



EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR AGRICULTURE AND RURAL DEVELOPMENT
Directorate E. Economic analysis, perspectives and evaluation; communication
E.3. Economic analysis of EU agriculture

Brussels, June 2016

RI/CC 1500
rev. 4

Original **EN**

**COMMITTEE FOR
THE FARM ACCOUNTANCY DATA
NETWORK**

Typology Handbook

Based on Commission Implementing Regulation (EU) 2015/220 of 3 February 2015 laying down rules for the application of Council Regulation (EC) No 1217/2009 setting up a network for the collection of accountancy data on the incomes and business operation of agricultural holdings in the European Union

June 2016

FOREWORD

This handbook describes the methods of the Union typology of agricultural holdings and the standard output (SO) coefficients calculation.

Some of its parts are based on the previous versions of the document. Revision 4 takes into account the latest legislation, provides with some clarifications on certain aspects of the SO calculation and includes information on data delivery and validation tools, previously included in other ad hoc documents prepared by the Commission services (DG AGRI and DG ESTAT).

As regards the previous versions of this handbook, within the framework of the Committee for the Farm Accountancy Data Network (FADN), a working group was created to exchange views on the development of typology from 2010 onwards. A smaller group of national experts from Lithuania (R. Daunyte), Germany (R. Meyer), United Kingdom (S. Matthews), Sweden (A-M. Karlsson), Portugal (M. do Socorro Rosário) and Austria (H. Janetschek) contributed to the writing of this handbook. The Commission thanks them a lot for their time and contributions. Special thanks to G. Benoist, Hungarian expert detached at Eurostat for his cooperation.

This handbook will be updated following changes of the relevant legislation or users' comments.

Therefore, comments are welcome and can be addressed to AGRI-RICA-HELPDESK@ec.europa.eu

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INTRODUCTION

In the European Union, there is a wide diversity of the production structures and systems. To make it easier to analyse the structural characteristics and economic results of the agricultural holdings, an appropriate classification of the agricultural holdings per type of farming and economic size class has been developed.

Since 1985, the typology of the agricultural holdings was based on standard gross margins (SGM) calculated taking into account the gross output and the subsidies, as well as certain deductible specific costs. In the meantime the Common Agricultural Policy (CAP) has drastically changed and the majority of the direct payments have been decoupled. Due to this decoupling of direct payments since 2005, it was not possible to maintain the previous typology (Commission decision 85/377/EEC) based on SGM. A SGM without subsidies could be negative and therefore can not be used as classification criteria. Therefore, a new typology has been established, based on the following principles:

- Use of the standard output (SO) instead of the SGM,
- No reference to a balance of fodder,
- A 3-level "type of farming" classification (there were 4 levels in the previous typology),
- Definition of the economic size of the holding directly in Euro (it was defined in term of European size unit (ESU) in the previous typology),
- Introduction of a new classification variable reflecting the importance of the other gainful activities (OGA) directly related to the holding.

SO coefficients are mainly used to calculate the typology and to display the results of the FSS and the FADN, but the SO can also be used by the Member States as indicators. Therefore, the Member States should ensure that the SO coefficients have been calculated with due care, that they are realistic and robust results.

The aim of this handbook is to help EU Member States to implement the Union typology in a homogeneous way and in order to be practical and helpful a lot of examples are provided. However, to avoid duplication of the description of the basic principles already included in the EU legislation, **this handbook shall be considered as a working document to complement the rules for calculating SO and farm typology which are available in the regulations listed in the following box.**

BASIS REGULATIONS

- **Union typology – basic principles**

- *Article 5b of Council Regulation (EC) No 1217/2009 of 30 November 2009 setting up a network for the collection of accountancy data on the incomes and business operation of agricultural holdings in the European Union.*
- *Article 5 and Annex I of Commission Delegated Regulation (EU) No 1198/2014 of 1 August 2014 supplementing Council Regulation (EC) No 1217/2009 of 30 November 2009 setting up a network for the collection of accountancy data on the incomes and business operation of agricultural holdings in the European Union.*

- **Union typology – implementing rules**

- *Chapter 2 and Annexes IV, V, VI and VII of Commission Implementing Regulation (EU) 2015/220 of 3 February 2015 laying down rules for the application of Council Regulation (EC) No 1217/2009 of 30 November 2009 setting up a network for the collection of accountancy data on the incomes and business operation of agricultural holdings in the European Union, and more specifically:*
 - *Annex IV on the definition of the types of farming, the correspondence between the headings of the FSS and the FADN, and the regrouping codes of certain characteristics,*
 - *Annex V on the economic size of holdings and economic size classes,*
 - *Annex VI on the definition and calculation of the SO coefficients and the treatment of special cases,*
 - *Annex VII on the definition of the OGA directly related to the holding and the estimation of their importance in the output of the holding.*

- **Definition of the Union farm structure survey (FSS) characteristics**

- *Commission Regulation (EU) No 715/2014 of 26 June 2014 amending Annex III to Regulation (EC) No 1166/2008 of the European Parliament and of the Council on farm structure surveys and the survey on agricultural production methods, as regards the list of characteristics to be collected in the farm structure survey 2016.*
- *Commission Regulation (EU) 2015/1391 of 13 August 2015 amending Regulation (EC) No 1200/2009 implementing Regulation (EC) No 1166/2008, as regards livestock unit coefficients and definitions of the characteristics.*

1. BASIC PRINCIPLES AND DEFINITIONS

The aim of this handbook is to help to apply the methodology of the Union typology of agricultural holdings following the basic principles of

- Simplification,
- Harmonisation,
- Comparability.

The Union typology of agricultural holdings is a uniform classification of holdings in the European Union. For practical reasons, the classification of farms cannot be based on financial information recorded individually for each holding. Therefore, the classification is based on a set of economic coefficients calculated as regional averages, the Standard Output (SO) coefficients, and on the structural information (area of crops and number of heads of livestock) collected in the Farm Structure Survey (FSS) and in the Farm Accountancy Data Network (FADN).

The classification of the holdings is based on their type of farming and economic size, determined on the basis of the SO of the various types of agricultural production. In addition holdings can be classified also according to the importance of the Other Gainful Activities (OGA) of the holding. Based on this typology, homogeneous groups of holdings can be assembled in a greater or lesser degree of aggregation.

The definitions according to legislation¹ are as follows:

- a) The standard output (SO) of each crop and livestock characteristic is the regional average monetary value of the agricultural output at farm-gate price over the reference period; in other words, it can be obtained by multiplying the quantity of each production obtainable from a certain crop or livestock by its unit price.
- b) The economic size of a holding is the value of its total SO, i.e., it is the sum of the individual SO of all the agricultural characteristics present on the holding, expressed in euro per hectare or per head of livestock.
- c) The type of farming of a holding is the production system which is characterised by the relative contribution of different enterprises² to the holding's total SO.
- d) The importance of the OGA of the holding is defined as the estimated share of the OGA turnover in the total turnover of the holding.

¹ For more details, see relevant legislation listed in the box on the previous page.

² Enterprise: part of an agricultural holding which can be considered as an economic activity; for e.g. dairy enterprise.

2. DETERMINING REGIONAL COEFFICIENTS OF STANDARD OUTPUT

The basic principles and rules to be used for calculating SO are displayed in Annex VI of Commission Implementing Regulation (EU) 2015/220; the following paragraphs provide with clarifications on their implementation.

2.1. Definitions and principles for calculating SO coefficients

The SO of an agricultural characteristic (crop or livestock) is the monetary value of the agricultural gross production at the farm-gate price calculated as follows:

- Including sales, farm use, farm consumption and changes in stocks.
- Including both the value of the main and any secondary products. The main product is usually the one with the highest value³; the other products are taken as other main or secondary products. The other main products are those with a value close to the main product, while secondary products have generally a lower value⁴ and they shall be valued if they are sold or used on the farm⁵.
- Excluding direct payments (coupled, decoupled or other payments), value added tax and taxes on products, compensations in case of bad weather or animal disease. The SO coefficient should correspond to the output expected in normal conditions: e.g., if in a year the whole country is concerned by an epizooty, this abnormal year may be excluded from the calculation for the products concerned.

The farm-gate price means the price of a product before any deduction for transportation or marketing costs. If in a region a product cannot be sold without being packed, the farm-gate price used should reflect the price of the packed product.

The SO is a unit value: for each type of crop production it corresponds to one hectare (or 100 m² for mushrooms), and for livestock production it corresponds to one head of livestock (or 100 heads in the case of poultry) or one hive for bees.

The data used to calculate SO cover a twelve-month production period (either a calendar year or an agricultural year). If the period of production for crops and livestock is other than twelve months, the figure should be converted into values relating to a period of twelve consecutive months.

The SO of a characteristic corresponds to the weighted average situation on the agricultural holdings situated in a given geographical unit (hereafter called region). These geographical units are based on the Nomenclature of

³ For example, the main product of a dairy cow is the milk.

⁴ For example, the other main product of the dairy cow is the calf and the secondary product is the meat.

⁵ For example, the straw is to be valued if it is collected for the farm use or for sale.

Territorial Units for Statistics (NUTS) and they shall represent NUTS3 or regroupings of NUTS3 regions. The version of NUTS to be used for determining the SO coefficients is the one in force according to the most recent amendment to the annexes to Regulation (EC) No 1059/2003⁶. Annex 2c shows the list of SO regions used for the SO 2010 dataset.

At least once every 10 years, when the FSS is carried out in the form of a census, the basic data for determining SO are renewed. Within the 10-year period the SO coefficients are updated each time there is a new FSS.

In order to smooth the effects of short-term fluctuations, which may be considerable in cyclical animal production or in horticulture, the SO coefficients are calculated as an average over a reference period covering five successive calendar or agricultural years. For a FSS year N, the SO coefficients are the average of year N-5 to year N-1. All countries shall use the same five years, even if the survey is anticipated/postponed by one year. Therefore, the next SO coefficients are calculated according to the following scheme:

<i>FSS year</i>	<i>SO set</i>	<i>SO reference years</i>	<i>SO delivery deadline</i>
2016	2013	2011-12-13-14-15	31-12-2016
2020	2017	2015-16-17-18-19	31-12-2020

The basic data for determining the SO and the calculated SO are expressed in euro per unit (i.e. hectare or head). For the countries not taking part in the Economic and Monetary Union, the SO are converted into euro using the average exchange rates for the reference period. These rates can be downloaded from Eurostat online database as official monthly exchange rates⁷ and the average of the reference years shall be calculated.

If in the reference period a country adopted the euro, the exchange rate to be used shall be calculated using the average monthly exchange rate until the date of the adoption of the euro and for the months that the country was already included in Eurozone the value taken will be the fixed conversion rate in euro. It implies that the calculation of standard outputs shall be done with the following approach: 1. calculation of individual years' results in national currency for the whole reference period; 2. calculation of the 5-year average in national currency; 3. conversion of the 5-year average into euro using the 5-year average exchange rate.

The SO may be rounded to the nearest EUR 5 where appropriate and at least at the euro cent. The rounding is applied at the latest stage of the calculation.

⁶ Please check Eurostat's website for the most updated information on NUTS:

<http://ec.europa.eu/eurostat/web/nuts/history>

⁷ Euro/ECU exchange rates - monthly data [ert_bil_eur_m], <http://ec.europa.eu/eurostat/data/database>

2.2. Products to be taken into account

Regional SO coefficients are calculated for each land use and livestock characteristics in the FSS, unless the characteristic has a zero or low prevalence and no data is collected for it in the region concerned. For the SO 2013, the crops and livestock characteristics for which coefficients shall be calculated are listed in Annex to Commission Regulation (EU) No 715/2014 of 26 June 2014 amending Annex III to Regulation (EC) No 1166/2008. This same list is available in Annex 2b of the present handbook.

In the SO calculation, the processing of agricultural products should not be taken into account even if that activity is closely linked to production (milk into butter, cream, cheese), except for wine and olive oil. Therefore, if in a region milk is typically transformed into cheese, in the calculation of the SO of dairy cow the value of milk will be taken into account and not the value of cheese.

For characteristics which include more than one crop, such as "Fresh vegetables, melons and strawberries" or "Fruit of temperate climate zones", the SO coefficient corresponds to the weighted average of the SOs of the products included in these characteristics. It is up to the Member States to decide which products should be included in the calculation in relation to their significance.

The list of characteristics for the FSS includes headings which are subdivided into subheadings. The Member States may, if they wish, give a single regional SO coefficient for the main heading; in this case:

- As no SO coefficients for the subheadings are calculated, the coefficient for the main heading should be repeated for the subheadings.
- If a SO coefficient is provided for a subheading, it should be provided for all the other represented subheadings in order to be able to calculate the SO for the sub-headings. This does not apply if the subheading is a non-existing or a non-significant characteristic for which no data is collected.

This option of providing only a SO coefficient for the main heading shall not apply in the following cases:

- Subheadings of other poultry, which are required for the typology classification of the FSS farms, while the main headings is required for the typology classification of the FADN farms; therefore, for other poultry characteristics both the main heading and its subheadings shall be provided.
- Subheadings of sheep and goats; given the different types of animals included in the subheadings, two different coefficients shall be

provided, one for the breeding females and another one for the 'other' category of animals.

- Subheadings including crops with very diverse value (due to their yields and/or price).
- Subheadings for which data are available should always be provided instead of only the main heading for the sake of precision of calculation.

SO coefficients are not required for the following characteristics:

- Fallow land (with no intention to produce a harvest for the duration of a crop year),
- Kitchen gardens (with production mainly intended for the own consumption of the holder's family and not for sale),
- Permanent grassland no longer used for production purposes and eligible for payments of subsidies,
- Other land (unutilised agricultural land, wooded area and other land occupied by buildings, farmyards, tracks, ponds, quarries, infertile land, rock, etc.),
- Irrigated area (irrigation is a practice in the same way as conventional or organic farming and its influence is included in the SO of the relevant characteristic),
- Energy crops (the final destination of the crop can be reflected in the SO of the relevant characteristic),
- Livestock not mentioned elsewhere.

For a better harmonisation between FADN and FSS, the area of successive crops should not be valued in the FADN⁸. Nevertheless, in those Member States where successive secondary crops are of considerable importance, they are taken into account in the SO calculation of the main crops⁹, which precede or follow them. For example broccoli may be cultivated after sugar beet¹⁰ on the same area. Therefore, in the SO coefficient calculated for sugar beet which is the main crop, in the regions where it is a common practice, the sugar beet output can be increased by the output obtained from broccoli.

2.3. Special arrangements for crop products

The regional SO coefficients for crop products are determined per area units, i.e. per hectare (per 100 square metres in the case of mushrooms). The

⁸ For the treatment of successive crops in the FADN farm return, please refer to the FADN farm return guidelines, RICC 1680.

⁹ The main crop is the crop that has the highest value of the production. If the value of production does not determine which the main crop is, then the main crop is taken as the one that occupies the ground for the longest time.

¹⁰ Sugar beet and broccoli have more or less the same output, but sugar beet occupies longer the area. Therefore, sugar beet can be considered as the main crop.

data needed for the calculation, i.e. the monetary value of the output, also has to be calculated per hectare.

The output consists of the main products such as cereals and beet roots plus secondary products such as collected straw of cereals to be used on the farm or for sale. In the case of main crops, output for twelve months generally corresponds to a single harvest. For horticultural products, output for twelve months may cover several successive crops. For permanent crops (fruit trees, vines, etc.) the total cultivation period¹¹ should be taken into account to determine an average annual output. No replacement value is deducted from the output of permanent crops.

2.3.1. Mushrooms

The regional SO coefficients for characteristic "Mushrooms" are calculated per unit of 100 square metres (1 are) regardless of the number of harvests, i.e.: the output includes all the successive harvests.

In the FSS, effective growing surface area (beds, bags or similar surfaces) is registered. If used more than once the area is still counted only once.

In the FADN, the cumulated area of all successive harvests is recorded. Therefore, for the purpose of the FADN the coefficient is divided by the average number of harvests during the year. Member States must send to Eurostat this average number when transmitting the SO coefficients.

