

## Single Integrated Metadata Structure (SIMS v2.0)

**Country:** Greece

**Compiling agency:** ELSTAT

**Domain name:** Input and Output Price Indices in Agriculture – Livestock (Agricultural Price Indices-API)

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1. Contact		<a href="#">Top</a>
1.1 Contact organisation	Hellenic Statistical Authority (ELSTAT)	
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<b>2. Metadata update</b>		<a href="#">Top</a>
<b>2.1 Metadata last certified</b>	15/5/2024	
<b>2.2 Metadata last posted</b>	15/5/2024	
<b>2.3 Metadata last update</b>	15/5/2024	

<b>3. Statistical presentation</b>		<a href="#">Top</a>
<b>3.1 Data description</b>		
<p>The data refer to the relative change in the prices: 1) received by the producers in the agricultural-livestock sector when selling their products (outputs), and 2) paid by the producers for the purchase of goods and services required for the production process (inputs).</p> <p>The agricultural price indices (API) are compiled on a monthly basis and are released as follows:</p> <ul style="list-style-type: none"> <li>- Output Price Index, with base year 2020=100.0</li> <li>- Input Price Index, with base year 2020=100.0</li> <li>- Annual changes</li> <li>- Monthly changes</li> </ul>		
<b>3.2 Classification system</b>		
<p>In compliance with common methodology implemented by all EU Member States, the classification used for the groups of products in the API is the same with the classification used in the Economic Accounts for Agriculture (EAA).</p>		
<b>3.3 Sector coverage</b>		
<p>The API cover the transactions of goods and services in the agriculture -livestock sector. In addition, they cover olive oil and must-wine transactions of the manufacturing sector, when their production (processing) is carried out by the agricultural holding and is therefore considered an activity of the agricultural sector.</p>		
<b>3.4 Statistical concepts and definitions</b>		
<p>The output price index is a monthly index and it consists of the crop output index and the animal output index. For the output price index, the prices collected are the selling prices of the products from the producers (without subsidies) and are considered as producer prices, excluding VAT, transport costs and various deductions in favor of third parties.</p> <p>The input price index is a monthly index, which is compiled on the basis of the aggregation of the price indices of the groups of intermediate consumption goods and of the fixed capital formation goods. The prices collected are the prices paid by the producers, to buy the goods and services they need for the production process, excluding VAT and transport expenses.</p> <p>Seasonality influences agricultural and livestock production and as a result some products are not available in the market every month of a calendar year. Therefore, the annual weighting coefficients are distributed only over those months when the products are available in the market.</p> <p>To calculate the weighting coefficients of the output price index, the participation of the individual products in the total production value of the year 2020 was used, while for the weighting coefficients of the input price index, the participation of the individual products in the total expenditure of goods and services in the year 2020, with data derived from the Economic Accounts for Agriculture (EAA) for 2020.</p>		
<b>3.5 Statistical unit</b>		
<p>The sampling units for the survey on inputs are the enterprises providing the necessary means for the production process and for the survey on outputs, the sampling units are the producers who produce the</p>		

surveyed products. The selection of the sample of units is based on the method of purposive sampling.

### 3.6 Statistical population

The statistical population refers to all producers of agricultural and livestock products, as well as commercial enterprises that sell to producers products necessary for the production process.

### 3.7 Reference area

The data refer to Greece total.

### 3.8 Time coverage

The compilation of API by the Hellenic Statistical Authority (ELSTAT) began in 1967 with base year 1966=100. Since then, there have been revisions of the API, using as base year the years 1976, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015 and the last revision, with base year 2020=100.0. The available data series with base year 2020=100 covers the period from the year 2000 onwards.

### 3.9 Base period

The base year is 2020 (2020=100.0)

## 4. Unit of measure

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Indices, percentage changes (%).

## 5. Reference period

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The reference period is the month.

## 6. Institutional mandate

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### 6.1 Legal acts and other agreements

The legal framework concerning the organization and operation of ELSTAT is detailed in the following link:  
<http://www.statistics.gr/en/legal-framework>

#### European legislation:

The compilation of the Input and Output Price Indices in agriculture and livestock is governed by voluntary agreements among EU Member States and Eurostat. The foundations of these agreements were laid down in the beginning of the 70s.

### 6.2 Data sharing

Not existing.

