



## METHODOLOGICAL EXPLANATION

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**Mojca Eremita, Simon Plešivčnik**

# CROP PRODUCTION

This methodological explanation relates to the data releases:

- Crop production, Slovenia, annually (Electronic Release)
- Crop production, Slovenia, annually (First Release)
- Production of early crops and early fruits and yield forecast of some important late crops, Slovenia, annually (First Release)
- Yield forecast of late crops, late fruit and grapes, Slovenia, annually (First Release)



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## 1 PURPOSE

The purpose of published data is to show total output and average yield of field crops, vegetables, grass, fruit and grapes. The data show the situation in a certain period and year-on-year trends in production. Key statistics published are:

- Total output of individual crops at the level of Slovenia
- Weighed average output of individual crops at the level of Slovenia
- Total output of individual crops at the level of cohesion regions
- Average output of individual crops at regional level

## 2 LEGAL FRAMEWORK

- [Annual Programme of Statistical Surveys \(LPSR\) \(only in Slovene\)](#)
- [National Statistics Act \(OJ RS, No. 45/95 and 9/01\)](#)
- Regulation (EC) No 543/2009 of the European Parliament and of the Council of 18 June 2009 concerning crop statistics and repealing Council Regulations (EEC) No 837/90 and (EEC) No 959/93 (CELEX: 32009R0543).

## 3 UNIT DESCRIBED BY THE PUBLISHED DATA

The published data describe **individual crops or groups of crops**. In individual crops the production method (intensive, extensive), category (field crops, vegetables, grass, fruit and grapes), average output and total output are observed.

## 4 SELECTION OF OBSERVATION UNIT

The observation units of the KME-ZGK-K/L, KME-POZP- K/L and KME-POZK-K/L surveys are the estimation districts where agricultural holdings engage in crop production for their own needs or for sale on the market.

In case of statistical estimation, an estimation district is a specially determined unit with an exactly determined area that is based on the land register data. One estimation district comprises one or more cadastral communities with homogeneous area for cultivation. An estimation district comprises all land, irrespective of its category (barren land, bushes, barren soil, grassland) and irrespective of the kind of settlement (village, city). Slovenia is divided into 312 such estimation districts and each comprises about 2,700 hectares of agricultural land. Data on crop production (average yield) on family farms in

individual census districts are estimated by agricultural advisers of the Chamber of Agriculture and Forestry of Slovenia. These thus act as reporting units for crop production on family farms.

The criterion for selecting a crop that is the subject of observation is that it is produced on agricultural holdings in Slovenia satisfying the criteria of the European Union defined within the EU statistical system (Eurostat methodology for crop production (Regulation (EC) No 543/2009)). Crop production statistics observes around 100 crops.

Because agricultural holdings are very diverse in terms of size, type and method of production, and because of a large number of agricultural holdings in the country it would be difficult to collect data on individual crops from all of them, data are collected for larger areas, i.e. estimation districts. The estimation district is a unit determined for statistical estimation of crops with precisely defined area on the basis of the land register data. In determining estimation districts the criterion of homogeneity was taken into account, meaning that the conditions for agricultural production should be roughly the same in the entire estimation district. Estimation districts include all land in Slovenia, irrespective of the type of use (barren land, pastures, unfertile land) and type of settlement (rural, urban). Slovenia is divided into 312 estimation districts covering the entire territory.

## **5 SOURCES AND METHODS OF DATA COLLECTION**

Data are collected annually.

Some data are collected with regular annual statistical surveys conducted by the Statistical Office

- Farm Structure Survey (KME-JUNSTR),
- Sample Survey on Area Sown (KME-JUN/L) - telephone survey,
- Census of Horticulture - telephone survey,
- Survey on Livestock Production and Area Sown in the Autumn Sowing (KME-DEC/L)- telephone survey

The subject of these methodological explanations is data on output of individual crops, which are collected by electronic questionnaire with the following statistical surveys:

- Production of early crops and early fruits and yield forecast of some important late crops (KME-ZGK-K/L) - on 31 July
- Yield forecast of late crops, late fruit and grapes (KME-POZP-K/L) - on 5 September
- Production of late crops, late fruit and grapes (KME-POZK-K/L)- on 10 November

Observation period (reference date) is the day to which the data collected with the statistical survey refer. Every survey mentioned above is conducted once a year in a certain period following the reference date, i.e. the date of observing

the average output of an individual crop.

Data on average output of crops are estimated. The method is subjective expert assessment of average output based on observing the phenomena and with the help of known facts and expert knowledge of characteristics of crops and production areas. The expert estimating average crop output must have good knowledge of conditions influencing crop production in the estimation district, good knowledge of terrain, weather and other conditions. The expert must assess as objectively as possible the average amount of crops per area (hectare) or tree (kg) for all types of crops produced in the estimation district. This means that with constant observation of individual field crops, orchards and vineyards, the expert must obtain as much information as possible on the situation of crops during the year, taking into account the following: external appearance of the plants, fullness of grains (cereals), size of cobs (maize), plant height, plant density, moisture at harvest, diseases and pests, weather conditions during the vegetation, soil quality, cultivation intensity, cultivation technique, opinions of agricultural experts from various institutions, opinions of other agricultural experts and colleagues, opinions of individual farmers cultivating farms of different size, use of agrotechnical methods, and comparing this with own observations and facts regarding the production of individual crops. The estimate of output in an estimation district includes production of crops on all agricultural holdings, irrespective of the legal status (agricultural enterprises, private farmers) and cultivation intensity.