2.3.2. Fodder, temporary grass, permanent pasture and rough grazing, other forage

Fodder shall be always valued and not only when sold. It might be difficult to value fodder, and especially pasture, because fodder is not always marketable. The value of temporary grass, permanent pasture and rough grazing can be established in reference to the price of another fodder, for example the price of hay. In this case the yield, the dry matter content and the feeding value of the pasture under valuation should be taken into account when estimating the output for hay. If there are no existing hay markets, the closest marketable fodder can be used as reference price. In countries with hay markets, the hay is often sold for example to horse stables. Therefore, the price should be used cautiously and may be adapted (i.e. reduced) by experts. Moreover, the price of hay often corresponds to baled and carted hay; therefore if it is used to value grazed pasture, the price of hay should be reduced by these baling and carting costs.

For "Green maize" and other forage (leguminous forage plants and other forage plants) there are market values available in most countries. Also the opinion of experts can be used. If the information on silage markets is more reliable, it can be used as reference for valuing pasture and other forage.

¹¹ For permanent crops the total cultivation period is from the planting to the end of production (grubbing or abandonment).

Another way to obtain the value of forage is to estimate it on the basis of its costs of production (i.e. value of input employed: fertilisers, seeds, etc.).

After calculation of the SO coefficients for fodder the Member States may compare their results with those of neighbour regions or with similar conditions and also check the effect of the new coefficients on the classification of the farms and adjust the coefficients if necessary. The coefficients for fodder can be small, in order to avoid disturbing the classification of the holdings per type of farming and economic size.

In Member States where the pasture is only grazed, a SO coefficient is still to be estimated. In certain regions, the estimated value may be small, but for the sake of comparison between Member States a value is always to be provided. Moreover, a positive value attributed to pasture used for grazing enables to differentiate these pastures in use from the pastures without economic use.

2.4. Special arrangements for animal products

Gross output comprises the main products such as meat, milk and eggs, plus secondary products such as calves and wool. Manure is not considered as a secondary product from animal production.

SO coefficients are calculated per head of livestock, except for poultry, for which SO are calculated per 100 heads, and for bees, for which SO are calculated per hive.

For characteristics where the production period is less than twelve consecutive months, for example "Other pigs" and "Broilers", the period has to be extended to twelve months. In cases where the production period for livestock is greater than one year, for example "Laying hens" or "Dairy cows", a SO is calculated for a period of twelve months.

Typology concentrates on output. For livestock, and especially bovine animals, the characteristics are split per category of age: in these cases the output corresponds to the value of growth of the animal during the time spent in the age category. In other words, it corresponds to the difference between the value of the animal when it leaves the age category and its value when it enters the age category (named also the replacement value). Member States should pay attention not to count twice the animal growth.

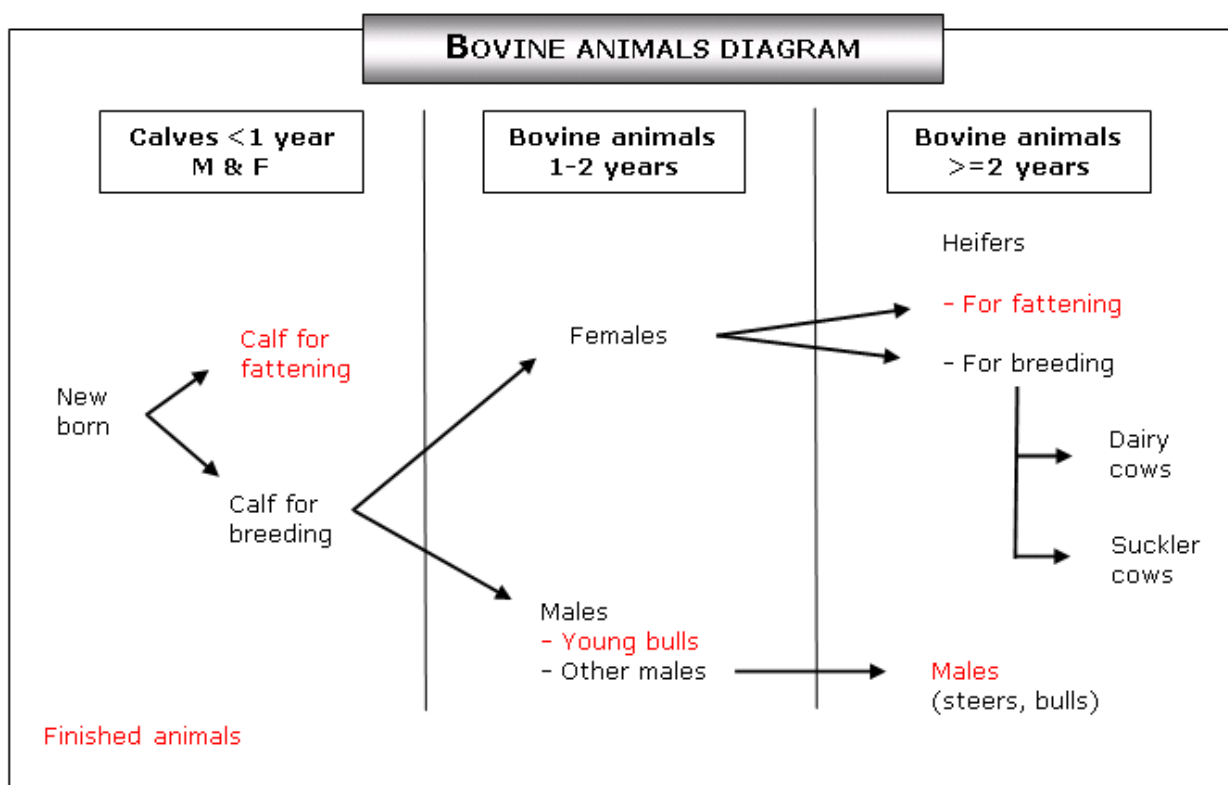
All the prices to be used for the calculation of the SO in year N shall refer to year N. It is a calculation simplification which avoids inflation impact on the price of the animals at the time they enter a category. For example, the value of a dairy cow in year 2005 should take into account the value of in-calf heifers in 2005 too.

The prices of animals can be found, for example, in weekly reports on Market prices (carcass and live animals). The price paid to farmers may

differ from the statistical prices because some marketing expenditures, like transport costs and taxes, are deducted by the slaughterhouse from the carcass price. But these possible marketing deductions or selling costs should not be deducted because the SO is referring to the output valued at farm-gate price.

2.4.1. Bovine animals

For cattle there is no good matching between the surveyed items and the marketable products. For instance a high share of heifers is not intended to be slaughtered. Thus the bovine system is complex and the diagram below describes the whole bovine sector. This diagram represents the change of bovine categories according to the age, the gender and the final use of the animals.



A first step in the calculation of SO for bovine animals is to determine the share of each use expressed in percentage of the livestock number. Very useful is determining the length of the production cycles for each category.

When an animal category in the FSS corresponds to a different type of animal in the FADN, the SO is a weighted average of the value of these different types.

Except for cows, the orientation (milk or meat) is not differentiated for the bovine categories. Therefore, the SO is a weighted average of the value of milk and meat animals.

Buffaloes are taken into account in the bovine categories.

There are some special rules applying to certain cattle categories:

- Calves under 1 year old: the coefficient should reflect only the value of the calves kept on the farm without cows or in addition to the calves born on the farm. Therefore, the weighting by category of the SO coefficient for calves should reflect the average situation of the whole region for all farms where the calves are kept without their mother from their age of purchase up to 1 year old¹². The number of calves to be valued on the farm is calculated as the difference between the total number of cows (dairy and other cows) minus the total number of calves less than 1 year. It is indeed not possible based on the information available to distinguish between dairy calves and non-dairy calves.

The final value of the SO of calves under 1 year old kept without their mother is a weighted average of:

- Male and female calves
- From the meat and the dairy sector
- Kept for breeding or slaughtered before the age of one year.

The value of the calves slaughtered under the age of one year is calculated as:

- The value at the time of slaughter
- Minus the replacement value (value of calf when purchased)
- Multiplied by the number of alive calves produced in a year by place.

The value of the calves for breeding is the weighted average of:

- [Young bulls, steers, heifers for breeding, heifers for fattening] * Farm-gate price, minus value of purchase
 - Multiplied by 1/length of production cycle in years
 - Multiplied by weight %.
- Dairy cows and other cows: the value of the SO coefficient for dairy cows should reflect the average situation of the whole region for all farms with dairy cows, the output integrating the value of milk and the value of calves at 1 year (if kept on the farm) or of the sold calves (if they are sold before the age of one). The SO for dairy cows can be calculated as follows:

Value of milk + value of calf (less than one year old or when sold) +
[(Value of (cull animal – in-calf heifer) * replacement rate)]

The different elements of the calculation are explained herein.

The price for milk is a regional average price for a standard quality of milk before deduction of any marketing or transporting costs. The super levy or quality penalties are not to be deducted. Based on expert knowledge,

¹² For example the calves for fattening or calves for breeding bought by specialised fatteners.

the price can be increased if numerous high added value products are produced on the farms in the region. Despite the value of transformed products as cheese, cream, butter and other milk products is not taken into account; the value of the milk itself may be higher due to its use at the production of high added value products. The value of milk is equal to the average yield multiplied by the farm-gate price.

When adding the value of a calf less than one year old to the dairy cow value, the same method used to calculate the value of calves may be used, but the weights by destination have to be adapted. When looking specifically at dairy animals, a higher share of females may be used for replacement and the final use of males and the prices are different as for meat breeds. In the calculation of SO of dairy cows the value of the new-born is not deducted. In a region where the majority of the dairy calves are sold in the first weeks, the calf output to be included in the SO coefficient for cows is limited to the value of the new-born. However the value of the young female calves kept for the renewal of the dairy herd should be included. For calculating the value of the calves to be included in the value of cows, the following points should be also taken into account:

- Fertility rate (total number of calves born alive divided by total number of inseminated females),
- Mortality rate of calves (total number of calves alive after one month divided by total number of calves born),
- Lactation period (period of time between two calving).

The value of a cull animal is the weight multiplied by the price per kilo. The value of the cull cow measures the meat production from the cow. This value is to be spread on the number of productive years of the animal. The price shall refer to the farm-gate price. This information on prices can be found for example in weekly price reports, 'Beef quotations', using a reference category of P/0 (EUROP carcass classification).

The value of in-calf heifer is deducted in order to take into account the replacement value. A heifer is a bovine female not yet calved. In some countries there are markets for in-calf heifers. If not, this price has to be estimated.

The cull animal value and the replacement value are divided by the average number of lactations, which is the same as to multiply by the replacement rate. The value of an in-calf heifer is often higher than the value of a cull dairy cow. Therefore, it can be expected that this part of the calculation will be negative. However, considering that final SO value should be positive, particular care should be taken when choosing data source and calculating, so to avoid wrong attribution of negative SO values.

- Other bovine animals: for the calculation of the SO coefficients of all the other bovine animals, each coefficient is a weighted average of the different categories of animals according to their final use. For example,

the SO of the "Female bovine animals from 1 to 2 years old" is a weighted average of the value of the females kept for breeding or fattening and a few females that are slaughtered before the age of 2.

Mortality rate of adult animals should be taken into account in the final value of the other bovine animals. For "Dairy cow" and "Other cows" the mortality rate is already taken into account through the replacement rate.

There are different ways of calculating the value of the animals:

1. The value can be calculated on the basis of the annual growth, i.e. the weight at the end of the period (or when slaughtered) minus the weight at the beginning of the period multiplied by the farm-gate price.

OR

2. The value of the finished animal can be calculated and spread on the length of the production cycle: (value at the time of slaughter minus value of new-born) divided by the length of the production cycle in years.

OR

3. In the regions where the fattening activity is specialised, it can be interesting to look at the value of the finished animal minus the weaning value and then the length of the "production" is limited to the fattening period.

Given the higher value of young animals, special attention shall be made when using calculation methods under points 1 and 3. In fact, it shall be avoided to get negative results for the category of older animals when subtracting the value/weight of younger animals. In case of negative values, it is suggested revising the data and their source or changing calculation method.

The choice between the different methods mainly depends on the data available and on the bovine systems existing in the region. In any case, it is important to deduct the replacement value when necessary¹³.

To give an example of the calculation methods, the value of "Male bovine animals from 1 to 2 year old" is the weighted average of the value of the young bulls slaughtered before the age of two and the males kept to be fattened as steers or to become bulls. A young bull is a finished animal; its value can be calculated choosing one of the following options:

1- { (Weight when slaughtered – Weight at the age of one) * Young bull farm-gate price } * Number of young bulls per place per year

2- { (Weight * Young bull farm-gate price) – replacement value (= new-

¹³ When the SO is calculated based on the annual growth there is no need to deduct any replacement value.

born value) } / (length of the production cycle in years)

3- { (Weight * Young bull farm-gate price) – replacement value (= weanling price) } / (length of the fattening cycle in years)

The value of the male kept to be fattened as steer can be calculated the same way:

1- { (Weight at the age of 2 – Weight at the age of one) * farm-gate price of a two year old steer }

2- { (Weight * Steer farm-gate price) – replacement value (= new-born value) } / (length of the production cycle in years)

3- { (Weight * Steer farm-gate price) – replacement value (= weanling price) } / (length of the fattening cycle in years)

The final SO is a weighted average of the two values above according to the share of young bulls and future steers in this category of age in the region.

2.4.2. Pigs

The SO for piglets under 20 kg should reflect the output of piglets kept on farms without sows. The value for piglets should be divided by the length of production of a piglet in years to cover a twelve months production period. The piglets are not valued if there are sows on the farm because their value is already included in the sow output.

The SO for sows can be calculated as follows:

(Value at the time of slaughter – value when starting piglet production) /
number of productive years
+ Value of piglets

The female pigs intending for breeding are included in the sow category, regardless if they have farrowed or not. The value of piglets to be added corresponds to the number of piglets per sow and per year multiplied by piglet selling price.

The category "Other pigs" covers the pigs for fattening and the boars. As the boars are rare, the SO can be calculated as the value of the pigs for fattening.

The SO for pigs for fattening may be calculated as follows:

(Value at the time of slaughter – piglet value) * Number of pigs produced
per place per year

2.4.3. Sheep and goats

The other sheep/goats value is a weighted average of the lambs/kids kept

on farms without breeding females¹⁴ and other sheep/goats for slaughter and the male reproducers. The male sheep reproducers may be non-significant and the SO can be limited to the lamb value. Lambs may be slaughtered at different age, but there are regional quotations for lamb at the time of slaughter. The value should be corrected to cover a twelve months period.

The SO for the other sheep and other goats can be calculated as follows:

(Value at the time of slaughter – value of new-born) / Production period in years

In the ewes and she-goats headings, the lambs for breeding and the kids for breeding as well as the cull ewes and cull she-goats are included.

The other sheep and other goats are not valued if there are breeding females on the farm. Therefore, the coefficient for the breeding females should reflect the average situation of the whole region for all farms with ewes or she-goats, the output integrating the value of fattened lambs or kids (if they are fattened on the farm) or the value of the new-born lambs or kids (if they are fattened on other farms).

The SO for ewes and she-goats can be calculated as for the cows:

(Value at the time of slaughter – value when starting lambing/kidding) /
number of lambing/kidding years
+ Value of fattened lamb/kid
+ Value of other products (milk, wool)

2.4.4. Poultry

The SO is calculated per 100 heads. As for the other animals, the characteristic for poultry may cover more types of breeding that should be considered in the calculation. The eggs are the main product of laying hens. The chicks, which do not represent a category as such but are included in the residual category of "Other animals", are the main product of the breeding hens.

2.4.5. Bees

The SO is calculated per hive. The main product of bees is honey; the secondary products are wax, royal jelly... No replacement value is to be deducted because the SO is concentrating on the output.

¹⁴ When there are breeding females on the farm the value of lambs and kids is included in the total breeding female output.

3. INVENTORY AND CHOICE OF DATA SOURCES

3.1. Data needed and data available

The basic data needed to calculate a SO are:

- Yield (average yield in a region or in a country)
- Physical quantities produced
- Prices
- Cultivated area
- Number of animals present and slaughtered
- Technical information, like length of production cycle, productivity of animals, mortality of new-born etc.

There are numerous data sources that can be used for the calculation of SOs. Of course, in different Member States the data sources are not all the same, but the main data sources are listed below in order of priority:

1) Farm Structure Survey (FSS) - Eurostat

It provides statistics on the structure of the agricultural holdings (area and livestock) at different geographic levels.