## 7. Confidentiality

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### 7.1 Confidentiality – policy

The issues concerning the observance of statistical confidentiality by the Hellenic Statistical Authority (ELSTAT) are arranged by articles 7, 8 and 9 of the Law 3832/2010 as in force, by Articles 8, 10 and 11(2) of the Regulation on Statistical Obligations of the agencies of the Hellenic Statistical System and by Articles 10 and 15 of the Regulation on the Operation and Administration of ELSTAT.

More precisely:

ELSTAT disseminates the statistics in compliance with the statistical principles of the European Statistics Code of Practice and in particular with the principle of statistical confidentiality.

<http://www.statistics.gr/en/statistical-confidentiality?inheritRedirect=true>

#### Protection of personal data

ELSTAT abides by the commitments and obligations arising from the applicable EU and national legislation on the protection of the individual from the processing of personal data and the relevant decisions, guidelines and regulatory acts of the Hellenic Data Protection Authority.

Pursuant to the Regulation on the protection of natural persons with regard to the processing of personal data [Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 (General Data Protection Regulation - GDPR)], ELSTAT implements the appropriate technical and organisational measures for ensuring adequate level of security against risks for the personal data it collects and has access to, in the context of carrying out its tasks, in order to meet the requirements of this Regulation and to protect these personal data from any unauthorised access or illegal processing.

The personal data collected by ELSTAT are used exclusively for purposes related to the conduct of surveys and the production of relevant statistics. Only ELSTAT has access to the data. The controller is the person appointed by law pursuant to the relevant provisions concerning the Legal Entities of Public Law and the Independent Authorities. The data are stored in the databases of ELSTAT for as long as required by the relevant legislation.

Legal basis of the processing: Article 6, para 1(c) and 1(d) of the General Data Protection Regulation (GDPR)

<https://www.statistics.gr/el/privacy-info>

### **7.2 Confidentiality - data treatment**

- ELSTAT protects and does not disseminate data it has obtained or it has access to, which enable the direct or indirect identification of the statistical units that have provided them by the disclosure of individual information directly received for statistical purposes or indirectly supplied from administrative or other sources. ELSTAT takes all appropriate preventive measures so as to render impossible the identification of individual statistical units by technical or other means that might reasonably be used by a third party. Statistical data that could potentially enable the identification of the statistical unit are disseminated by ELSTAT if and only if:
  - a) these data have been treated, as it is specifically set out in the Regulation on Statistical Obligations of the agencies of the Hellenic Statistical System (ELSS), in such a way that their dissemination does not prejudice statistical confidentiality or
  - b) the statistical unit has given its consent, without any reservations, for the disclosure of data.
- The confidential data that are transmitted by ELSS agencies to ELSTAT are used exclusively for statistical purposes and the only persons who have the right to have access to these data are the personnel engaged in this task and appointed by an act of the President of ELSTAT.
- ELSTAT may grant researchers conducting statistical analyses for scientific purposes access to data that enable the indirect identification of the statistical units concerned. The access is granted provided the following conditions are satisfied:
  - a) an appropriate request together with a detailed research proposal in conformity with current scientific standards have been submitted;
  - b) the research proposal indicates in sufficient detail the set of data to be accessed, the methods of analyzing them, and the time needed for the research;
  - c) a contract specifying the conditions for access, the obligations of the researchers, the measures for respecting the confidentiality of statistical data and the sanctions in case of breach of these obligations has been signed by the individual researcher, by his/her institution, or by the

organization commissioning the research, as the case may be, and by ELSTAT.

- Issues referring to the observance of statistical confidentiality are examined by the Statistical Confidentiality Committee (SCC) operating in ELSTAT. The responsibilities of this Committee are to make recommendations to the President of ELSTAT on:
  - the level of detail at which statistical data can be disseminated, so as the identification, either directly or indirectly, of the surveyed statistical unit is not possible;
  - the anonymization criteria for the microdata provided to users;
  - the granting to researchers access to confidential data for scientific purposes.
- The staff of ELSTAT, under any employment status, as well as the temporary survey workers who are employed for the collection of statistical data in statistical surveys conducted by ELSTAT, who acquire access by any means to confidential data, are bound by the principle of confidentiality and must use these data exclusively for the statistical purposes of ELSTAT. After the termination of their term of office, they are not allowed to use these data for any purpose.
- Violation of data confidentiality and/or statistical confidentiality by any civil servant or employee of ELSTAT constitutes the disciplinary offence of violation of duty and may be punished with the penalty of final dismissal.
- ELSTAT, by its decision, may impose a penalty amounting from ten thousand (10,000) up to two hundred thousand (200,000) euros to anyone who violates the confidentiality of data and/or statistical confidentiality. The penalty is always imposed after the hearing of the defense of the person liable for the breach, depending on the gravity and the repercussions of the violation. Any relapse constitutes an aggravating factor for the assessment of the administrative sanction.
- Pursuant to the Regulation on the protection of natural persons with regard to the processing of personal data [Regulation (EU) 2016/679 of the European Parliament and of the Council, of 27 April 2016 (General Data Protection Regulation - GDPR)], ELSTAT implements the appropriate technical and organisational measures for ensuring adequate level of security against risks for the personal data it collects and has access to, in the context of carrying out its tasks, in order to meet the requirements of this Regulation and to protect these personal data from any unauthorised access or illegal processing.