Data on the area of crops are collected with various surveys mostly from administrative sources (applications for subsidies at the Agency of the Republic of Slovenia for Agricultural Markets and Rural Development, the Register of Agricultural Holdings and Hops' Producer's Report at the Ministry of Agriculture, Forestry and Food).

## 6 DEFINITIONS

**Estimation district** is a unit specially determined for statistical estimation with an exactly determined area based on the land register data. It covers one or more cadastral communities and should be as homogeneous as possible, i.e. having approximately the same conditions for agricultural production. Estimation districts include all land irrespective of the type of use (barren land, pastures, unfertile land) and type of settlement (rural, urban). Slovenia is divided into 312 estimation districts covering the entire territory, each comprising around 2,700 hectares.

**Average yield per unit of area** is median average state, taking into account:

- crops with high and low yield
- fruit trees with no, little or a lot of fruit
- vines with no, little or a lot of grapes

Average yield reflects changes during the growth of crops, fruit or grapes.

**Expected average yield** shows crops during the growth assuming that all factors influencing the final output will be normal.

**Final average output** is average output of already harvested crops less losses (i.e. quantities lost during harvest, transport, storage) and taking into account certain moisture of the crop.

- In field crops and vegetables, the stored crop ready to use is taken into account.
- In permanent grassland, all haymaking and grazing in the form of dry hay is taken into account.
- In fruit, output of ripe fruit on the tree and all ripe fruit that fell from the tree, was picked up and used for food or processing as well as fruit that was not picked is taken into account. Fallen, unripe fruit is not included in average yield. Estimating average yield all trees, fertile and infertile, are taken into account.
- In grapes, ripe grapes are taken into account.

**Utilised agricultural area** is all agricultural area that was used in a certain year for crop production: arable land, kitchen gardens, grassland and plantations (orchard plantations, extensive orchards, olive groves, vineyards, tree and vine nurseries, and parent vines).

**Arable land** is the area ploughed at least every five years and planted or sown with arable crops, vegetables, flowers and ornamental plants. Arable land is also fallow land and land sown after 1 June (cabbage, fodder beet and kohlrabi). The areas under clover and lucerne, as well as grassland ploughed after five years and hops fields are also included.

**Orchard plantations** are larger dense plantations of fruit trees (0.1 hectare or more) and berries (0.05 hectare or more), from 2007 on 0.2 hectare or more of fruit trees and 0.1 hectare or more of berries, mostly intended for sale of produce. Plantations are arranged so that modern agricultural technology can be used and that they can be mechanically cultivated.

**Extensive orchards** are meadows with plantations of fruit trees of mostly old species.

**Permanent grassland** is area used for making hay or grazing that has not been ploughed for at least five years.

## 7 EXPLANATIONS

### 7.1 CLASSIFICATIONS

SKTE (Standard Classification of Territorial Units) are used:

<http://www.stat.si/StatWeb/glavn Navigacija/metode-in-klasifikacije/klasifikacije#sfContentBlock3>

## 7.2 DATA PROCESSING

### DATA EDITING

Data were edited by using appropriate systematic and individual corrections.

For more, see the general methodological explanations [Statistical data editing](#).

### WEIGHTING

With weighting adjustment we want to achieve representativeness of the sample, so that the weighted data give us as good population estimates as possible. The process of weighting depends on the sampling design, the unit non-response rate and available auxiliary variables used for calibration. The final weight is the product of the sampling weight, the non-response weight and the calibration factor.

### SEASONAL ADJUSTMENT

Seasonal adjustment is not applicable.

### DATA PROCESSING OTHER

Computer control of the basic material is implemented as logical control. Logical control is comparison of data on average yield of individual crops with the lowest and highest possible threshold values entered into the computer software. In this type of control the weighted average output is calculated, which is the basis for calculating results, i.e. outputs of individual crops in Slovenia.

The methodology of calculating total weighed average output of a crop

1. Estimated data on average output of a crop (in the current year) on the area of an estimation district is multiplied by the data on the area on all agricultural holdings in the estimation district planted or sown with individual crops (data from the year of the agricultural census or from the current year). The result is the data on the output of an individual crop in an individual estimation district.
2. The sum of all data on the output of individual crops in all estimation districts in Slovenia is divided by total area under an individual crop (in the current year) on the territory of Slovenia. The result is the data on weighted average output of individual crops for the territory of Slovenia.

The estimate of average output in different crops refers to different state of plants (fresh, dry) and different parts of plants (tubers, leaves, seeds). These states are agreed within the EU statistical system (Eurostat crop production methodology (Regulation (EC) No 543/2009)) and are valid due to comparability of data in all EU Member States.