2) Agricultural Prices – Eurostat and DG AGRI

Two kinds of agricultural price statistics are managed by Eurostat:

- the Statistics of Absolute Agricultural Prices
- the EU agricultural Price Indices.

The national authorities of the Member States (National Statistical Offices and/or Ministries of Agriculture) are responsible for collecting absolute prices and calculating the average prices for their country, as well as for calculating the price indices. The periodicity is monthly or annual.

Moreover in the framework of the implementation of the CAP, the DG for Agriculture and Rural development collects agricultural market prices (The Market Information System). The periodicity may be weekly.

3) Crop and animal production – Eurostat

These are monthly or annual statistics on agriculture, for example:

- Statistics on the production of crop products (area under cultivation, quantity produced, yields...)
- Milk statistics (quantity of milk collected, use of milk)

- Meat production (number of slaughtering, carcass weight...)
- Livestock statistics (herd structure, number of heads by category), from 1 to 3 times a year

4) Administrative data bases (national and regional), for example:

- Integrated Administration and Control System (IACS)
- System for the Identification and Registration of the Bovine animals
- Organic farming register

5) Research and Advisory institutes (public or private), for example:

- Agricultural advisors
- Research Institutes
- Producer organisations
- Accounting offices

Research and advisory institutes can usually provide expertise and technical references. In some countries the producer organisations have also their technicians and experts. These can be useful especially when looking for information on small- scale production with not that big economical significance.

6) Specific surveys

Specific surveys are based on a sample of farms. The needed information is collected through a questionnaire. If the sample is well designed, the survey provides a set of reliable, robust and comparable results. But this kind of survey may be heavy and expensive to carry out.

7) Farm Accountancy Data Network (FADN)

The FADN database contains accountancy data from the bookkeeping of a sample of farms. In addition to financial data, information on the production of the farm (area, quantity...) is collected. However, as the results from the FADN refer to a sample of larger farms, their use for SO calculation should be accompanied by other data referring to the whole farms population.

8) Economic Accounts for Agriculture (EAA)

The main purpose of the Economic Accounts for Agriculture is to analyse the production process and primary income generated by it. The accounts are therefore based on the industry concept. The EAA can be used to check the validity of the SO coefficients after their calculation.

As a conclusion, the data for calculating the SO coefficients can be taken from one or several sources. The Member States should also pay attention to use coherent data sources; for example between yields and area: in the FSS the area of cereals refers to the field area whereas in the crop production survey the yield refers to the harvested area. Correction coefficients may be applied.

Table 1. List of data sources and information available

	Price	Area	Yield	Total quantities produced	Number of livestock	Technical data	Other info
FSS		X			X		
Agricultural price statistics	X						
FADN	X	(X)	X	(X)	(X)		X
Crop and animal production statistics		X	X	X	X	X	
IACS		X			X		
Bovine livestock identification database					X		
Agricultural advisors	X	X	X			X	
Producer organisations	X		X			X	
Accounting offices							X
Specific surveys	X		X			X	
EAA				X			X
Experts	X		X			X	

3.2. Evaluation and choice of data sources before calculation (*a priori assessment*)

The decisions concerning the choice of data sources are to be made case by case. Each data source has its strengths and weaknesses, and the one which seems to be the most reliable has to be chosen for the parameter needed.

There are some practical questions that can be asked to help to evaluate the data source and the information it contains:

- Relevance of the data:

The relevance of a data source is a qualitative judgment on whether the data source answers well the question in a given context. For example, is the data of the neighbour region relevant for the region studied? A new data source may be more precise for one variable, but if it is not comparable to other selected data sources used for the coefficients calculation it may not be relevant and left aside. The set of data sources has to be taken into account as a whole.

- Representativeness of the data:

In contrast with the relevance, the representativeness of a data source may be quantitatively measured. What is the coverage of the data in relation to the field looked for? What is the size of the sample? i.e. is the figure statistically satisfactory as regards the coverage of the field of observation? Evaluating the representativeness of a source is easier than evaluating its relevance, since it can often be based on quantifiable statistical components (sampling plan, selection bias, known heterogeneity, etc.).

- Quality and reliability of the data:

Who collects and produces the data? What is the interest of the data maker? From which kind of farms/companies, etc. the information is collected? Each data source is collected for its own purpose. For example, producer organisations collect data for different purposes than the administration. Is submitting information to the data collector on a voluntary or compulsory basis?

- Continuity:

Is the data regularly collected or updated? How often? If possible, the same source for a certain figure (for example the price of wheat) should be used not only for all the years included in a SO calculation of certain year (e.g. SO 2010), but also for the calculation of the consecutive SO coefficients (e.g. SO 2010 and SO 2013). If the data source used varies, it may cause changes in the SO coefficient and, as a result, the classification of the farms may change for methodology reasons and not because of a real evolution of the structure of agriculture.

There are no good or bad sources, only ones in which we can have a greater or lesser degree of confidence when using them to calculate SO. A data source may seem not appropriate due to a lack of representativeness of the searched field. However, it may become very relevant if it can be processed easily to cover the desired field.

- Choosing data source between national and regional level:

When a data source is the only one to provide detailed information at regional level, but there are doubts about its relevance or representativeness in part of the field covered, there are different solutions:

- ✓ A less detailed source may be used, it would give a national result, but it would probably be more reliable.
- ✓ A less reliable regional figure may be adjusted to a more reliable regional figure when geographical factors are more or less equivalent in both of them.
- ✓ The most reliable regional figures may be retained and the other regional figures may be estimated on the basis of the national figure and reliable regional SO. This method may be applied to calculations of regional yields.
- ✓ It may be decided that differences between regions are mainly a result of structural effects that can be measured. If the regional figures are not very reliable, they can be recalculated using regional structure and national figures. In this case, it is important to check the new ranking of the regions to ensure that it is not too different from the ranking produced by the regional figures. This method is suitable for valuations of mixed products such as fruit and vegetables.

To maintain a consistent line in difficult decisions, it is necessary to keep track of the assumptions and hypotheses on which the decision is based. This technique avoids the need of asking the same questions all over again in a few years' time and to keep continuity in the calculation method.

Example: Yield of rye in Sweden

Yield of rye can be found in two surveys:

- o FADN = the yield of rye in region 1 in the year 2005 was 4 280 kg/ha +/- 16 %
- o the crop production survey = the yield in region 1 in the year 2005 was 5 090 kg/ha +/- 2%. In the production survey the yield per hectare is defined as quantity produced per harvested area. Therefore, the yield has to be adjusted. In the region concerned, 1.3% of the rye area was not harvested. The yield should then be adjusted to 5 024 kg/ha +/- 2%.

The crop production survey is considered as the best data source to be used because

- o its purpose is to estimate yields: the data source is relevant,
- o the population covers the same population as FSS: the data source is representative,

- o the estimate is more precise (smaller deviation): the data source is reliable.

3.3. Evaluation of data sources after calculation (*a posteriori* assessment)

Often it is impossible to evaluate *a priori* how relevant or representative a source is. If it is the only source available, it has to be used even if it is not very good.

The most frequent, but also the trickiest case, is when two rival sources are giving different results but no clear distinction emerges from *a priori* evaluation. *A posteriori* criteria have to be used afterwards to validate the use of one or the other source:

- Impact on the classification of the farms (by type of farming and economic size)
- Experts' advice
- Comparison between SO coefficients for the same characteristic in different regions: is the ranking between the regions realistic?
- Comparison between SO coefficients for the same characteristic in the other Member States, above all the neighbours with similar agricultural features.
- Comparison of SO coefficients against their values from the previous reference period: are there any big differences?
- Comparison with FADN results or with the EAA.

3.4. What can be done if no data source is available?

Sometimes it is difficult to find the data needed for a SO calculation in existing data sources, especially if that specific data is rare or is not often used. In that case the following advices may be useful:

- check if these specific data exist in neighbour regions or neighbour countries and if it could be used and how
- if possible draw a specific survey for example next to the farmers belonging to the FADN
- consult experts; make a list of contact people and ask their opinion

4. SO COEFFICIENT UPDATE, DELIVERY AND VALIDATION

According to the legislation, once every 10 years, when the FSS is carried out in the form of a census, the basic data for determining the SO coefficients shall be renewed on the basis of the direct observation method. Between the two FSS Census, each time there is a new FSS the SO coefficients can be updated by:

- Using the direct observation method, or
- Using an updating method

4.1. Direct observation method

The basic data needed for calculating the SO is collected systematically during the same reference period in all Member States at least once every 10 years. For the FSS year N, the reference period shall mean the year N-3, covering the five successive accounting years from year N-5 to year N-1.

The basic data needed is:

- The quantity of the main product (by area or livestock unit)
- The corresponding unit price
- The value of any secondary product
- The replacement value for livestock

This basic data is collected by Member States from data sources listed in the previous chapter.

The Member States should provide the following information:

- The value of the SO coefficient in Euro: if rounding is applied, the rounded value is transmitted.
- The 5-year averages (or the 5 relevant yearly averages), per region and per characteristic of the quantity of the main product (by area or livestock unit), the corresponding unit price, the total value of any secondary product, the replacement value and the SO in national currency. Nevertheless, providing the quantity and corresponding unit price is optional because this information may not be available when the SO corresponds to a weighted average of different products. Moreover, it is not necessary to provide the replacement value for animal production if it is already taken into account in the gross output.
- The rate (National Currency/Euro) used for converting the SO into Euro.

- The reference period applied and the years covered, as well as the information whether the calendar year or the agricultural year is applied for determining the SO coefficients.
- The mushrooms coefficients: the number of annual successive harvests.

4.2. Updating method

The principle is to multiply SO coefficients from a preceding reference period by a coefficient equivalent to the change in value of the SO between the new 5-year reference period and the preceding reference period.

This coefficient is established by the Member States for each characteristic and region. It should correspond to the best possible estimate of the overall changes between the two 5-year reference periods in terms of quantities produced per unit and prices.

The coefficient is applied to the values in national currency of the SO of the preceding reference period. The "updated" SO are then converted to Euro using the calculated conversion rate.

A single coefficient applied in a uniform way to SO values of different products and fixed for a whole region or Member State is not considered as a sufficiently accurate method of updating.

4.3. Delivery of the SO coefficients

4.3.1. Transmission via EDAMIS

Member States must transmit the datasets with the SO coefficients via EDAMIS:

<https://webgate.ec.europa.eu/edamis/helpcenter/website/index.htm>

For the SO transmission, it is necessary to select the dataset 'AGRI_SGMCOEF_N' to ensure correct delivery of the file to Eurostat..

In the event of problems with the data transmission through EDAMIS, please contact the EDAMIS support team at estat-support-edamis@ec.europa.eu or contact your local coordinator (see list on the EDAMIS website quoted above).

After reception of the file, eDamis will interact with the data validation tool (EDIT) and will report back to the Member State any detected errors by means of an error-report sent via e-mail.

Member State will then need to correct the data and re-submit the file to eDamis again.

4.3.2. Formatting of the file

Eurostat asks to supply the SO coefficients in a .csv file with a pre-defined structure.

The name of the file must be formatted as follows: The first two characters of the name of the country in English followed by the SO year (example: NL2013)

The .csv file must obey the following rules:

- Fields must be separated by a semicolon ';'.
- Decimals must be separated by a period "." and not by a comma ",".
- The last field of each record must be followed by a "Linefeed" character.
- Records and SO values for characteristics that are non-existent or for non-significant characteristics for which no data is collected, should be left empty/null/blanc.

4.3.3. Structure of the template to be used:

The SO coefficients must be delivered in a single file using the structure of the excel template in Annex2 a: 'Template for the transmission of Standard Output coefficients'.

4.3.4. Details on the data to be provided in the template with SO coefficients¹⁵:

Column 1) Code of the characteristic (**mandatory**)

A Standard Output coefficient must be provided for each of the characteristics listed in Annex 2b, taking into account general rules of paragraph 2.2.

Each characteristic is identified by a code that is listed in the column 'Code' of this file.

One additional characteristic is included in the list of characteristics for which an SO coefficient is required:

"B_1_2_2 – Pulses other than peas, field beans and sweet lupines".

This characteristic was added to the list to complete the entire breakdown of the dried pulses.

All the crop characteristics are measured per hectare.

For mushrooms however, characteristic B_6_1, it must be expressed in Euro per 100m², and it will represent the value of all the harvest in one year. The number of harvests should be supplied in the column 'Comments'.

¹⁵ A pre-filled excel file with the template for the submission of the SO coefficients, including the characteristics, valid SO regions and exchange rates is made available by Eurostat to the MS

The coefficients for livestock are measured in heads with the exception of the poultry characteristics (C_5_1 thru to C_5_3_99) that are measured in terms of 100 head and the Beehives (C_7) measured in hives.

*Column 2) Description of the product (**mandatory**)*

The description of each characteristic is listed in the column 'description' of the Annex 2b with the List of the SO characteristics.

*Column 3) Unit (**mandatory**)*

The unit of each characteristic is listed in the column "unit" of the list of the SO characteristics in Annex 2b.

*Column 4) SO region code (**mandatory**)*

A SO coefficient must be supplied for each SO region code listed in Annex 2c: 'List of SO regions', unless different choice of SO regions for the SO 2013 dataset is communicated to the Commission services prior to the delivery of the data.

Direct observation method

Column 5) QUANTITY of the product (optional)

Some basic data need to be provided for the calculation of the SO. For crops this corresponds to the main product in kg/ha, and for animals to the main product in kg/unit corresponding to the characteristic; for animals, the main product is the annual growth or the slaughtered animals or the quantity of eggs, milk, honey, etc., depending on the animal category.

Column 6) PRICE PER UNIT of the product (optional)

To support the figures provided for SO, some basic data are required; for crops and for animals this corresponds to the price per unit of the main product (EUR/kg, or national currency/kg).

*Column 7) Product VALUE (**mandatory**)*

This corresponds to the main product value, expressed in EUR or national currency per unit.

If the two optional fields: 'Quantity' and 'Price per unit' have been provided, the 'product value' must be identical to the multiplication of the 'Quantity' and 'Price per unit'.

*Column 8) Secondary products VALUE (**mandatory**)*

Secondary products have generally a lower value than the (other) main product(s) and they shall be valued if they are sold or used on the farm (see also paragraph 2.1.). This value is expressed in EUR or national currency per unit.

Column 9) other main product QUANTITY (optional and only for animal products)

This field will only be filled in for the animal products, in kg/unit corresponding to the characteristic. In the case of crop products it will be empty. The other main products are those with a value close to the main product (see also paragraph 2.1.).

Column 10) Other main product PRICE PER UNIT (optional and only for animal products)

This field will only be filled in for the animal products. In the case of crop products it will be empty. (See also paragraph 2.1.). This value is expressed in EUR/kg or national currency/kg.

*Column 11) Other main product VALUE (**mandatory for animal products**)*

This field will only be filled in for the animal products. In the case of crop products it will be empty. (See also paragraph 2.1.). This value is expressed in EUR or national currency per unit.

If the two optional fields: 'Quantity' and 'Price' per unit' have been provided, the 'product value' must be identical to the multiplication of the 'Quantity' and 'Price per unit'.

*Column 12) Replacement value (**mandatory for animal products**)*

This field will only be filled in for the animal products. In the case of crop products it will be empty. It is not to be provided if the calculation is based on annual growth in weight. (See also paragraph 2.4). This value is expressed in EUR or national currency per unit.

Updating method

Column 13) SO for the reference period used as a base

See paragraph 4.2 for further explanations

14) Coefficient of change applied

See paragraph 4.2 for further explanations

15) Exchange rate

For countries not in the Eurozone, the SO are converted into Euro using the average monthly exchange rates for the 5-year reference period (either 5 calendar years starting on January of N-5 or 5 agricultural years starting on July N-5, where N is the year of the Farm Structure Survey).

These average exchange rates are calculated based on the official exchange rates published by Eurostat and will be provided to the MS by Eurostat in the excel format of the template for the transmission of the SO coefficients (see also paragraph 2.1.).

*16) Standard Output in National Currency (**mandatory for NON-EURO countries**)*

The Standard Output expressed in national currency.

*17) Standard Output in EURO (**mandatory**)*

The basic data for determining the SOs and the calculated SOs are expressed in euro per unit (hectares or head). The SOs may be rounded to the nearest EUR 5 where appropriate.

18) Comments (optional)

In the case of mushrooms the number of harvest should be indicated in this column.