## 8. Release policy

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### 8.1 Release calendar

At the end of September of each year, ELSTAT publishes a release calendar with the precise release dates of statistics for the following year.

### 8.2 Release calendar access

The press releases calendar is disseminated to the media and it is available to users for free. The release calendar is also posted on the web page of ELSTAT: <http://www.statistics.gr/en/calendar>

### 8.3 User access

In compliance with the Community legal framework and the European Statistics Code of Practice, ELSTAT disseminates national statistics on ELSTAT's website respecting professional independence and in an objective, professional and transparent manner in which all users are treated equitably.

In this content, data are released simultaneously to all interested parties and users through the press release on the API, which is released on the webpage of ELSTAT ([www.statistics.gr](http://www.statistics.gr)), according to the release calendar. The press release can also be transmitted to users by e-mail. In addition, data are transmitted to Eurostat on a predefined date, at the same time they are released at national level.

Neither users nor the government have access to the data prior to their publication.

## 9. Frequency of dissemination

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The API are disseminated on a monthly basis.

## 10. Accessibility and clarity

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### 10.1 News release

Every month, approximately 45 days after the end of the reference month, at 12:00, a press release is published presenting all recently compiled indices in Greek and English. This press release is disseminated to the media and to other users, free of charge, through e-mail. This press release is available on the website of ESLTAT:

<http://www.statistics.gr/en/statistics/-/publication/DKT30/>

### 10.2 Publications

Data on the API can be found in the following publications of ELSTAT:

- “*Monthly Bulletin*”:

[http://dlib.statistics.gr/portal/page/portal/ESYE/categoryyears?p\\_cat=10007366&p\\_topic=10007366](http://dlib.statistics.gr/portal/page/portal/ESYE/categoryyears?p_cat=10007366&p_topic=10007366)

- “*Statistical Yearbook of Greece*”:

[http://dlib.statistics.gr/portal/page/portal/ESYE/categoryyears?p\\_cat=10007369&p\\_topic=10007369](http://dlib.statistics.gr/portal/page/portal/ESYE/categoryyears?p_cat=10007369&p_topic=10007369)

- “*Concise Statistical Yearbook of Greece*”:

[http://dlib.statistics.gr/portal/page/portal/ESYE/categoryyears?p\\_cat=10007372&p\\_topic=10007372](http://dlib.statistics.gr/portal/page/portal/ESYE/categoryyears?p_cat=10007372&p_topic=10007372)

as well as in specialized publications of Eurostat on agricultural and livestock sector.

### 10.3 On-line database

Tabulated data are available through the website of ELSTAT.

#### 10.3.1 Data tables - consultations

In 2023, total access to the website as regards the API amounted to 29,335 hits. There is no possibility to make the distinction between users’ consultations on data tables and users’ consultations on metadata.

### 10.4 Micro-data access

The microdata are available on request to:

[http://www.statistics.gr/en/scientific\\_provision\\_data](http://www.statistics.gr/en/scientific_provision_data)

For confidentiality reasons, access to microdata is permitted only under strict conditions and with respect of the relevant process.