State of crops	Crops
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dry grain with 14 % moist	cereals for grain, grain maize, soya, dry pulses and protein crops
dry grain with 9 % moist	rape and turnip rape, sunflowers, linseed, oil pumpkins
fresh roots without leaves	carrots, fodder beets, turnips, beetroot, celeriac, sugar beet
tubers	potatoes
fresh grain	fresh peas
fresh pods	fresh beans
heads without stem	cabbages (white, red), kale
ripe fruits	fodder pumpkins, courgettes, tomatoes, peppers, cucumbers, eggplants, melons, watermelons, strawberries, fruits, berries, grapes,
dry hay (14%)	grasses and grass mixtures, clover, alfalfa, grass-clover mixtures, green cereals and mixtures of pulses and cereals, sudan grass, forage legumes, permanent grassland, field peas (whole plant)
fresh leaves	lettuce, radishes, spinach, Chinese cabbage, leeks, celery
root + fresh leaves	parsley
bulbs	onion, garlic
fresh green mass (65%)	green maize
dry cones	hops

For establishing the output of individual crops, in agricultural statistics the following is used:

- data on area (on which individual crops were produced)
- data on weighted yield per unit of area

data on area x data on weighted yield per unit of area = **data on output**

### 7.3 INDICES

Indices are not published.

### 7.4 PRECISION

The precision is not calculated.

### 7.5 OTHER EXPLANATIONS

Data that are statistically protected to respect the confidentiality of reporting units are replaced with the letter »z«.



## 8 PUBLISHING

- SiStat Database: [Agriculture, forestry and fishery](#) – Crop production – Crops and area. Absolute data, SKTE, NUTS.
- First Release (Agriculture, forestry and fishery): »Production of early crops and early fruits and yield forecast of some important late crops, Slovenia, annually«.
- First Release (Agriculture, forestry and fishery): »Yield forecast of late crops, late fruit and grapes, Slovenia, annually«.
- First Release (Agriculture, forestry and fishery): »Crop production, Slovenia, annually«.
- Electronic Release (Agriculture, forestry and fishery): »Crop production, detailed data, Slovenia, annually«
- [Statøpis](#)
- EUROSTAT (Statistical Office of the European Union)

## 9 REVISION OF THE DATA

### 9.1 PUBLISHING OF PRELIMINARY AND FINAL DATA

In the survey year (current year) preliminary statistical data are published on some crops, namely the ones published in the First Release (Agriculture, forestry and fishery) »Production of early crops and early fruits and yield forecast of some important late crops, Slovenia, annually«, at the end of September and in the First Release (Agriculture, forestry and fishery) »Yield forecast of late crops, late fruit and grapes, Slovenia, annually« at the end of October. Preliminary data are published due to the needs of users for timely information; these data show the situation regarding the output during the growth of crops, i.e. they forecast what the harvest should be like, assuming that all factors influencing the final output will be normal.

Next year at the end of March final data on all crops are published in the First Release (Agriculture, forestry and fishery) »Crop production, Slovenia, annually«. At the same time data are published on the SiStat Database.

Publishing of provisional and final data is planned. Due to the needs of users for timely information, provisional data are published that meet the criteria of the quality of official statistical data but do not meet the quality that can be met with complete coverage. Data are revised when recent, more complete and better data can significantly contribute to the quality of data-based decision-making.

## 9.2 FACTORS INFLUENCING COMPARABILITY OVER TIME

A change in the methodology caused a break in the time series in 2020 by number of trees from extensive orchards and total production of individual fruits.

## 10 OTHER METHODOLOGICAL MATERIALS

Methodological materials on SURSs website are available at <https://www.stat.si/statweb/en/Methods/QuestionnairesMethodologicalExplanationsQualityReports>.

- Questionnaire:
  - Production of early crops and early fruits and yield forecast of some important late crops (KME-ZGK-K/L),
  - Yield forecast of late crops, late fruit and grapes (KME-POZP-K/L),
  - Production of late crops, late fruit and grapes (KME-POZK-K/L)

Theme: Agriculture, Forestry, Fishery, Subtheme: Crop Production

<https://www.stat.si/StatWeb/en/Methods/QuestionnairesMethodologicalExplanationsQualityReports>

- Quality report for the survey:
  - Statistical survey on production of early crops and early fruits and yield forecast of some important late crops (KME-ZGK-K/L),
  - Statistical survey on yield forecast of late crops, late fruit and grapes (KME-POZP-K/L),
  - Statistical survey on production of late crops, late fruit and grapes (KME-POZK-K/L)

Theme: Agriculture, Forestry and Fishery, SubTheme: Crop Production

<https://www.stat.si/StatWeb/Methods/QuestionnairesMethodologicalExplanationsQualityReports>

- Methodological explanations:
  - Area sown

Theme: Agriculture, forestry and fishery, sub-theme: Crop production

<http://www.stat.si/StatWeb/glavnanavigacija/metode-in-klasifikacije/metodoloska-pojasnila>