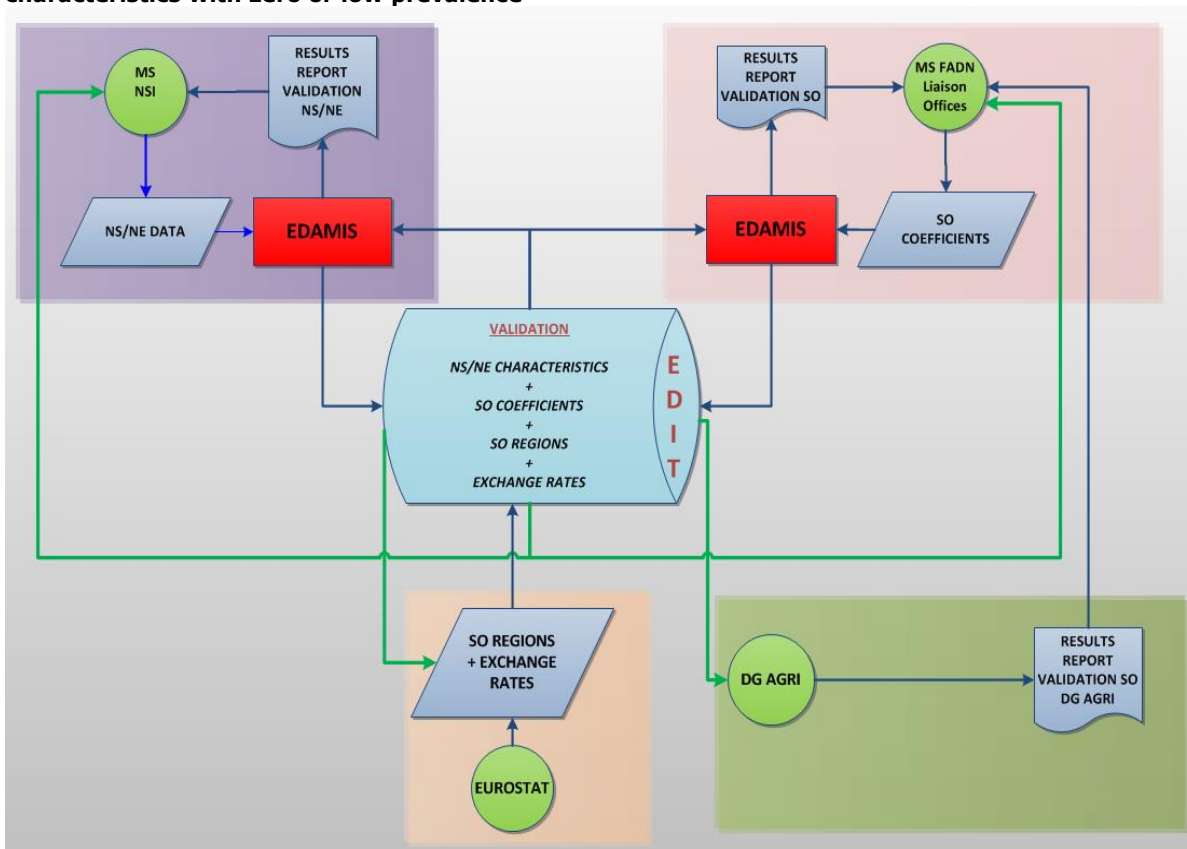
Lastly, during the validation of the FSS 2016 dataset, all the SO characteristics that have data-values greater than zero will have to have a SO coefficient equal to or greater than zero.

4.4. Validation of the SO coefficients

Given the importance of the SO coefficients for the classification of EU agricultural holdings and for ensuring harmonisation and comparability of the results across the EU, the Commission DG ESTAT and DG AGRI use a shared procedure of validation of the SO coefficients, first implemented for the checks and validation of the coefficients sets of SO 2010 and to be repeated for the next exercises. As from the SO 2013 data delivery, the data delivery tool eDamis will interact with the data validation tool (EDIT) in order to make a first validation of the data delivered.

With the aim of verifying the implementation of the common rules and principles of the EU Typology by the Member States, two following consecutive steps of checks and validations are carried out, as described in the next paragraphs.

Data flow for the transmission and validation of the SO coefficients and the information on the characteristics with zero or low prevalence



4.4.1. Validation of the content of the data delivery file

The first step validates that the data delivery uses the correct template, reference files and exchange rates, validates the formulas and calculations used and that an SO is reported for every mandatory SO coefficient:

1. A SO must be reported for every NUTS region.
2. A SO coefficient must be transmitted for each SO characteristic in the list of SO characteristics UNLESS: the characteristic has been indicated by the MS as being a characteristic with zero or low prevalence (indicated as a non-existing (NE) or a non-significant (NS) characteristic).

From the SO 2013 onwards, a distinction is made between two types of NS characteristic: a NS characteristic for which no data is collected (a **NS1 characteristic**) and a NS characteristic for which a value is collected under its own heading (a **NS2 characteristic**). A SO MUST be provided for every NS2 characteristic whereas no coefficient needs to be available for NS1 characteristics.

Additionally, during the processing of the Farm Structure Survey data, it will be verified that every characteristic that has a value greater than zero in the FSS dataset also has a SO coefficient that is greater or equal to zero (thus not blanc or null).

3. For every crop characteristic with an SO coefficient, at least the 'Main product' value has to be reported and for every animal characteristic at least the 'annual growth slaughter' value'.
4. In the case of the following female animals: C_2_6, C_2_99, C_3_1_1, C_3_2_1; C_4_2, C_5_2 and C_6, there has to be a 'Secondary products value' or an 'Other main product value'. This is because in the case of female animals the young animal and the culled females should be valued.
5. For non-Euro zone countries, exchange rates will be validated against the pre-filled values supplied in the transmission template and the exchange rate used should correlate with the information provided in the field 'agricultural year' or 'calendar year'.
6. To check if the calculation of the coefficient is correct, the formulas¹⁶ used for the calculation of the final SO coefficients will be checked as follows:
 - if optional values in col.5 and 6 respectively 9 and 10 are provided, then:
 - Col.7 = col.5 x col.6
 - Col.11 = col.9 x col.10
 - Col.12 should be >0 or =0
 - if col.12 > 0, then the SO (in col.16 or col.17) = col.7+col.8+col.11-col.12
 - if col.12 = 0, then the SO (in col.16 or col.17) = col.7+col.8+col.11
 - if the updating method is applied, col.13 = the corresponding value from the previous SO collection exercise and the SO (in col.16 or 17) = col.13 * col.14.
 - the SO in Euro should be equal to the SO in national currency after conversion based on the official exchange rate.

A distinction must be made between:

- **Null(empty) values** where the characteristics is non-existent or non-significant type 1 (i.e. no data is collected for the characteristic) in a specific region.
- **0 (zero)** – the SO value is zero.

4.4.2. Validation of the methodology used for the calculation

This includes validation of the implementation of the EU typology methodology in terms of data continuity (i.e., check of the value of the SO coefficients against their previous version to detect any big discrepancies) and data plausibility (i.e., check of the value of the SO

¹⁶ These formulae have been pre-defined in the excel format of the template to be used for the transmission of the SO coefficients.

coefficients for the same or related products against same values in other regions/countries, taking into account type of product, type of region, general trend observed in yields and prices, etc., to detect any big outliers or contradictory values). These validations are performed through ad hoc projects built with software for statistical analysis; some examples of the visualisation of these projects are given below.

More specifically:

1. Check the relation of the coefficients with previous years

First step is to stipulate a maximum and minimum change rate. All values outside the thresholds shall be duly justified. Thresholds are defined according to overall trends observed in the reference period for the different characteristics. Moreover, absolute values are also considered to set a proper threshold for each characteristic. Therefore, there is no set threshold fixed for all regions and all characteristics. If any apparently inexplicable change is found, the contact point in the Member State is asked to justify the change or modify the data.

Example of comparison of SO values with previous SO data set

country	region	Code of the product	Description of the product	SO2007 (SO)	SO2010 (SO)	SO10/SO07 change
x	y	B_1_1_5	Oats	629	1 356	116%
x	yy	B_1_1_5	Oats	748	997	33%
x	y	B_1_6_1	Tobacco	3 438	5 858	70%
x	yy	B_1_6_1	Tobacco	2 712	2 538	6%

2. Verify if countries are calculating the coefficients with the same logic

Big discrepancies are detected by identifying:

- Outliers in the SO coefficients among regions within the same country and among countries in different EU aggregates (EU, EU-15, etc.), or
- SO value with different patterns when compared with values of other regions or across different SO reference years.

If any significant discrepancy is found, the contact point is asked to explain the difference or modify the data.

Example of comparison of SO values of the same product within different regions of a country

Code of the product	Description of the product	SO2007 (SO)	SO2010 (SO)	SO10/SO07 change
B_4_4_1	Vineyards - quality wine	81414	79384	2%
B_4_4_1	Vineyards - quality wine	74222	71824	3%
B_4_4_1	Vineyards - quality wine	5000	5000	0%
B_4_4_1	Vineyards - quality wine	15317	14588	5%
B_4_4_1	Vineyards - quality wine	5000	5000	0%
B_4_4_1	Vineyards - quality wine	34518	35206	2%
B_4_4_1	Vineyards - quality wine	4134	9170	122%
B_4_4_1	Vineyards - quality wine	29716	29706	0%
B_4_4_1	Vineyards - quality wine	29062	31316	8%
B_4_4_1	Vineyards - quality wine	8778	7811	11%
B_4_4_1	Vineyards - quality wine	5000	5000	0%
B_4_4_1	Vineyards - quality wine	2617	3123	19%
B_4_4_1	Vineyards - quality wine	10988	13056	19%
B_4_4_1	Vineyards - quality wine	5898	6375	8%
B_4_4_1	Vineyards - quality wine	5000	5000	0%
B_4_4_1	Vineyards - quality wine	8487	10032	18%
B_4_4_1	Vineyards - quality wine	14135	15145	7%
B_4_4_1	Vineyards - quality wine	4078	5289	30%
B_4_4_1	Vineyards - quality wine	8312	8430	1%
B_4_4_1	Vineyards - quality wine	11067	16410	48%

Another test to detect outliers is to create a ranking of all SO values, where by SO region and by SO coefficient it is possible to identify those values which come first or last in the ranking. For some agricultural productions (such as in the case of regional products of high quality) this ranking is not considered as an anomaly as such, while in other cases some analysis and explanations can be needed.

Example of ranking of SO values, with values coming in the first positions highlighted in red

so_2010_region_code	B_1_1_1	B_1_1_2	B_1_1_3	B_1_1_4	B_1_1_5	B_1_1_6	B_1_1_7	B_1_1_8	B_1_1_9	B_1_1_10	B_1_1_11	B_1_1_12	B_1_2	B_1_2_1	B_1_2_2	B_1_3	B_1_4	B_1_5	B_1_6_1	B_1_6_10	B_1_6_11	B_1_6_12	B_1_6_2	B_1_6_3	B_1_6_4	B_1_6_5	B_1_6_6	B_1_6_7	B_1_6_8	B_1_6_9	B_1_6_90
1 Frequency	143	110	143	143	143	130	55	143	143	143	143	86	142	142	143	139	143	116	125	106	142	136	58	143	129	75	125	142	66	142	
2 Distinct values	120	71	104	118	110	104	29	99	43	41	20	47	105	104	113	83	92	42	19	15	33	20	10	102	87	50	24	75	14	61	
region code	108	58	94	83	100	63	124	78	95	77	78	132	139	98	90	50	15	1	100	23	77	85	15	82	70	72					
region code	87	58	63	72	88	57	118	78	95	77	78	119	132	91	78	32	15	1	100	30	59	33	17	82	68	72					
region code	110	58	82	100	89	64	116	78	95	77	78	135	140	74	89	31	15	1	100	23	76	34	32	82	72	72					
region code	100	58	75	65	96	54	114	78	95	77	78	105	116	89	88	88	15	1	100	23	96	92	4	82	67	72					
region code	78	58	56	64	79	27	123	78	95	77	78	112	126	88	82	71	15	1	100	22	51	86	2	82	23	72					
region code	64	58	66	51	71	43	113	78	95	77	78	111	125	92	48	25	15	1	100	29	42	89	10	82	64	72					
region code	99	58	84	82	78	66	125	78	95	77	78	115	128	86	62	63	15	1	100	23	67	66	12	82	71	72					
region code	85	58	61	101	122	60	117	78	95	77	78	118	131	78	60	61	15	1	100	23	56	39	19	82	73	72					
region code	134	58	72	80	111	62	115	78	95	77	78	117	130	111	62	65	15	1	100	23	56	47	11	82	50	72					
region code	122	92	129	109	130	121	143	141	77	54	98	53	136	98	118	95	139	40	86	96	66	122	96	61	142						
region code	121	91	111	138	131	129	48	131	23	1	77	11	2	23	11	136	143	1	118	95	31	125	48	143	25	74	122	1	61	8	
region code	80	68	48	66	73	86	103	129	93	77	68	103	114	116	103	99	1	94	99	58	35	44	79	93	36	137					
region code	46	21	34	39	23	35	36	88	25	2	77	82	47	51	40	13	46	31	49	42	48	7	38	61	50						
region code	50	24	43	41	29	28	42	88	25	2	70	75	49	85	52	13	46	31	49	42	29	3	38	51	38						
region code	44	46	33	38	21	13	38	88	25	2	85	93	55	86	55	13	46	31	49	42	13	6	38	36	25						
region code	42	25	29	28	18	19	19	88	25	2	82	87	60	58	44	13	46	31	49	42	12	9	38	36	24						
region code	39	19	39	37	34	32	53	88	25	2	87	95	83	46	35	13	46	31	49	42	30	22	38	52	39						
region code	36	43	38	40	42	24	62	88	25	2	72	77	51	39	29	13	46	31	49	42	26	14	38	47	35						
region code	43	55	41	52	49	35	65	88	25	2	90	100	80	40	30	13	46	31	49	42	43	17	38	57	45						
region code	60	53	51	55	51	59	68	88	25	2	97	106	108	96	64	13	46	31	49	42	52	20	38	63	69						
region code	56	44	47	53	52	55	66	88	25	2	96	105	94	77	49	13	46	31	49	42	54	22	38	66	71						
region code	57	44	42	54	58	39	69	88	25	2	100	109	90	54	39	13	46	31	49	42	53	16	38	65	70						
region code	34	12	37	20	28	29	40	88	25	2	75	80	57	42	33	13	46	31	49	42	21	15	38	45	33						

3. Check the SO coefficients against objective reference data

In case of apparently unjustifiable/improbable SO coefficients, the use of reference data (average/standard/regional SO values) against which the newly delivered values can be checked speeds up the process and increase its transparency.

Also the introduction of standardised checks using purchasing power parity (PPP) is a possible option, given that we could expect some impact of the prices level on the SO coefficients of different countries/regions.

Finally, agronomic literature or the data listed in Chapter 3 for the inventory of data sources for SO calculation can be also used for assessing the plausibility of apparently inexplicable values. In these cases it is likely that there is no specific project built to check the values, but the control is made through simple comparison of the data; the source of the information used for the comparison can be shared with the contact point during the validation process.

Evidently, using objective and transparent reference data implies requiring more evidence to the contact point (if needed, also the basic data used in the calculations), before agreeing on the confirmation of values which look implausible when checked against any other above mentioned reference value.

5. DETERMINING THE ECONOMIC SIZE OF AN AGRICULTURAL HOLDING

The economic size of a holding is equal to its total SO. Each hectare and head of livestock present on the holding is multiplied by the corresponding SO coefficient, the given result for each characteristic is the individual SO of the characteristic. The sum of the individual SO is the economic size of the holding.

Thus, the total economic size of the holding depends on its structure (number of hectares and animals) and on the SO coefficients applied in the region the holding belongs to. In other words, the economic size of a holding corresponds to the output a farmer can potentially expect from his/her land and livestock in a given region.

As a reminder, no value is attributed to common land in the calculation of the economic size and type of farming of the agricultural holdings.