### 10.5 Other

ELSTAT website:

<http://www.statistics.gr/en/home>

For historical data:

<http://dlib.statistics.gr/portal/page/portal/ESYE/>

Users can be given data not available on the website, after submitting an application to:

<http://www.statistics.gr/en/provision-of-statistical-data>

EUROSTAT website:

[http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search\\_database](http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database)

### **10.5.1 Metadata – consultations**

See 10.3.1

## **10.6 Documentation on methodology**

The methodology on the compilation of the Index is set out by ELSTAT, by fully taking into consideration international practices and more specifically instructions, guidelines and standards of Eurostat, which are stipulated in the methodological manual : “Handbook for EU Agricultural Price Statistics” which is available at the following link:

<http://ec.europa.eu/eurostat/ramon/statmanuals/files/Handbook for EU Agricultural Price Statistics 2008.pdf>

In addition, users can find further details on sources and methodology used for the compilation of the API, in the methodological note on the revision of the API, which is available both in Greek and English on the webpage of ELSTAT at:

[http://www.statistics.gr/en/statistics/-/publication/DKT30/-](http://www.statistics.gr/en/statistics/-/publication/DKT30/)

### **10.6.1 Metadata completeness – rate**

The metadata of the API are posted on the webpage of ELSTAT, with metadata completeness amounting to 100%.

## **10.7 Quality documentation**

A Single Metadata Structure (SIMS) report is available on the website of ELSTAT at :

[http://www.statistics.gr/en/statistics/-/publication/DKT30/-](http://www.statistics.gr/en/statistics/-/publication/DKT30/)

# **11. Quality management**

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## **11.1 Quality assurance**

Quality controls and validation of data are carried out during the whole process of the compilation of the indices: from the data collection stage to the final compilation of the indices.

First of all, well-trained and experienced staff is involved at all stages of the compilation of the indices, that is data collection (including communication with the producers and enterprises), initial checks, data entry and final checks, which are conducted after the calculation of the indices.

Data are validated before data entry by means of logical checks. During data processing the data are checked in order to identify and correct any errors. When an error is identified, data are further investigated, in cooperation with producers and enterprises in order to confirm that it is an error or it is just an unusual price. At the same time, data are checked for completeness, accuracy and consistency of the correlating variables.

The indices are calculated by means of specialised software, through computation routines, thus eliminating any errors to the final results. Nevertheless, even during this stage, consistency checks are carried out to the final results, mainly by means of comparing the percentage changes of the sub-indices and their impact on the general input and output indices.

Moreover, in order to ensure the quality of data, all the procedures that are described in the circulars on the Quality Policy of ELSTAT are followed: <http://www.statistics.gr/en/policies>

## **11.2 Quality assessment**

All the aforementioned quality checks ensure high reliability of the API. Furthermore, these indices are being compiled in Greece since 1967, thus the competent staff has an accumulated experience in this area. In addition, concepts and definitions of variables, as well as relevant methodology follow European and international standards and guidelines.

## 12. Relevance

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### 12.1 User needs

The API meet national needs as well as needs to fulfil obligations arising from the implementation of European Regulations. Generally, the API provide statistical information, which is necessary for improving competitiveness and productivity of the agricultural-livestock sector.

Among the main national users are: the government, public services, research institutes, etc. At international level, these indices are used by Eurostat, the UN, the Food and Agriculture Organisation (FAO), etc.

The compiled indices cover the wide range of users' needs: as concerns domestic market, the indices are used as a tool providing useful information on the activities, competitiveness and productivity of the agricultural-livestock sector, thus helping the government in drawing agricultural policy and agricultural-livestock producers or other agencies in decision making concerning their taking up several initiatives. At European level, there is the need for fully comparable statistics in order to draw the European agricultural policy.

### 12.2 User satisfaction

According to ELSTAT's general policy the user needs are expressed in user conferences conducted at regular intervals:

<http://www.statistics.gr/en/user-conference>

ELSTAT also records the user needs through the every day communication between the institution and the users. ELSTAT compiles its annual programs as well as the 3-year program of the Hellenic Statistical System setting as a goal the satisfaction of users needs.

In order to fulfill the need of Greek users, ELSTAT carries out a User Survey. The data from this survey are posted on the portal of ELSTAT:

<http://www.statistics.gr/en/user-satisfaction-survey>

### 12.3 Data completeness

The compilation of the API and the data provided are fully inline with voluntary agreement between EU Member States and Eurostat.

## 13. Accuracy and reliability

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### 13.1 Overall accuracy

The indices are characterised by high accuracy. Nevertheless, sampling errors are not taken into consideration because the sampling method used is not random sampling but purposive sampling. As regards non-sampling errors, these are mostly due to erroneous counting and to the non-response of some producers or enterprises. The efforts are mostly focused in identifying and correcting as many errors as possible during the revision of data.

