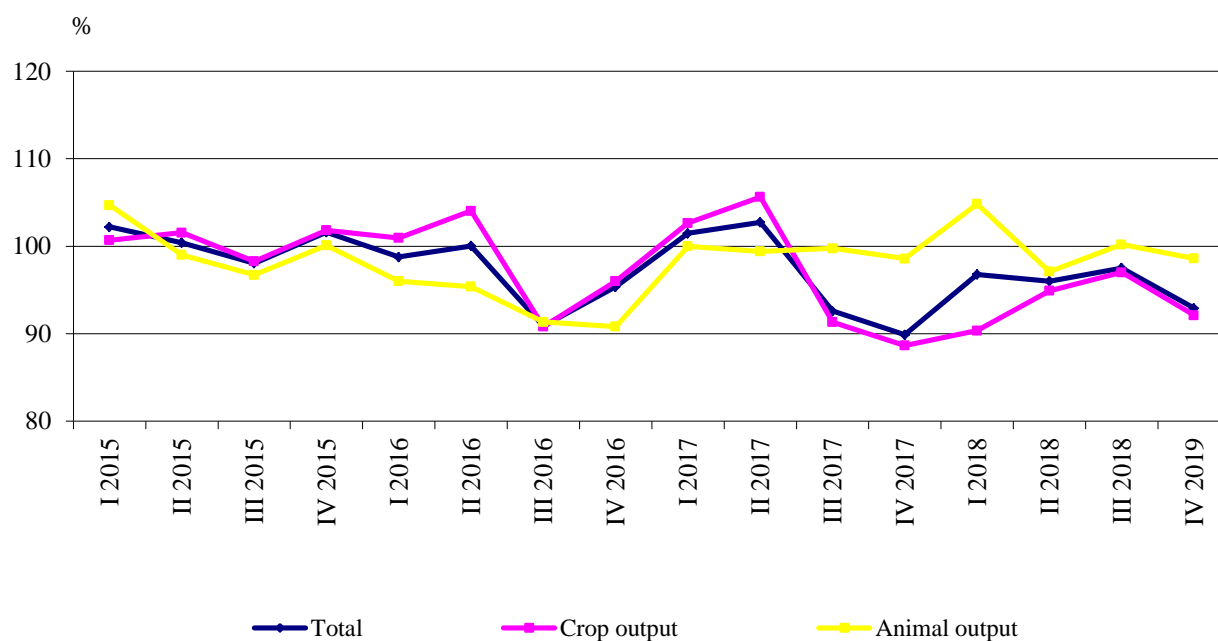
<sup>1</sup>The Agricultural Price Indices were calculated in compliance with requirements of Handbook for EU Agricultural Price Statistics, version 2.0, March 2008. The Handbook was uploaded on the NSI website at the following link: [http://www.nsi.bg/sites/default/files/files/metadata/Agr\\_Handbook\\_en.pdf](http://www.nsi.bg/sites/default/files/files/metadata/Agr_Handbook_en.pdf).



## 1. Producer prices indices in agriculture in the fourth quarter of 2018

|               | 2015 = 100  | Corresponding quarter<br>of 2017 = 100 | (Per cent)<br>2017 = 100 |
|---------------|-------------|----------------------------------------|--------------------------|
| <b>Total</b>  | <b>92.9</b> | <b>102.9</b>                           | <b>98.2</b>              |
| Crop output   | 92.1        | 104.5                                  | 98.6                     |
| Animal output | 98.6        | 96.0                                   | 96.7                     |

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





## Price indices of goods and services currently consumed in agriculture

The index of prices of goods and services currently consumed in agriculture in the fourth quarter of 2018 increased by 3.6% compared to the same quarter of previous year and by 3.8% compared to 2017.

In fourth quarter of 2018 compared to corresponding quarter of 2017 higher were the prices of seeds and planting stock - by 3.4%, energy and fuels - by 6.9%, fertilizers - by 5.9% and feeding stuffs - by 2.5%. Lower were the prices of plant protection products - by 5.0%.

Compared to 2017 in fourth quarter of 2018 the price index of seeds and planting stock increased by 2.1%, energy and fuels - by 7.8%, fertilizers - by 7.3% and veterinary medical products - by 1.2%. Lower were the prices of plant protection products - by 3.9% (Table 2).