As already stated before, there are special rules applying for certain characteristics:

- Only the surplus of calves (number of calves minus number of cows) present on the farm is valued. Therefore, the SO of calves bought for fattening will be counted in the size of the holding. The number of calves to be valued can be calculated as follows:
 - FSS: number of bovine animals less than one year old minus {number of dairy cows and other cows},
 - FADN: number of calves for fattening and other cattle under 12 months minus {number of dairy cows, cull dairy cows and other cows}.
- On farms with ewes, the other sheep are not valued. Similarly, on farms with she-goats, the other goats are not valued.
- Piglets are valued only on holdings without sows.
- Rabbits other than the breeding female are not valued (although the FADN has a specific heading for this animal category) as their value is already included in the SO of the breeding female.

Example of the calculation of the economic size of a holding			
Characteristic / product	Quantity	Regional SO coefficient	Individual SO
Wheat	20 ha	1 060 €/ha	21 200 €
Potatoes	10 ha	3 550 €/ha	35 500 €
Other cows	15 heads	430 €/ha	6 450 €
Calves	40 heads	600 €/ha	0 €
<i>Valued calves</i>	25 heads	600 €/ha	15 000 €
Sows	50 heads	700 €/head	35 000 €
Piglets	500 heads	80 €/head	0 €
Pigs for fattening	12 heads	200 €/head	2 400 €
Total economic size of the holding			115 550 €

6. DETERMINING THE TYPE OF FARMING OF AN AGRICULTURAL HOLDING

The type of farming of a holding is the production system of a holding which is characterised by the relative contribution of different enterprises to the holding's total SO.

The classification of agricultural holdings by type of farming is based on:

- (1) the definition of the five main groups of specialist agricultural holdings:
 - field crops (general cropping),
 - horticulture (vegetables and flowers),
 - permanent crops (vines and fruit trees),
 - grazing livestock (bovine animals for milk and for meat, sheep, goats),
 - granivores (pigs, poultry and also rabbits);
- (2) the acknowledgment of the importance of mixed holdings, which has two consequences:
 - the choice of a 2/3 threshold, in terms of share of an enterprise in the total SO of a farm, below which a holding is deemed not to be specialised;
 - the definition of three mixed groupings with various combinations:
 - a combination of crop products,
 - a combination of livestock products,
 - a combination of crop and livestock products.

The classification has three levels of types of farming:

- 8 general types
- 21 principal types
- 61 particular specialisation types

Each of the three levels includes a type for non-classified holdings.

The type of farming of an agricultural holding is determined by the importance of each enterprise in the total SO of the farm: i.e. by the share of certain predefined partial SO in the total SO of the farm. 16 partial SO are defined.

The poles P1 to P5 correspond to the five main groupings of specialist holdings, i.e. the five general types of farming:

- P1 specialist holdings with field crops,
P2 specialist horticultural holdings,
P3 specialist holdings with permanent crops,

P4 specialist grazing livestock holdings,

P5 specialist granivores holdings.

The poles P1 to P5 and the other regrouping codes are shown in annex IV of Commission Implementing Regulation (EU) 2015/220 – *please consult this annex to reg. 2015/220 to better understand the following explanations!*

In order to avoid any misleading classification of the farms, a code groups all the grazing livestock (GL) together. If there are grazing livestock on the farm (i.e. $GL > 0$) then the fodder SO is part of the livestock regrouping code (P4). On the contrary, if there are no grazing livestock on the farm (i.e. $GL = 0$) the fodder value is attributed to the field crops partial SO (P1). For practical reasons two partial SO have been created for fodder: FCP1 and FCP4; if $GL > 0$ then FCP1 is zero and FCP4 is part of P4; if $GL = 0$ then FCP1 is part of P1 and $FCP4 = 0$. For the same reason the partial SO for roots (P17) includes fodder roots (2.01.05.) only if there are no grazing livestock on the farm.

As a reminder, no value is attributed to common land in the calculation of the economic size and type of farming of the agricultural holdings.

To determine the type of farming of a given holding, the following have to be calculated:

- a) each *characteristic-level* SO corresponding to the characteristics recorded in the survey (hectares or number of heads of livestock multiplied by the corresponding regional SO coefficient);
- b) the *partial* SO for the characteristics regrouped (sum of the individual SO);
- c) the *total* SO of the farm (sum of the *partial* SO).

Finally, the type of farming can be determined on the basis of the algorithm described in annex IV of Commission Implementing Regulation (EU) 2015/220. The algorithm is a series of ordered tests; first the general type of farming is determined, followed by the principal and particular types of farming of an agricultural holding.

The first test determines whether the holding belongs to the 'specialist field crops' type of farming. The value of the partial SO P1 is compared with the value of the total SO of the holding analysed. If the test is true, the following tests will determine the principal and particular type of farming of the holding within the 'specialist field crops'. Otherwise the second test determines if the holding belongs to the 'specialist horticulture' type of farming and so on.

Example n°1

Is: $P1 > 2/3 * \text{total SO}$?

- ▶ YES: The general type of farming of the holding is '1. SPECIALIST FIELD CROPS'
 - ↪ Is: $(P15 + P16 + 2.01.02.) > 2/3 * \text{total SO?}$
- ▶ YES: The principal type of farming of the holding is '15. SPECIALIST COP'
 - ↪ Is: $(P151 + P16 + 2.01.02.) > 2/3 * \text{total SO?}$
 - ▶ NO
 - ↪ Is $(2.01.01.07.) > 2/3 * \text{total SO?}$
 - ▶ YES: The particular type of farming of the holding is '152. SPECIALIST RICE'

Example n°2

Is: P1 > 2/3 * total SO?

- ▶ NO

↪ **Is: P2 > 2/3 * total SO?**

- ▶ NO

↪ **Is: P3 > 2/3 * total SO?**

- ▶ YES: The general type of farming of the holding is '3. SPECIALIST PERMANENT CROPS'

↪ **Is: 2.04.04. > 2/3 * total SO?**

- ▶ YES: The principal type of farming of the holding is '35. SPECIALIST VINEYARDS'

↪ **Is: 2.04.04.01. > 2/3 * total SO?**

- ▶ NO

↪ **Is: 2.04.04.02. > 2/3 * total SO?**

- ▶ NO

↪ **Is: 2.04.04.03. > 2/3 * total SO?**

- ▶ YES: The particular type of farming of the holding is 'SPECIALIST TABLE GRAPES'

Any holding may thus be classified under one of the 8 general types of farming, one of the 21 principal types (the level most commonly used) and one of the 61 particular specialisation types. If the first level tests are all negative, the unclassified holding belongs to "9. Non-classified holdings". It can happen when there is no SO value on the holding, for example, if a farm has only kitchen garden or fallow land or land without economic use.

Calculation example

A. Determination of the economic size of the holding

FSS Code	Animals present on the farm and area per crop			SO Coefficient	Total SO
	Label	Unit	Number (a)	(b)	(a) * (b)
2.01.01.01	Common wheat and spelt	ha	75.13	951	71 444
2.01.01.04	Barley	ha	5.80	811	4 704
2.01.01.05	Oats	ha	5.10	666	3 397
2.01.06.04	Oilseed rape	ha	13.30	708	9 419
2.01.02.01	Peas, field beans and sweet lupins	ha	26.85	736	19 758
2.01.06.12	Medicinal and aromatic plants, condiment and spices	ha	0.01	1 921	19
2.01.04	Sugar beet	ha	23.20	2 388	55 398
2.01.05	Fodder roots and brassicas	ha	6.50	568	3 692
	Fallow land	ha	2.04	0	0

Total economic size of the holding (€) 167 831
Economic size class VIII

B. Determination of the type of farming of the holding

1- Calculation of the regrouping codes

GL=0	FCP1	2.01.05	3 692
	P17	2.01.04 + 2.01.05	59 090
	P1	2.01.01.01 + 2.01.01.04 + 2.01.01.05 + 2.01.06.04 + 2.01.02.01 + 2.01.06.12 + 2.01.04 + FCP1	167 831
	P15	2.01.01.01 + 2.01.01.04 + 2.01.01.05	79 546
	P16	2.01.06.04	9 419
	2.1.2	2.01.02.01	19 758
TOTAL SO			167 831

2- Comparison of the values of the regrouping codes

First test to be done: TOTAL SO > 0 Yes

The second test aims at determining the General type of farming. The values of P1, P2, P3, P4 and P5 are compared to 2/3 of the total SO of the holding

$$2/3 \text{ TOTAL SO} = 111 888$$

P1 > 2/3 Total ? Yes

General type of farming = 1 Specialist field crops

The final step is to determine the principal and particular types of farming

P15 + P16 + 2.01.02 > 2/3 Total? No

$$P15 + P16 + 2.01.02 = \begin{matrix} 108 \\ 722 \end{matrix}$$

P15 + P16 + 2.01.02 <= 2/3 Total? Yes

Principal type of farming = 16 General field crops

P17 > 2/3 Total ? No

P15 + P16 + 2.01.02 > 1/3 Yes

Total ?

And P17 > 1/3 Total ? Yes

$$1/3 \text{ Total SO} = 55 944$$

Particular type of farming = 162 COP and root crops combined

ANNEX 1

SO CALCULATION EXAMPLES

The following examples aim at illustrating the methodology to calculate the SO coefficients. They refer to the particular situation of the region concerned; therefore, in other countries or regions, the calculation may be different because the production systems are different or because the data available are more detailed or less detailed.

Please note that the content of this annex is taken from the previous version of the typology handbook. Thus, the codes of the characteristics/products refer to outdated coding of the FSS and FADN. However, the calculation examples remain valid because the methodology of calculation has not changed.

WHEAT

LITHUANIA

Crops

Year 2005

Eurostat Code 2.01.01.01. (D01) Common wheat
FADN Code 120

Standard Output in € **325**

1- Comments

SO covers both winter and summer wheat produced for milling, feed, seed, etc. The most reliable data was selected as a source for SO calculation. Areas of wheat were taken from FSS 2005, physical output was obtained from annual crop survey at Statistical Office, and average price from price statistics. In the case of wheat, a secondary product is straw. There is no reliable statistics on this product, therefore, some FADN farms were surveyed and estimates were done by experts. In 2005, the average yield of wheat straw was 40 q/ha. However, only one quarter of the straw was collected for sale or farm use, therefore appropriate coefficient was applied (0.25). Average price is estimated to 1 Euro per q.

2- Reference data

Data source code	Wheat categories	Area (1000 ha)	Quantity (1000 q)	Yield (q/ha)
1	Winter Wheat	298.3	11 487	38.51
1	Summer Wheat	71.2	2 307	32.40
Calculation	Wheat	369.5	13 794	37.33

3- Detailed calculation

Data source code	Designation		% used	Unit	Quantity	Price(€)	Value (€)
			a				
1	Principal Product	Wheat	100%	kg/ha	3733	0.0843	315
2	Secondary Product	Straw	25%	q/ha	40	1	10
	SO per year						325

4- Observations 1 harvest a year

5- Data Sources

Code	Quantity	Price	Area
1	Crop prod-Eurostat	Price Statistics	FSS 2005
2	Estimate	Estimate	

MARKET GARDENING

PORTUGAL

Horticulture

Year 2005

Eurostat Code 2.01.07.01.02. (D14b)
FADN Code 137

Market gardening

Standard Output in € **8 085**

1- Comments

The SO for market gardening is a weighted average of the SO for different categories of products. In a region, there may be different yields for the same product (therefore the type of lettuce 1 is differentiated from the lettuce 2). The detailed area by product is available at regional level. For some products the area available reflects the number of harvests, in these cases the area has to be divided by the number of harvests (in this example lettuce, carrots and cabbage lombardo). If the prices are known only per kg and the quantities per piece, the quantity per kg is estimated.

2- Weighting and detailed calculation

Category designation		Unit	Harvest / year	Quantity	Price (€)	Value	Area (ha)	Share (%)	Weighted SO (€)
			a	b	c	d = a*b*c	e	f = e/Total e	g = d*f
Main Product	Lettuce 1	kg	4	20 000	0.38	30 400	280	3.7%	1 122
Main Product	Lettuce 2	kg	4	18 000	0.6	43 200	9	0.1%	51
Main Product	French Garlic 1	kg	1	18 500	0.38	7 030	291	3.8%	270
Main Product	French Garlic 2	kg	1	12 000	0.35	4 200	8	0.1%	4
Main Product	Onion 1	kg	1	35 000	0.2	7 000	732	9.7%	677
Main Product	Onion 2	kg	1	40 000	0.35	14 000	64	0.8%	118
Main Product	Carrot 1	kg	2	40 000	0.18	14 400	516	6.8%	982
Main Product	Carrot 2	kg	1	24 000	0.21	5 040	142	1.9%	95
Main Product	Green Pea 1	kg	1	4 250	0.23	978	218	2.9%	28
Main Product	Green Pea 2	kg	1	5 000	1.53	7 650	9	0.1%	9
Main Product	Green Bean 1	kg	1	5 000	0.45	2 250	283	3.7%	84
Main Product	Green Bean 2	kg	1	4 900	0.72	3 528	10	0.1%	5
Main Product	Harricot 1	kg	1	8 500	0.75	6 375	384	5.1%	323
Main Product	Harricot 2	kg	1	12 000	0.82	9 840	34	0.4%	44
Main Product	Watermelon	kg	1	30 000	0.3	9 000	21	0.3%	25
Main Product	Melon 1	kg	1	25 000	0.22	5 500	144	1.9%	105
Main Product	Melon 2	kg	1	20 800	0.6	12 480	31	0.4%	51
Main Product	Strawberry 1	kg	1	22 000	0.8	17 600	129	1.7%	300
Main Product	Strawberry 2	kg	1	26 000	0.85	22 100	28	0.4%	82
Main Product	Tomato fresh 1	kg	1	50 000	0.35	17 500	332	4.4%	768
Main Product	Tomato fresh 2	kg	1	36 000	0.4	14 400	36	0.5%	68
Main Product	Tomato industry	kg	1	85 000	0.09	7 650	452	6.0%	457
Main Product	Cauli flower	kg	1	12 500	0.25	3 125	673	8.9%	278
Main Product	Cabbage repolho	kg	1	25 000	0.19	4 750	879	11.6%	552
Main Product	Cabbage lombardo	kg	2	28 500	0.2	11 400	573	7.6%	862
Main Product	Brassica Brocoli	kg	1	10 000	0.3	3 000	891	11.8%	353
Main Product	Brassica Napus	kg	1	20 000	0.35	7 000	402	5.3%	372
Total							7 570	100.0%	8 085

3- Data Sources

Quantity	Price	Areas
Ministry of Agriculture	Ministry of Agriculture	Ministry of Agriculture

FRESH FRUITS

PORTUGAL

Permanent Crops

Year 2005

Eurostat Code 2.04.01.01.01. (G01a)

Fruit of temperate climate zones

Standard Output in € **2 878**

FADN Code 349 + 350 + 352

1- Comments

There are different categories of apples and cherries with different yields, the SO for fruits is a weighted average of the SO for all these categories, plus pears, peaches and figues. Moreover the production may be irrigated or not. The quantity refers to the annual production in a year of harvest, the trees do not produce in the first years of cultivation. To take this into account, the annual production has to be corrected by a coefficient corresponding to the number of years of harvest divided by the number of years of cultivation. In this region, cherries and figues are always sold packed therefore the value reflects the price of the packed product.