Furthermore, on the basis of the agreements between EU Member States and Eurostat and for comparability reasons, these indices are revised every five (5) years and more specifically in the years ending in 0 and 5. Accordingly, the Input-Output Price Indices in Agriculture-livestock are revised every five years with the change of the base years and the renewal of the surveyed products and the corresponding weights.

### 13.2 Sampling error

Sampling errors are not calculated because the sampling method used is not random sampling but purposive sampling.



### **13.3 Non-sampling error**

#### **a. Unit non – response**

In case of non-response, the surveyed enterprise is contacted by telephone, or is sent a reminder by fax or e-mail or even a statistical interviewer pays a visit to the enterprise in order to obtain the required information. Total non-response rate of producers and businesses of the index does not exceed 5% of the total sample. Missing values due to non-response are treated by estimation on the basis of current price collection from enterprises in neighboring Prefectures of the country.

#### **b. Item non – response**

Item non-response is not relevant, as for the survey of API only one variable (e.g. price) is collected.

#### **13.3.1 Coverage error**

No coverage errors are observed in the Business Register of ELSTAT, on the basis of which the survey on the compilation of the index was designed.

##### **13.3.1.1 Over-coverage – rate**

No over-coverage errors (e.g., closed enterprises, enterprises out of the scope of the survey, etc.) are observed in the Business Register of ELSTAT, on the basis of which the survey on the compilation of the index was designed.

##### **13.3.1.2 Common units – proportion**

Not applicable.

#### **13.3.2 Measurement error**

Measurement errors that occur during the data collection are identified by performing logical and quality checks. The data is checked over time and geographically and any errors found are duly corrected after telephone communication with the producer or the company.

#### **13.3.3 Processing error**

After the data has been collected and logical and quality checks have been carried out, the data entry and processing is done automatically using appropriate developed software. Processing errors using the software are not presented.

#### **13.3.4 Model assumption error**

No model is used for the compilation of the index.

## **14. Timeliness and punctuality**

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### **14.1 Timeliness**

The API are published 45 days after the end of the reference month.

### **14.2 Punctuality**

The API are released as scheduled, in accordance with the Release Calendar of ELSTAT.

## **15. Coherence and comparability**

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### **15.1 Comparability - geographical**

The definitions of variables for the API are common throughout EU Member States, thus the survey produces fully comparable results, taking always into consideration specific conditions in each country, which may require minor deviations from methodology.

### **15.1.1 Assymetry for mirror flows statistics – coefficient**

For the API there are no mirror-flows statistics among EU Member States.

## **15.2 Comparability over time**

A fully comparable time series for the API with base year 2020 (2020=100.0) is available from January 2000 onwards.

### **15.2.1 Retrospective calculations of price indices**

Firstly, for the period January 2000 – December 2019, the retrospective monthly and annually indices were calculated using the individual annual price index of every product in 2020 year, according to the following type:

$$R_{i(2020)}^{(t)} = R_{i(2015)}^{(t)} * \frac{100}{\bar{R}_{i(2015)}^{(2020)}}$$

Where:

$R_{i(2020)}^{(t)}$ : is the individual index of product  $i$  in the current period (month, year)  $t$  with 2020 as base year,

$R_{i(2015)}^{(t)}$ : is the individual index of product  $i$  in the current period (month, year)  $t$  with 2015 as base year and

$\bar{R}_{i(2015)}^{(2020)}$ : is the individual mean annual index of product  $i$  in 2020, with 2015 as base year.

The monthly and annual indices of the products for the years 2020 - 2022 were calculated as follows: initially the monthly indices of the products were calculated as mentioned above and then the monthly and annual output and input group indices were calculated on the basis of the individual product price indices and the new weights (2020=100).

From the reference year 2023 onwards, the monthly and annual indices are calculated based on the new weights (2020=100).

## **15.3 Coherence cross-domain**

Checks are carried out regularly on the basis of data from other surveys. In addition the data are compared with the results of the annual statistical surveys on agricultural production when such data are available.

### **15.3.1 Coherence – sub annual and annual statistics**

The API are calculated on a monthly basis. The calculation of the quarterly and annual indices results from the corresponding monthly indices.

### **15.3.2 Coherence – National Accounts**

The API is made available to the National Accounts Division, for the calculation of their estimates. The groups of products of API follow the same sorting with the groups of products of EAA.

## **15.4 Coherence - internal**

The API have internal coherence, because a single database is used and their calculation is done with the same method. The indices of the higher levels are derived from the indices of the lower levels, according to clearly defined procedures.