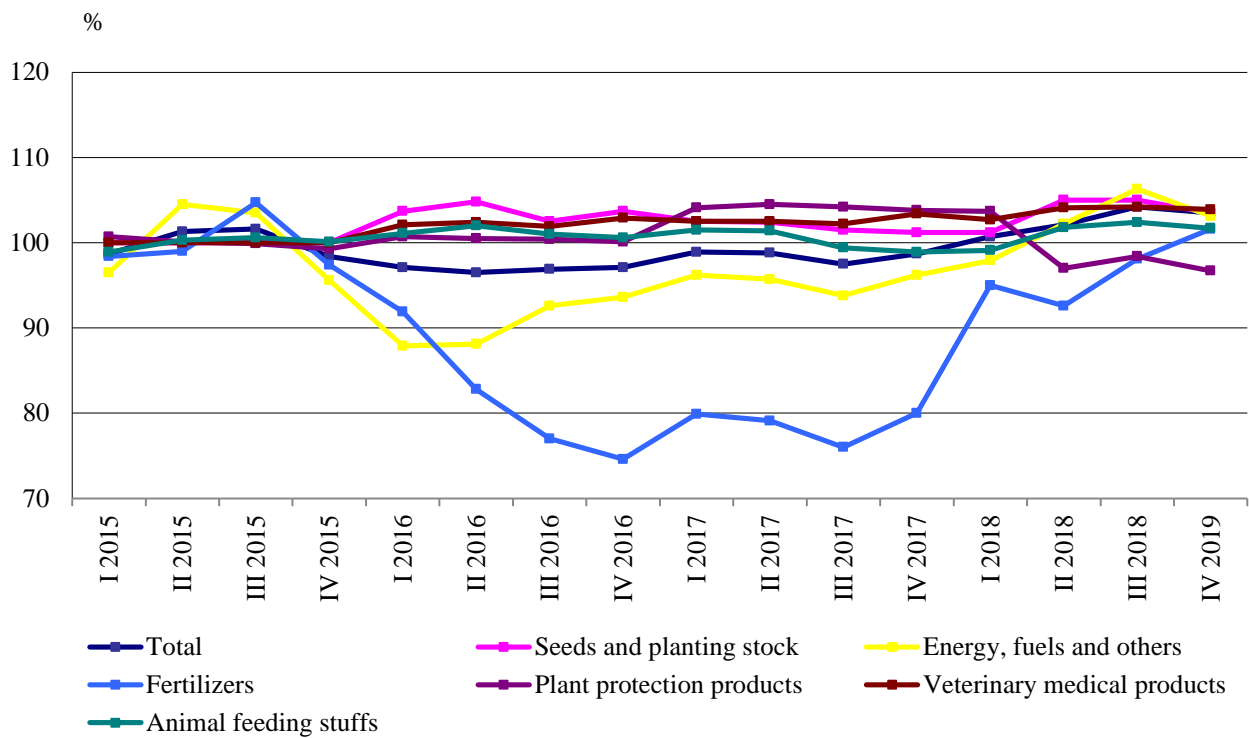
### 2. Price indices of the goods and services currently consumed in agriculture, fourth quarter of 2018

(Per cent)

|                             | 2015 = 100   | Corresponding<br>quarter of 2017 = 100 | 2017 = 100   |
|-----------------------------|--------------|----------------------------------------|--------------|
| <b>Total</b>                | <b>103.5</b> | <b>103.6</b>                           | <b>103.8</b> |
| Seeds and planting stock    | 103.5        | 103.4                                  | 102.1        |
| Energy, fuels and others    | 103.1        | 106.9                                  | 107.8        |
| Fertilizers                 | 101.6        | 105.9                                  | 107.3        |
| Plant protection products   | 96.7         | 95.0                                   | 96.1         |
| Veterinary medical products | 103.9        | 100.8                                  | 101.2        |
| Animal feeding stuffs       | 101.7        | 102.5                                  | 100.8        |
| Maintenance of materials    | 113.3        | 101.2                                  | 101.4        |
| Maintenance of buildings    | 104.7        | 103.3                                  | 104.2        |
| Other goods and services    | 107.4        | 105.3                                  | 106.4        |



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

The object of observation are the producer prices of 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 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 in the price.

The examination of prices of goods and services currently consumed in agriculture (Input I) includes five surveys which supply the 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 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 the maintaining of regular number of price registrations and coverage of at least of 50% of 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 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 establishment of list of representative products defined with their quantitative and qualitative, variety and other characteristics which may have influence on 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 included in the scope of surveys agricultural products/live animals or goods and services currently consumed in agriculture.

## 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 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 at three bases: previous year, 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 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, packaging, selected products are defined by quality, quantity, species and other characteristics that affect the changes of prices. When particular product is dropped down from the list it has to be replaced by a new one defined by 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 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 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.

On the basis of indices of goods and services currently consumed in agriculture and contributing to agricultural investments, total index of prices of means of production used in agriculture (Total Input) is calculated.