2- Weighting and detailed calculation

Category designation		Unit	Number of years of harvest	Number of years of cultivation	Coefficient	Quantity	Price(€)	Value	Area (ha)	Share (%)	Weighted SO (€)	
			a	b	c = a/b	d	e	f = c*d*e	g	h = g/Total g	i = f*h	
Principal Product	cherry irr 1	kg	20	24	0.83	1 800	1.25	1 875	521	5%	103	
Principal Product	cherry irr 2	kg	20	24	0.83	2 000	1.5	2 500	695	7%	183	
Principal Product	cherry irr 3	kg	20	24	0.83	1 800	1.5	2 250	521	5%	124	
Principal Product	cherry irr 4	kg	20	24	0.83	2 000	1.5	2 500	382	4%	101	
Principal Product	figues	kg	25	27	0.93	1 800	0.5	833	413	4%	36	
Principal Product	apple irr 1	kg	20	23	0.87	18 000	0.2	3 130	266	3%	88	
Principal Product	apple irr 2	kg	20	23	0.87	15 500	0.2	2 696	445	5%	127	
Principal Product	apple irr 3	kg	20	23	0.87	15 000	0.2	2 609	280	3%	77	
Principal Product	apple irr 4	kg	20	23	0.87	16 500	0.23	3 300	2 345	25%	817	
Principal Product	apple irr 5	kg	20	23	0.87	16 000	0.23	3 200	1 227	13%	415	
Principal Product	apple irr 6	kg	20	23	0.87	20 000	0.36	6 261	100	1%	66	
Principal Product	apple irr 7	kg	20	23	0.87	20 000	0.32	5 565	136	1%	80	
Principal Product	apple irr 8	kg	20	23	0.87	15 000	0.2	2 609	770	8%	212	
Principal Product	apple irr 9	kg	20	23	0.87	18 000	0.2	3 130	189	2%	62	
Principal Product	apple irr 10	kg	20	23	0.87	15 000	0.2	2 609	136	1%	37	
Principal Product	apple irr 11	kg	20	23	0.87	21 000	0.39	7 122	30	0%	22	
Principal Product	apple irr 12	kg	20	23	0.87	22 500	0.27	5 283	41	0%	23	
Principal Product	pear irr	kg	20	23	0.87	8 500	0.32	2 365	384	4%	96	
Principal Product	peach	kg	20	24	0.83	5 000	0.8	3 333	594	6%	209	
									Total	9 476	100%	2 878

3- Observations Coefficient = a/b

a = number of years of harvest

b = number of years of cultivation (begin to end or abandonment)

irr = irrigated

4- Data Sources

Quantity	Price	Areas
Crops production survey	Price Statistics	Crops production survey

FORAGE

ENGLAND

Crops: Plants harvested green

Year 2005

1- Comments

As there is virtually no market activity for the plants harvested green the value of output is based on an equivalent value for hay. This data is taken from price statistics and an average value deducted for the cost of baling and carting hay using expert knowledge (15 £/t). Care needs to be taken not to overvalue the average price due to demand for horse feed. This value is then adjusted according to the feeding value for the other constituents of this standard output. This data is provided by expert advice. Yield should be based on dry matter (DM) to ensure consistency across the types of fodder. Temporary grass may be grazed or to produce hay or silage. Utilisation of grazed pasture is limited to 70%. In the FSS 2005 no information was available on the share of leguminous plants in the other forage.

2- Reference data

	Yield	Average DM content	Yield DM utilised	Nutritive value	Value per t of DM	
	fresh wett t/ha		t of DM/ha	MJ/kg DM	£/t	€/t
	a	b	c=a*b	d	e	f=e*1.4
Hay	8.0	90%	7.2	8.80	57.27	80.17

Value of other products derived from hay price

	Yield	Average DM content	% of use	Yield DM utilised	Nutritive value	Value per t of DM	
	fresh wett t/ha			t of DM/ha	MJ/kg DM	£/t	€/t
	a	b	g	c=a*b*g	h	i=(e-15)*h/d	f=i*1.4
Grazed Pasture	46.25	20%	70%	6.48	11.50	55.23	77.33
Grass silage	40.00	22%	100%	8.8	10.80	51.87	72.62
Green maize	40.00	21%	100%	8.4	10.80	51.87	72.62
Kale	45.00	14%	100%	6.3	11.00	52.83	73.97
Forage rape/turnips	35.00	14%	100%	4.9	9.50	45.63	63.88
Whole crop cereals	22.00	32%	100%	7.04	8.70	41.79	58.50

3- Detailed calculation

A Eurostat Code 2.01.09.01. (D18a) Temporary grass Standard Output in € 548
FADN Code 147

Designation		Use (%)	Unit	Quantity	Price (€/t)	Value (€)
		j		c	f	k=j*c*f
Principal Product	Grazed Pasture	65%	DM t/ha	6.48	77.33	325
Principal Product	Grass silage	33%	DM t/ha	8.80	72.62	211
Principal Product	Hay	2%	DM t/ha	7.20	80.17	12
SO per year					Sum	548

B Eurostat Code 2.01.09.02.01. (D18bi) Green Maize Standard Output in € 610
FADN Code 326

Designation		Use (%)	Unit	Quantity	Price (€/t)	Value (€)
		j		c	f	k=j*c*f
Principal Product	Green maize	100%	DM t/ha	8.4	72.62	610

C Eurostat Code 2.01.09.02.02. & .99. Other forage plants Standard Output in € 403
FADN Code 327 & 328

C-1- Comments

In the FSS 2005 no data is available enabling to split the leguminous plants from the rest of the other forage plants.

C-2- Detailed calculation

Designation		Use (%)	Unit	Quantity	Price (€/t)	Value (€)
		j		c	f	k=j*c*f
Principal Product	Kale	20%	DM t/ha	6.30	73.97	93
Principal Product	Forage rape/turnips	20%	DM t/ha	4.90	63.88	63
Principal Product	Whole crop cereals	60%	DM t/ha	7.04	58.50	247
SO per year					Sum	403

4- Data Sources

Quantity	Price	% Use
Expert knowledge; expressed as Dry Matter to ensure consistency across various fodder crops	Price Statistics for hay, price of other forage crops calculated on basis of feed value compared to hay after deduction of £15 for baling and making hay	Based on Expert knowledge related to the average use of 1ha

PERMANENT GRASSLAND

ENGLAND

Crops: Permanent grassland

Year 2005

1- Comments

As there is virtually no market activity for permanent grassland the value of output is based on an equivalent value for hay. This data is taken from price statistics and an average value is deducted for the cost of baling and carting hay (15 £/t) using expert knowledge. A value is then applied to permanent grass based on its relative feeding value compared to hay. The breakdown of permanent pasture for grazing, hay or silage is from expert advice. Utilisation of grazed grass is assumed to be 70% for permanent pasture and 60% for rough grazings. The same calculation is carried out for rough grazings which in this example is considered to have a feeding value equivalent to barley straw. These calculations must be based on the dry matter content of the feeding material.

2- Reference data

	Yield	Average DM content	Yield DM utilised	Nutritive value	0.00	
	fresh wett t/ha		t of DM/ha	MJ/kg DM	£/t	€/t
	a	b	c=a*b	d	e	f=e*1.4
Hay	8.0	90%	7.20	8.80	57.27	80.17

Value of other products derived from hay price

	Yield	Average DM content	% of use	Yield DM utilised	Nutritive value	0.00	
	fresh wett t/ha			t of DM/ha	MJ/kg DM	£/t	€/t
	a	b	g	c=a*b*g	h	i=(e-15)*h/d	f=i*1.4
Grazed Pasture	41.63	20%	70%	5.83	11.50	55.23	77.33
Grass silage	36.00	22%	100%	7.92	10.80	51.87	72.62
Rough grazing	4.33	30%	60%	0.78	7.30	35.06	49.09

3- Detailed calculation

A Eurostat Code 2.03.01. (F1) Pasture and meadows Standard Output in € 489
FADN Code 150

Data source code	Designation		Use (%)	Unit	Yield DM utilised	Price (€/t)	Value (€)
			j		c	f	k=j*c*f
1	Principal Product	Hay	1%	DM t/ha	7.20	80.17	6
2	Principal Product	Grazed Pasture	69%	DM t/ha	5.83	77.33	311
2	Principal Product	Grass silage	30%	DM t/ha	7.92	72.62	173
	SO per year					Sum	489

B Eurostat Code 2.03.02. (F2) Rough grazings Standard Output in € 38
FADN Code 151

Data source code	Designation		Unit	Yield DM utilised	Price (€/t)	Value (€)
				c	f	k=c*f
2	Principal Product	Rough grazings	DM kg/ha	0.78	49.09	38

4- Data Sources

Code	Quantity	Price
1	Expert knowledge, expressed as DM to allow for different types of forage	Price Statistics for Hay (meadow grass)
2	Expert knowledge, expressed as DM	Equivalent price for grass grazed in the field (price of hay minus £15) adjusted for dry matter and feeding value. Proportions of hay, silage and grazing can be derived from FADN

SUGAR BEET

GERMANY

Crops

Year 2005

Eurostat Code 2.01.04. (D11) Sugar beet

Standard Output in € **2 817**

FADN Code 131

1- Comments

The most reliable data were selected as a source for SO calculation. Areas of sugar beet were taken from FSS 2005, physical output was obtained from annual report of sugar refineries, and average price from price statistics report of sugar refineries. Average yield of sugar beet was 60.2 t/ha. In the case of sugar beet, a secondary product may be leaves but not in Germany.

2- Reference data

Data source code		Area (1000 ha)	Quantity (1000 t)	Yield (t/ha)
1	Sugar beet	420.1	25 285	60.19

3- Detailed calculation

Designation		% used	Unit	Quantity	Price (€)	Value (€)
		a		b	c	d=a*b*c
Principal Product	Sugar beet	100%	t/ha	60.2	46.8	2 817

4- Observations 1 harvest a year

5- Data Sources

Quantity	Price	Area
Sugar refineries	Sugar refineries	FSS 2005

PIGS FOR FATTENING

LITHUANIA

Livestock

year 2005

Eurostat Code 3.4.99.

Others Pigs

Standard Output in € **160**

FADN Code 45 & 46

1- Comments

According to the FSS 2005, there were 819 850 other pigs: 816 739 fattening pigs and 3111 boars. The boars represent 0.38% of all other pigs, therefore, SO of other pigs was limited to the SO of fattening pigs.

The basic calculation was done per animal. Fattening lasts approximately 175-180 days, therefore, the final result was multiplied by the rotation factor in order to give the SO per twelve months of production.

The average carcass weight was taken from Statistical Department. Value of piglets for replacement of pigs (or internal transfer) was taken from the FADN accounts.

2- Weighting per category of product

Categories	%
pigs for fattening	100
boars	0

3- Detailed calculation

Designation		Rotation factor	Unit	Quantity	Price(€)	Formula	Value (€)
		a		b	c		
Principal Product	carcass weight		kg	75.56	1.44	$d = b * c$	109
Replacement Value	piglet		head	1	29	$e = b * c$	29
SO per head			€/ head			$f = d - e$	80
SO per year		2	€/ year			$a * f$	160

4- Observations Rotation factor 2 fattening period: 175 - 180 days

5- Data Sources

Item	Quantity	Price	Value
Principal Product	Statistical office	Price Statistics	
Replacement Value			FADN

LAYING HENS

ENGLAND

Livestock

year 2005

Eurostat Code 3.5.02.

Laying hens

Standard Output in £/100 heads 759

FADN Code D48

Standard Output in €/100 heads 1 062

1- Comments

The laying hens characteristic covers a lot of different products: growing pullet, pullets above 18 weeks, layer breeders, broiler breeders and coqs and cockerels

2- Weighting per category of product

Categories		Heads (1000)		Partial SO in £ per head	Weighted SO in £ per head
		number	Share (%)		
		w	x = w/Total w	y	z = x*y
(i)	growing pullets	1 944	28%	4.40	1.22
(ii)	and hens in lay	3 837	55%	7.48	4.10
(iii)	layer breeders	283	4%	13.41	0.54
	adult hens	201	3%	18.46	
	pullets	82	1%	1.04	
(iv)	broiler breeders	929	13%	12.91	1.72
	adult hens	400	6%	20.16	
	pullets	530	8%	7.45	
(v)	cocks and cockerels	148	0%	0	
Total (without (cocks and cockerels))		6 993	100%		7.59

3- Detailed calculation

(i) growing pullets

(i)-1- Comments

The value of pullets reared for commercial laying, should be consistent with the value of the incoming pullet used for the standard output for hens laying eggs for eating as described at paragraph (ii). There are assumed to be 2.50 batches per year which is broadly consistent with an eighteen week growth period to point of lay and a 2 week interval between batches.

(i)-2- Detailed calculation

	Designation	Birds / year	Unit	Quantity	Price (£)	Formula	Value (£)
		a		b	c		
Principal Product	Gross output		head	1	2.28	d = b*c	2.28
Replacement Value	Chick price		head	1	0.5		
	Chick mortality rate		%	4%			
SO per head	Total Chick		head	1.04	0.5	e = b*c	0.52
SO per year		2.5	head			f = d-e	1.76
						a*f	4.40

(i)-3- Observations Number of birds / year 2.5 18 weeks growth period and 2 week interval between batches
Chick mortality rate 4%

(i)-4- Data Sources

Code	Quantity	Price	Other
d		Farm Business Survey (FBS)	
e		Expert advice / FBS	
a&b			Expert advice

LAYING HENS

(ii) pullets > 18 weeks and hens in lay

(ii)-1- Comments

The value of eggs is taken from price statistics and the output is adjusted to reflect a 12 month period by multiplying the total eggs produced over the lifetime of the bird by 0.89 (52 weeks divided by the average production cycle of 58.33).

The standard output data are based on the results from the 2004/5 Farm Business Survey (FADN). The average cost of the incoming point of lay pullets is identical to the outgoing value of the point of lay pullets in the standard output described at paragraph (i).

(ii)-2- Detailed calculation

	Designation	Coefficient for 12 months period	Unit	Quantity	Price (£)	Formula	Value (£)
		a		b	c		
Secondary product	Cull animal		head	1	0.02	$d = b * c$	0.02
Principal Product	Eggs		eggs/head	308	0.035	$e = b * c$	10.78
Replacement Value	Growing pullet		head	1	2.28		
	Growing Pullet mortality rate		%	5%			
	Total Growing Pullet		head	1.05	2.28	$f = b * c$	2.39
SO per head			head			$g = d + e - f$	8.41
SO per year		0.89				$a * g$	7.48

(ii)-3- Observations

Production cycle	58.33 weeks
Coefficient to cover 12 months	0.89 (52 weeks / 58,33 weeks)
Growing Pullet mortality rate	5%

(ii)-4- Data Sources

Code	Quantity	Price	Other
d&f		FBS	
e	FBS	Price statistics	
a&b			Expert advice

(iii) layer breeders

(iii)-1- Comments

The FSS item that this standard output is applied to includes pullets reared as replacements for layer breeders. A separate standard output has to be calculated for these pullets and a weighted total output calculated for these birds. For breeding hens laying eggs to hatch layer chicks, egg yield and price data have been provided by expert advice.

(iii)-2- Detailed calculation

a- adults

	Designation	Coefficient for 12 months period	Unit	Quantity	Price (£)	Formula	Value (£)
		a		b	c		
Secondary product	Cull animal		head	1	0.02	$d = b * c$	0.02
Principal Product	Fertile Eggs		eggs/head	235	0.15	$e = b * c$	35.25
Replacement Value	Growing pullet 21 weeks		head	1	8.43		
	Growing Pullet mortality rate		%	10%			
	Total Growing Pullet		head	1.10	8.43	$f = b * c$	9.27
SO per head			head			$g = d + e - f$	26.00
SO per year		0.71				$a * g$	18.46

b. pullets

	Designation	Birds / year	Unit	Quantity	Price (£)	Formula	Value (£)
		a		b	c		
Principal Product	Pullet		head	1	8.43	$h = b * c$	8.43
Replacement Value	Chick price		head	1	7.21		
	Chick mortality rate		%	10%			
	Total Chick			1.10	7.21	$i = b * c$	7.93
SO per head						$j = h - i$	0.50
SO per year		2.08				$a * j$	1.04

(iii)-3- Observations

Production cycle	73 weeks
Coefficient to cover 12 months	0.71 (Rounded 52 weeks / 73 weeks)
Growing Pullet mortality rate	10%
Number of birds / year	2.08 23 weeks growth period and 2 week interval between batches

(iii)-4- Data Sources

Code	Quantity	Price	Other
d		FBS	
e		Expert advice / FBS	
f&h		Expert advice	
b			Expert advice
i		Expert advice	

LAYING HENS

(iv) broiler breeders

(iv)-1- Comments

As for layer breeders this standard output is applied to replacement pullets as well as breeding adult hens. All of the output data are provided by expert advice. Implied total chick production should be checked on a national basis with the total broiler chick requirement which is available from Defra price statistics.