## 16. Cost and burden

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The cost of the input and output price indices is approximately 12,000 euro and refers to the remuneration of the external workers who were employed to collect the prices.

Concerning the surveyed enterprises, as resulted from the survey on cost and burden conducted by ELSTAT for the year 2018, the average annual burden, expressed in hours worked for filling in the questionnaire, amounts to 1.41 hours per enterprise or 2,180 hours for all the surveyed enterprises.

## 17. Data revision

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### 17.1 Revision policy

The input and output price indices are published approximately 45 after the end of the reference month. During this first release the data are provisional and they become final after the release of the Press Release in December of every year. The data are revised, in accordance with the Revision Policy of ELSTAT, which is available at the following link:

<http://www.statistics.gr/en/policies>

### 17.2 Revision practice

The monthly data on input-output indices are provisional. The data are finalized after the publication of the indices referring to the last month of the reference year and after all the necessary corrections.

Furthermore, on the basis of the agreements between EU Member States and Eurostat and for comparability reasons, these indices are revised every five (5) years and more specifically in the years ending in 0 and 5. Accordingly, the Input-Output Price Indices in Agriculture-livestock are revised every five years with the change of the base years and the renewal of the surveyed products and the corresponding weights.

## 18. Statistical processing

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### 18.1 Source data

In order to compile the Input and Output Price Indices in Agriculture-Livestock a survey is carried out. For Outputs, the collected prices refer to the market prices of the products, that is the price received by the producer without the deduction of taxes or levies (except deductible VAT) and without the inclusion of subsidies. The collected prices refer to the prices that the producers receive from the sale of their products to commercial or manufacturing enterprises for delivery in the agricultural holding. If the products are delivered in the purchaser's place of business, then the transportation expenses are deducted from the selling price.

For Inputs, the collected prices refer to the prices paid by the producers to buy the products and services they need for their agricultural and livestock production, they do not include VAT and transport expenses and cover the following: (i) the transactions paid in cash by the producers in the shops where they buy the consumable means that they need for the production, (ii) the transactions paid in cash by the producers - without including VAT and transport expenses- in the shops where they purchase farm machinery necessary for agricultural investment.

The agricultural cooperatives in each Prefecture (Nuts III) of the country and the commercial enterprises for consumables and fixed capital formation goods, are considered as sources of input pricing. The input price data are collected from approximately 665 sources.

The producers, the agricultural cooperatives in the Prefectures of the country which collect the agricultural products, as well as the commercial and industrial enterprises that buy the products directly from the producers, are used as sources of output pricing. In addition, prices are collected from various other agencies, which collect the products from the producers (e.g. Currant's Central Cooperative Union, etc) or which collect product sales price data (Ministry of Rural Development and Food, etc). The output price data is collected from approximately 745 pricing sources.

For the compilation of the price indices for “Insurance Expenses” and “Farm Buildings” (non-residential), data are drawn from the Consumer Price Index (CPI) and the “Construction Cost Indices of New Residential Buildings” compiled by ELSTAT.

### 18.2 Frequency of data collection

Data are collected on a monthly basis.

### 18.3 Data collection

Data are collected through a specially designed questionnaire, which is appropriately adjusted for every Prefecture of Greece. The products produced in every Prefecture figure in the questionnaire, and prices are collected for these products, during the reference month. The questionnaires are transmitted in electronic format to all the Regional Statistical Offices of ELSTAT, which are responsible for collecting the data by means of:

- visits paid by ELSTAT’s statistical interviewers who interview the surveyed units,
- telephone communication,
- sending the questionnaire by e-mail

All the questionnaires are sent from the Regional Statistical Offices to ELSTAT by e-mail.

In case of non-response, the surveyed enterprise is contacted by telephone, or a reminder is sent by e-mail, or even the competent staff may pay a visit to the enterprise.

### 18.4 Data validation

The data are validated by means of logical and quality checks. During data processing any errors are identified and are dully corrected. Special emphasis is placed on the errors that may have major impact on the results. After identifying the errors, those are further checked and cross-checked in cooperation with the price collection sources in order to confirm that it is an error or it is just about an unusual price. At the same time, data are checked for completeness, accuracy and consistency of the correlating variables. Data processing and validation of data are carried out either during or after data entry.

The data are compared with the data of previous months and with corresponding data of previous years and if major inconsistencies are identified, further checks are carried out.