(iv)-2- Detailed calculation

a- adults

	Designation	Coefficient for 12 months period	Unit	Quantity	Price (£)	Formula	Value (£)
		a		b	c		
Secondary product	Cull animal		head	1	0.02	$d = b * c$	0.02
Principal Product	Fertile eggs		eggs/head	148	0.16	$e = b * c$	23.68
Replacement Value	Growing pullet 25 weeks		head	1	6.24		
	Growing Pullet Mortality rate		%	6%			
	Total Growing Pullet		head	1.06	6.24	$f = b * c$	6.61
SO per head			head			$g = d + e - f$	17.09
SO per year		1.18				$a * g$	20.16

b- pullets

	Designation	Birds / year	Unit	Quantity	Price (£)	Formula	Value (£)
		a		b	c		
Principal Product	Pullet 25 weeks		head	1	6.24	$h = b * c$	6.24
Replacement Value	Chick		head	1	2.19		
	Chick mortality rate		%	6%			
	Total Chick		head	1.06	2.19	$i = b * c$	2.32
SO per head			head			$j = h - i$	3.92
SO per year		1.90				$a * j$	7.45

(iv)-3- Observations	Production cycle	44 weeks
	Coefficient to cover 12 months	1.18 (Rounded 52 weeks / 44 weeks)
	Growing Pullet Mortality rate	6%
	Number of birds / year	1.93 25 weeks growth period and 2 week interval between batches

(iv)-4- Data Sources

Code	Quantity	Price	Other
d		FBS	
e	Expert advice	Expert advice	
f&h		Expert advice	
b			Expert advice
i		Expert advice	

(v) Cocks and cockerels of all ages kept for breeding

(v)-1- Comments

These are given a standard output of zero because their output (ie their progeny) are incorporated into the standard output for hens which lay eggs to hatch chicks.

BOVINE ANIMALS

SWEDEN

Livestock

year

2 005

Eurostat Code
FADN Code

3.02. (J2-J8)
D23-D32

Bovine animals

1- Comments

As a first step of the calculation, a table splitting the bovine animals by category (age, gender, orientation) is necessary. In the region studied, the number of young calves exchanged between farmers is very limited, therefore it is supposed that no calves are kept without their mothers and no calculation for the calves under one year is presented in this example. The value of these calves is entirely integrated in the cows value.

2- Summary and weighting per category of bovine animal

Old FSS code	Category of animal	Number of heads in		SO SEK/head	
		Heads	%	SEK/head	€/head
J7	Dairy cow	393 200	100%	23 111	2 490
J8	Suckler cow	176 700	100%	5 045	543
J6	Heifers >= 2 years	96 000	100%	3 617	390
	Dairy sector	65 540	68%	3 841	414
	Meat sector	30 460	32%	3 135	338
J5	Males >= 2 years	27 100	100%	4 752	512
	Dairy sector	27 100	100%	4 752	512
	Meat sector	-	0%		
J4	Female 1-2 years	233 200	100%	3 637	392
	Dairy sector	157 150	67%	3 938	424
	Meat sector	76 050	33%	3 014	325
J3	Males 1-2 years	170 300	100%	8 293	893
	Dairy sector	129 400	76%	7 923	854
	Meat sector	40 900	24%	9 462	1 019

Source: for the number of heads, the central database for cattle, FSS 2005 and experts opinion

3- DAIRY COWS

Eurostat Code	3.02.06. (J7)	Dairy cows	Standard Output in SEK	23 111
FADN Code	D30 + D31			

3-1- Comments

The output for cows covers the output obtained from milk, from meat and from the calf under one year. To calculate the calf value, the different types of final use of the calves are listed and weighted. In this region it can be considered that all the calves are kept for breeding or to be fattened on the farm where they are born. The milk yield is calculated based on the number of cows present on the farm and not the number of milked cows because the SO is to be applied to FSS and FADN where the number of present cows is recorded. The replacement value of the incalced heifer is based on expert opinion. As the SO value should cover a 12 Months period, the replacement value and the meat value are multiplied by the replacement rate which is equivalent to a division by the number of milking years.

3-2- Detailed calculation

Calves < 1 year dairy sector - not sold as new-born but kept on the farm with the dairy cows

Final use of calves	Number of calves per year	Length of production cycle in years	Unit	Price (SEK)	Weight (% final use)	Formula	Weighted value (SEK)
	a	b		c	d		
Heifers for breeding		2.3	head	9 000	40%	c/b*d	1 565
Females for fattening <1 year	1.9		head	1 600	3.5%	a*c*d	106
Female for fattening 1-2 years		1.5	head	4 200	3.5%	c/b*d	98
Heifers for fattening		2.2	head	4 600	3.0%	c/b*d	64
Male for fattening <1 year	2		head	4 500	3.0%	a*c*d	270
Male for fattening 1-2 years		1.2	head	6 160	39%	c/b*d	2 059
Male for fattening >2 years		2.1	head	6 300	8%	c/b*d	242
Total weighted value			head		100%	Sum	4 404

Dairy cow

Designation	Mortality rate	Replacement rate	Number of calves/ year	Unit	Quantity	Price (SEK)	Formula	Value (SEK)
	a	b	c		d	e		
Principal product				kg	8 050	2.7	f=d*e	21 735
Secondary product	6.0%		0.8	head	1	4 404	g=(1-a)*c*d*e	3 312
Secondary product		0.4		kg	260	16	h=b*d*e	1 664
Replacement value		0.4		head	1	9 000	i=b*d*e	3 600
SO per year				head			j=f+g+h-i	23 111

3-4- Observations

Milk yield = (Collected milk+ milk quota for direct sales) / Number of dairy cows

3-5- Data Sources

- h Price statistics, slaughter statistics
- i Market values expert opinions combined with the central database for cattle
- f Milk production statistics and structural statistics
- g Price statistics, statistics about animal health based on the central database for cattle

BOVINE ANIMALS

4- SUCKLER COWS

Eurostat Code	3.02.99. (J8)	Other cows	Standard Output in SEK	5 045
FADN Code	D32			

4-1- Comments

The same reasoning is applied as for the dairy cows. In the region studied there are only very few bulls more than 2 year old with a meat breed therefore they are not taken into account for the calculation of the calf value.

4-2- Detailed calculation

Calves < 1 year meat sector - not sold as new-born but kept on the farm with the cows

Final use of calves	Number of calves per year	Length of production cycle in years	Unit	Price (SEK)	Weight (% final use)	Formula	Weighted value (SEK)
	a	b		c	d		
Heifers for breeding		2.2	head	7 000	20%	$c/b*d$	646
Females for fattening <1 year	2		head	4 500	15%	$a*c*d$	1 350
Female for fattening 1-2 years		1.7	head	5 000	10%	$c/b*d$	294
Heifers for fattening		2.2	head	5 200	5%	$c/b*d$	120
Male for fattening <1 year	1.5		head	6 000	30%	$a*c*d$	2 700
Male for fattening 1-2 years		1.2	head	8 160	20%	$c/b*d$	1 399
Total weighted value					100%	Sum	6 509

Other cow

Designation	Mortality rate	Replacement rate	Number of calves/ year	Unit	Quantity	Price (SEK)	Formula	Value (SEK)
	a	b	c		d	e		
Principal product	Calf less than 1 year	6.0%	0.9	head	1	6 509	$g=(1-a)*c*d*e$	5 507
Secondary product	Meat			head	1	4 690	$h=b*d*e$	938
Replacement value	Incalved heifer			head	1	7 000	$i=b*d*e$	1 400
SO per year				head			$j=g+h-i$	5 045

4-4- Data Sources

h	Price statistics, slaughter statistics
i	Market values expert opinions combined with the central database for cattle
g	Price statistics, statistics about animal health based on the central database for cattle

5- HEIFERS TWO YEARS OLD AND OVER

Eurostat Code	3.02.05. (J6)	Heifers	Standard Output in SEK	3 617
FADN Code	D28 & D29			

5-1- Comments

Under the same characteristic are grouped heifers for fattening and for breeding from the milk and the meat sectors. A heifer for fattening in the milk sector is a heifer which failed calving, therefore there are only few of them and their value is small. In the meat sector the value of the female entering the category (i.e. at the age of two) is higher for a heifer for breeding than for a heifer for fattening because of the calf value.

5-2- Detailed calculation

Designation	Weight	Mortality rate	Number of heifers produced per year	Unit	Quantity	Price (SEK)	Formula	Value (SEK)
	a	b	c		d	e		
Heifers // meat sector	32%							
Heifers for fattening	30%		6					
Principal product	Meat			head	1	5 200	$f=d*e$	5 200
Replacement value	Female value at 2 year			head	1	5 000	$g=d*e$	5 000
SO per year		5%		head	1		$m1=c*(f-g)*(1-b)$	1 140
Heifers for breeding	70%		6					
Principal product	Incalved heifer			head	1	7 000	$i=d*e$	7 000
Replacement value	Female value at 2 year			head	1	6 300	$j=d*e$	6 300
SO per year		5%		head			$m2=c*(i-j)*(1-b)$	3 990
Weighted SO per year							$m=a*m1+a*m2$	3 135
Heifers // dairy sector	68%							
Heifers for fattening	10%		6					
Principal product	Meat			head	1	4 600	$f=d*e*(1-b)$	4 600
Replacement value	Female value at 2 year			head	1	7 000	$g=d*e*(1+b)$	7 000
SO per year		3%		head	1		$d1=c*(f-g)*(1-b)$	-13 968
Heifers for breeding	90%		3					
Principal product	Incalved heifer			head	1	9 000	$i=d*e*(1-b)$	9 000
Replacement value	Female value at 2 year			head	1	7 000	$j=d*e$	7 000
SO per year		3%					$d2=c*(i-j)*(1-b)$	5 820
Weighted SO per year							$d=a*d1+a*d2$	3 841
Heifers weighted SO per year							$m*a+d*a$	3 617

5-3- Observations

m1 & d1	Sold at about 26 months therefore the value is multiplied by 6 to cover a 12 Months period
m2	First calving at about 26 months therefore 6 heifers > 2 years are leaving the category per year
d2	First calving at about 28 months therefore 3 heifers > 2 years are leaving the category per year

5-4- Data Sources

f&i	Price statistics (Agriwise)
g&j	Females are seldom sold at the age of 2, the price is estimated

BOVINE ANIMALS

6- FEMALE ONE BUT LESS THAN TWO YEAR OLD

Eurostat Code	3.02.03. (J4)	Female 1-2 years	Standard Output in SEK	3 637
FADN Code	D26			

6-1- Comments

Under the same characteristic are grouped females for fattening and for breeding from the milk and the meat sectors.

6-2- Detailed calculation

Designation		Weight	Mortality rate	Number of females produced per year	Unit	Quantity	Price (SEK)	Formula	Value (SEK)
		a	b	c		d	e		
Female 1-2 years // meat sector		33%							
Slaughtered		30%		4					
Principal product	Meat				head	1	5 000	$f=d*e$	5 000
Replacement value	Female value at 1 year				head	1	3 700	$g=d*e$	3 700
SO per year			3%		head	1		$m1=c*(f-g)*(1-b)$	5 044
Kept for breeding		70%		1				$m2$	
Principal product	Female value at 2 year				head	1	5 910	$i=d*e$	5 910
Replacement value	Female value at 1 year				head	1	3 700	$j=d*e$	3 700
SO per year			3%					$m2=c*(i-j)*(1-b)$	2 144
Weighted SO per year								$m=a*m1+a*m2$	3 014
Female 1-2 years // dairy sector		67%							
Slaughtered		10%		2					
Principal product	Meat				head	1	4 200	$f=d*e*(1-b)$	4 200
Replacement value	Female value at 1 year				head	1	2 800	$g=d*e*(1+b)$	2 800
SO per year			3%		head	1		$d1=c*(f-g)*(1-b)$	2 716
Kept for breeding		90%		1				$d2$	
Principal product	Female value at 2 year				head	1	7 000	$i=d*e*(1-b)$	7 000
Replacement value	Female value at 1 year				head	1	2 800	$j=d*e$	2 800
SO per year			3%					$d2=c*(i-j)*(1-b)$	4 074
Weighted SO per year								$d=a*d1+a*d2$	3 938
Female 1-2 years weighted SO per year								$m*a+d*a$	3 637

6-3- Observations

m1 Slaughtered at about 15 months therefore the value is multiplied by 4 to cover a 12 Months period
d1 Slaughtered at about 18 months therefore the value is multiplied by 2 to cover a 12 Months period

6-4- Data Sources

f&i Price statistics (Agriwise)
g&j Females are seldom sold at the age of 1, the price is estimated

7- MALES TWO YEARS OLD AND OVER

Eurostat Code	3.02.04. (J5)	Males > 2 years	Standard Output in SEK	4 752
FADN Code	D27			

7-1- Comments

This category covers only dairy animals

7-2- Detailed calculation

Designation		Weight	Mortality rate	Number of males produced per year	Unit	Quantity	Price (SEK)	Formula	Value (SEK)
		a	b	c		d	e		
Slaughtered		100%		6					
Principal product	Meat				head	1	6 300	$f = d*e*(1-b)$	6 300
Replacement value	Male value at 2 year				head	1	5 500	$g = d*e*(1+b)$	5 500
SO per year			1%		head	1		$d1 = c*(f-g)*(1-b)$	4 752

7-3- Observations

d1 Slaughtered at about 26 months

7-4- Data Sources

f Price statistics (Agriwise)
g Estimation

BOVINE ANIMALS

8- MALE ONE BUT LESS THAN TWO YEAR OLD

Eurostat Code	3.02.02. (J3)	Male 1-2 years	Standard Output in SEK	8 293
FADN Code	D25			

8-1- Comments

Under the same characteristic are grouped males for fattening and for breeding from the milk and the meat sectors. In the meat sector the bulls over two years old are seldom therefore their value is not estimated and it is considered that all the males are slaughtered before the age of two.

8-2- Detailed calculation

Designation		Weight	Mortality rate	Number of males produced per year	Unit	Quantity	Price (SEK)	Formula	Value (SEK)
		a	b	c		d	e		
Male 1-2 years // meat sector		24%							
Slaughtered		100%		6					
Principal product	Meat				head	1	8 160	$f=d*e*(1-b)$	8 160
Replacement value	Male value at 1 year				head	1	6 500	$g=d*e*(1+b)$	6 500
SO per year			5%		head	1		$m=c*(f-g)*(1-b)$	9 462
Male 1-2 years // milk sector		76%							
Slaughtered		80%		6					
Principal product	Meat				head	1	6 160	$f=d*e*(1-b)$	6 160
Replacement value	Male value at 1 year				head	1	4 500	$g=d*e*(1+b)$	4 500
SO per year			3%		head	1		$d1=c*(f-g)*(1-b)$	9 661
Kept for breeding		20%		1				d2	
Principal product	Male value at 2 year				head	1	5 500	$i=d*e*(1-b)$	5 500
Replacement value	Male value at 1 year				head	1	4 500	$j=d*e$	4 500
SO per year			3%					$d2=c*(i-j)*(1-b)$	970
Weighted SO per year								$d=a*d1+a*d2$	7 923
Male 1-2 years weighted SO per year								$m*a+d*a$	8 293

8-3- Observations

m1 & d1

Slaughtered at about 14 months therefore the value is multiplied by 6 to cover a 12 Months period

8-4- Data Sources

f&i

Price statistics (Agrivise)

g&j

Males are seldom sold at the age of 1, the price is estimated

Annex 2a: Template for the transmission of Standard Output (SO) coefficients and the data referred to in part 3 of Annex VI of Commission Implementing Regulation No 2015/220¹⁷

1	2	3	4	5	6	7	8	9	10	11	12	13	14
				Direct Observation Method								Updating Method	
Code of the product (1)	Description of the product (1)	UNIT (1)	Code of the region (2)	Main Product / Annual growth or slaughter value Quantity (3)	Main Product / Annual growth or slaughter value Price /unit (3)	Main Product / Annual growth or slaughter value	Secondary products value	Other Main product Quantity (3) (5)	Other Main product Price /unit (3) (5)	Other Main product Value (5)	Replacement value (4) and (5)	SO for the reference period used as a base	Coefficient of change applied

15	16	17	18
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Exchange rate	Standard Output National Currency	Standard Output EURO	Comments
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- (1) The list of valid product codes is presented in annex: "List of SO characteristics"
- (2) The list of valid SO regional codes is presented in annex: "List of SO regions"
- (3) Optional
- (4) Not to be provided if the calculation is based on the annual growth in weight
- (5) Only for animal products

¹⁷ The template in transmission format may be found on CIRCABC.