### 18.5 Data compilation

The monthly Input-Output Agricultural Price Indices are compiled on the basis of the individual price indices of the products and their corresponding monthly weighting coefficients.

The overall index of each price category (input and output) is calculated for every period  $t$  as the weighted average of the individual indices of the products  $i$  in the current period  $t$  according to the following Laspeyres type index:

$$I^t = \sum_{i=1}^n R_i^t * w_i,$$

where:

$I^t$  is the total or overall input or output of the current period (month)  $t$ ,

$R_i^t$  is the individual index of the product  $i$  during the current period  $t$  (base 100.0 at base year 0)

$w_i$  is the weighting coefficient of product  $i$  (which is the result of the value of production or expenditure of the product  $i$  during the base year 0), with:

$$w_i = \frac{p_i^0 q_i^0}{\sum_{i=1}^n p_i^0 q_i^0}, \quad \sum_{i=1}^n w_i = 1$$

where:

$p_i^0$  and  $q_i^0$  are, respectively, the price and quantity of product  $i$  during the base period 0,

$i = 1, 2, \dots, n$  different products

$t$  = current monthly or annual period.

For the input price indices in agriculture-livestock (intermediate consumption, gross fixed capital formation), the individual index  $R_i^t$  for the product  $i$  in the current monthly period  $t$  for the whole country, is the arithmetic mean of the relevant prices of all Prefectures (Nuts III), where prices collected in the current period  $t$ , is calculated according to the type:

$$R_i^{(t)} = \frac{1}{N_i} \sum_{j=1}^{N_i} \frac{P_{ij}^{(t)}}{P_{ij}^{(0)}}$$

where:

$N_i$  : number of varieties of product  $i$  from all the sources,

$P_{ij}^{(t)}$  : price of variety  $j$  of product  $i$  during the period  $t$  and

$P_{ij}^{(0)}$  : mean annual price of variety  $j$  of product  $i$  at the base year.

For the output price indices (crop output, animal output) the individual index  $R_i^t$  for the product  $i$  in the current monthly period  $t$  for the whole country, is the weighted mean of the relevant prices of all Prefectures, where prices collected in the current period  $t$ , with weights  $e_{ij}$ , as the sharing of production in every Prefecture level (Nuts III) of product  $i$  at the base year. The relevant type is:

$$R_i^{(t)} = \frac{1}{N_i} \sum_{j=1}^{N_i} \frac{P_{ij}^{(t)}}{P_{ij}^{(0)}} * e_{ij}$$

where:

$N_i$  : number of varieties of product  $i$  from all the sources,

$e_{ij}$  : production in each Prefecture of variety  $j$  of product  $i$  at the base year,

$P_{ij}^{(t)}$  : price of variety  $j$  of product  $i$  during the period  $t$  and

$P_{ij}^{(0)}$  : mean annual price of variety  $j$  of product  $i$  at the base year.

The annual average individual input indices are calculated as arithmetic means of monthly indices, while, the annual average individual output indices are calculated as weighted averages of monthly indices with weights that derive from the variable basket of production (which includes products available in the market on a monthly basis depending on their production).

Further details on methodology and calculation of the Input and Output Price indices in Agriculture-Livestock, are available on the webpage of ELSTAT, and more specifically in Information Note (2020=100.0) - Agricultural Price Indices (API): <http://www.statistics.gr/en/statistics/-/publication/DKT30/>

### **18.5.1 Imputation-rate**

Usually, no imputed values are used to substitute the price collection by sample enterprises. However, in very few cases imputed values are used but not exceeding 0.01%. Missing data (missing values) are treated by estimation (imputed rates), on the basis of the trend of the current price collection from the enterprises in neighboring Regional Units of the country.

### **18.6 Adjustment**

Adjustment are made to address differences in quality: In case a variety of a product is replaced, it takes a new base price adjusting the relevant price of the new variety, so as not to have an impact on the calculation of the individual index of the product.

The quality adjustment methods that are mainly used are three: a) the overlap method, which is used for the cases where the periods of price collection of the old (replaced) product is the same with that of the new product, b) the quantity adjustment method (when products are sold in different quantities-packaging), and c) the comparable replacement which is used when changes are made to product name and not to the specific characteristics of the sampled products, so a direct comparison is feasible.

#### **18.6.1 Seasonal adjustment**

No seasonal adjustment.

### **19. Comment**

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None