Annex 2b: List of SO 2013 characteristics

Code	Description	Unit
B_1_1_1	Common wheat and spelt	EUR_per_ha
B_1_1_2	Durum wheat	EUR_per_ha
B_1_1_3	Rye	EUR_per_ha
B_1_1_4	Barley	EUR_per_ha
B_1_1_5	Oats	EUR_per_ha
B_1_1_6	Grain maize	EUR_per_ha
B_1_1_7	Rice	EUR_per_ha
B_1_1_99	Other cereals for the production of grain	EUR_per_ha
B_1_2	Dried pulses and protein crops for the production of grain (including seed and mixtures of cereals and pulses)	EUR_per_ha
B_1_2_1	of which peas, field beans and sweet lupines	EUR_per_ha
B_1_2_2	<i>Pulses other than peas, field beans and sweet lupines</i> ¹⁸	EUR_per_ha
B_1_3	Potatoes (including early potatoes and seed potatoes)	EUR_per_ha
B_1_4	Sugar beet (excluding seeds)	EUR_per_ha
B_1_5	Fodder roots and brassicas (excluding seeds)	EUR_per_ha
B_1_6_1	Tobacco	EUR_per_ha
B_1_6_2	Hops	EUR_per_ha
B_1_6_3	Cotton	EUR_per_ha
B_1_6_4	Rape and turnip	EUR_per_ha
B_1_6_5	Sunflower	EUR_per_ha
B_1_6_6	Soya	EUR_per_ha
B_1_6_7	Linseed (oil flax)	EUR_per_ha
B_1_6_8	Other oil seed crops	EUR_per_ha
B_1_6_9	Flax	EUR_per_ha
B_1_6_10	Hemp	EUR_per_ha
B_1_6_11	Other fibre crops	EUR_per_ha
B_1_6_12	Aromatic, medicinal and culinary plants	EUR_per_ha
B_1_6_99	Other industrial plants not mentioned elsewhere	EUR_per_ha
B_1_7	Fresh vegetables, melons, strawberries of which:	EUR_per_ha
B_1_7_1	Outdoor or under low (not accessible) protective cover	EUR_per_ha
B_1_7_1_1	Open field	EUR_per_ha
B_1_7_1_2	Market gardening	EUR_per_ha
B_1_7_2	Under glass or other (accessible) protective cover	EUR_per_ha
B_1_8_1	Outdoor or under low (not accessible) protective cover	EUR_per_ha
B_1_8_2	Under glass or other (accessible) protective cover	EUR_per_ha
B_1_9	Plants harvested green	EUR_per_ha
B_1_9_1	Temporary grass	EUR_per_ha
B_1_9_2	Other plants harvested green	EUR_per_ha
B_1_9_2_1	Green maize	EUR_per_ha
B_1_9_2_2	Leguminous plants	EUR_per_ha
B_1_9_2_99	Other plants harvested green not mentioned elsewhere	EUR_per_ha
B_1_10	Arable land seeds and seedlings	EUR_per_ha
B_1_11	Other arable land crops	EUR_per_ha
B_3	Permanent grassland	EUR_per_ha
B_3_1	Pasture and meadow, excluding rough grazings	EUR_per_ha
B_3_2	Rough grazings	EUR_per_ha
B_4_1	Fruit and berry plantations	EUR_per_ha

¹⁸ As explained in paragraph 4.3, this characteristic is not included in the regulation but it was added to this list to complete the entire breakdown of the dried pulses.

Code	Description	Unit
B_4_1_1	Fruit species, of which:	EUR_per_ha
B_4_1_1_1	Fruit of temperate climate zones	EUR_per_ha
B_4_1_1_2	Fruit of subtropical climate zones	EUR_per_ha
B_4_1_2	Berry species	EUR_per_ha
B_4_1_3	Nuts	EUR_per_ha
B_4_2	Citrus plantations	EUR_per_ha
B_4_3	Olive plantations	EUR_per_ha
B_4_3_1	Normally producing table olives	EUR_per_ha
B_4_3_2	Normally producing olives for oil production	EUR_per_ha
B_4_4	Vineyards, of which normally producing:	EUR_per_ha
B_4_4_1	Quality wine	EUR_per_ha
B_4_4_2	Other wines	EUR_per_ha
B_4_4_3	Table grapes	EUR_per_ha
B_4_4_4	Raisins	EUR_per_ha
B_4_5	Nurseries	EUR_per_ha
B_4_6	Other permanent crops	EUR_per_ha
B_4_7	Permanent crops under glass	EUR_per_ha
B_6_1	Mushrooms	EUR_per_100_m2
C_1	Equidae	EUR_per_head
C_2_1	Bovine animals under one year old, male and female	EUR_per_head
C_2_2	Bovine animals, one but less than two years old, male	EUR_per_head
C_2_3	Bovine animals, one but less than two years old, female	EUR_per_head
C_2_4	Male bovine animals, two years old and over	EUR_per_head
C_2_5	Heifers, two years old and over	EUR_per_head
C_2_6	Dairy cows	EUR_per_head
C_2_99	Other cows	EUR_per_head
C_3_1	Sheep (all ages)	EUR_per_head
C_3_1_1	Breeding females	EUR_per_head
C_3_1_99	Other sheep	EUR_per_head
C_3_2	Goats (all ages)	EUR_per_head
C_3_2_1	Breeding females	EUR_per_head
C_3_2_99	Other goats	EUR_per_head
C_4_1	Piglets having a live weight of under 20 kilograms	EUR_per_head
C_4_2	Breeding sows weighing 50 kilograms and over	EUR_per_head
C_4_99	Other pigs	EUR_per_head
C_5_1	Broilers	EUR_per_100_hds
C_5_2	Laying hens	EUR_per_100_hds
C_5_3	Other poultry	EUR_per_100_hds
C_5_3_1	Turkeys	EUR_per_100_hds
C_5_3_2	Ducks	EUR_per_100_hds
C_5_3_3	Geese	EUR_per_100_hds
C_5_3_4	Ostriches	EUR_per_100_hds
C_5_3_99	Other poultry, not mentioned elsewhere	EUR_per_100_hds
C_6	Rabbits, breeding females	EUR_per_head
C_7	Bees	EUR_per_hive

Annex 2c: List of SO regions

The following list of SO regions refers to the SO 2010 dataset. Differences may exist with SO regions used for previous SO datasets. Any changes in the SO regions for the SO 2013 dataset shall be communicated to the Commission services prior to the delivery of the SO coefficients.

Country	Region code	Label
BE	BE1	Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest
	BE2	Vlaams Gewest
	BE3	Région Wallonne
BG	BG	Bulgaria
CZ	CZ	Česká republika
DK	DK011	Byen København
	DK012	Københavns omegn
	DK013	Nordsjaelland
	DK014	Bornholm
	DK022	Vest- og Sydsjaelland
	DK031	Fyn
	DK032	Sydjylland
	DK041	Vestjylland
	DK042	Østjylland
	DK050	Nordjylland
DE	DE11	Stuttgart
	DE12	Karlsruhe
	DE13	Freiburg
	DE14	Tübingen
	DE21	Oberbayern
	DE22	Niederbayern
	DE23	Oberpfalz
	DE24	Oberfranken
	DE25	Mittelfranken
	DE26	Unterfranken
	DE27	Schwaben
	DE30	Berlin
	DE40	Brandenburg
	DE50	Bremen
	DE60	Hamburg
DE71	Darmstadt	
DE72	Gießen	
DE73	Kassel	
DE80	Mecklenburg-Vorpommern	
DE91	Braunschweig	
DE92	Hannover	

Country	Region code	Label
	DE93	Lüneburg
	DE94	Weser-Ems
	DEA1	Düsseldorf
	DEA2	Köln
	DEA3	Münster
	DEA4	Detmold
	DEA5	Arnsberg
	DEB1	Koblenz
	DEB2	Trier
	DEB3	Rheinhessen-Pfalz
	DEC0	Saarland
	DED2	Dresden
	DED4	Chemnitz
	DED5	Leipzig
	DEE0	Sachsen-Anhalt
DEF0	Schleswig-Holstein	
DEG0	Thüringen	
EE	EE	Eesti
IE	IE01	Border, Midland and Western
	IE02	Southern and Eastern
EL	EL301	Βόρειος Τομέας Αθηνών (Voreios Tomeas Athinon)
	EL302	Δυτικός Τομέας Αθηνών (Dytikos Tomeas Athinon)
	EL303	Κεντρικός Τομέας Αθηνών (Kentrikos Tomeas A)
	EL304	Νότιος Τομέας Αθηνών (Notios Tomeas Athinon)
	EL305	Ανατολική Αττική (Anatoliki Attiki)
	EL306	Δυτική Αττική (Dytiki Attiki)
	EL307	Πειραιάς, Νήσοι (Peiraias, Niso)
	EL411	Λέσβος, Λήμνος (Lesvos, Limnos)
	EL412	Ίκαρία, Σάμος (Ikaria, Samos)
	EL413	Χίος (Chios)
	EL421	Kalymnos, Karpathos, Kos, Rodos
	EL422	Andros, Thira, Kea, Milos, Mykonos, Naxos, Paros, Syros, Tinos
	EL431	Ηράκλειο (Irakleio)

Country	Region code	Label
	EL432	Λασιίθι (Lasithi)
	EL433	Ρεθύμνη (Rethymni)
	EL434	Χανιά (Chania)
	EL511	Έβρος (Evros)
	EL512	Ξάνθη (Xanthi)
	EL513	Ροδόπη (Rodopi)
	EL514	Δράμα (Drama)
	EL515	Θάσος, Καβάλα (Thasos, Kavala)
	EL526	Σέρρες (Serres)
	EL527	Χαλκιδική (Chalkidiki)
	EL531	Γρεβενά, Κοζάνη (Grevena, Kozani)
	EL532	Καστοριά (Kastoria)
	EL533	Φλώρινα (Florina)
	EL541	Άρτα, Πρέβεζα (Arta, Preveza)
	EL542	Θεσπρωτία (Thesprotia)
	EL543	Ιωάννινα (Ioannina)
	EL611	Καρδίτσα, Τρίκαλα (Karditsa, Trikala)
	EL612	Λάρισα (Larisa)
	EL613	Μαγνησία (Magnisia)
	EL621	Ζάκυνθος (Zakynthos)
	EL622	Κέρκυρα (Kerkyra)
	EL623	Ιθάκη, Κεφαλληνία (Ithaki, Kefallinia)
	EL624	Λευκάδα (Lefkada)
	EL631	Αιτωλοακαρνανία (Aitolioakarnania)
	EL632	Αχαΐα (Achaia)
	EL633	Ηλεία (Ileia)
	EL641	Βοιωτία (Voiotia)
	EL642	Εύβοια (Evoia)
	EL643	Ευρυτανία (Evrytania)
	EL644	Φθιώτιδα (Fthiotida)
	EL645	Φωκίδα (Fokida)
	EL651	Αργολίδα, Αρκαδία (Argolida, Arkadia)
	EL652	Κορινθία (Korinthia)
	EL653	Λακωνία, Μεσσηνία (Lakonia, Messinia)
ES	ES11	Galicia
	ES12	Principado de Asturias
	ES13	Cantabria
	ES21	Pais Vasco
	ES22	Comunidad Foral de Navarra
	ES23	La Rioja
	ES24	Aragón
	ES30	Comunidad de Madrid

Country	Region code	Label
	ES41	Castilla y León
	ES42	Castilla-La Mancha
	ES43	Extremadura
	ES51	Cataluña
	ES52	Comunidad Valenciana
	ES53	Illes Balears
	ES61	Andalucia
	ES62	Región de Murcia
	ES63	Ciudad Autonoma de Ceuta
	ES64	Ciudad Autonoma de Melilla
	ES70	Canarias
FR	FR10	Île de France
	FR21	Champagne-Ardenne
	FR22	Picardie
	FR23	Haute-Normandie
	FR24	Centre
	FR25	Basse-Normandie
	FR26	Bourgogne
	FR30	Nord - Pas-de-Calais
	FR41	Lorraine
	FR42	Alsace
	FR43	Franche-Comté
	FR51	Pays de la Loire
	FR52	Bretagne
	FR53	Poitou-Charentes
	FR61	Aquitaine
	FR62	Midi-Pyrénées
	FR63	Limousin
	FR71	Rhône-Alpes
	FR72	Auvergne
	FR81	Languedoc-Roussillon
	FR82	Provence-Alpes-Côte d'Azur
	FR83	Corse
	FRA1	Guadeloupe
	FRA2	Martinique
	FRA3	Guyane
	FRA4	La Réunion
	FRA5	Mayotte
HR	HR03	Jadranska Hrvatska
	HR04	Kontinentalna Hrvatska
IT	ITC1	Piemonte
	ITC2	Valle d'Aosta/Vallée d'Aoste
	ITC3	Liguria

Country	Region code	Label
	ITC4	Lombardia
	ITF1	Abruzzo
	ITF2	Molise
	ITF3	Campania
	ITF4	Puglia
	ITF5	Basilicata
	ITF6	Calabria
	ITI1	Toscana
	ITG1	Sicilia
	ITG2	Sardegna
	ITH1	Provincia Autonoma Bolzano/Bozen
	ITH2	Provincia Autonoma Trento
	ITH3	Veneto
	ITH4	Friuli-Venezia Giulia
	ITH5	Emilia-Romagna
	ITI2	Umbria
	ITI3	Marche
	ITI4	Lazio
CY	CY	Kypros/Kibris
LV	LV	Latvija
LT	LT	Lietuva
LU	LU	Luxembourg
HU	HU10	Közép-Magyarország
	HU21	Közép-Dunántúl
	HU22	Nyugat-Dunántúl
	HU23	Dél-Dunántúl
	HU31	Észak-Magyarország
	HU32	Észak-Alföld
	HU33	Dél-Alföld
MT	MT	Malta
NL	NL	Nederland
AT	AT11	Burgenland (AT)
	AT12	Niederösterreich
	AT13	Wien
	AT21	Kärnten
	AT22	Steiermark
	AT31	Oberösterreich
	AT32	Salzburg
	AT33	Tirol
	AT34	Vorarlberg
PL	PL11	Łódzkie
	PL12	Mazowieckie
	PL21	Małopolskie
	PL22	Śląskie

Country	Region code	Label
	PL31	Lubelskie
	PL32	Podkarpackie
	PL33	Świętokrzyskie
	PL34	Podlaskie
	PL41	Wielkopolskie
	PL42	Zachodniopomorskie
	PL43	Lubuskie
	PL51	Dolnośląskie
	PL52	Opolskie
	PL61	Kujawsko-Pomorskie
	PL62	Warmińsko-Mazurskie
	PL63	Pomorskie
PT	PT11	Norte
	PT15	Algarve
	PT16	Centro (PT)
	PT17	Área Metropolitana de Lisboa
	PT18	Alentejo
	PT20	Região Autónoma dos Açores
	PT30	Região Autónoma da Madeira
RO	RO	Romania
SI	SI	Slovenija
SK	SK01	Bratislavsky
	SK02	Zapadne Slovensko
	SK03	Stredne Slovensko
	SK04	Vychodne Slovensko
FI	FI193	Keski-Suomi
	FI194	Etelä-Pohjanmaa
	FI195	Pohjanmaa
	FI196	Satakunta
	FI197	Pirkanmaa
	FI1B1	Helsinki-Uusimaa
	FI1C1	Varsinais-Suomi
	FI1C2	Kanta-Häme
	FI1C3	Päijät-Häme
	FI1C4	Kymenlaakso
	FI1C5	Etelä-Karjala
	FI1D1	Etelä-Savo
	FI1D2	Pohjois-Savo
	FI1D3	Pohjois-Karjala
	FI1D4	Kainuu
	FI1D5	Keski-Pohjanmaa
	FI1D6	Pohjois-Pohjanmaa
	FI1D7	Lappi

Country	Region code	Label
	FI200	Åland
SE	SE11	Stockholm
	SE12	Ostra Mellansverige
	SE21	Småland med oarna
	SE22	Sydsverige
	SE23	Västsverige
	SE31	Norra Mellansverige
	SE32	Mellersta Norrland
	SE33	Ovre Norrland
UK	UKC	North East (England)
	UKD	North West (England)
	UKE	Yorkshire and Humber
	UKF	East Midlands (England)
	UKG	West Midlands (England)
	UKH	East of England
	UKI	London

Country	Region code	Label
	UKJ	South East (England)
	UKK	South West (England)
	UKL	Wales
	UKM	Scotland
	UKN	Northern Ireland
IS	IS	Ísland
NO	NO01	Oslo og Akershus
	NO02	Hedmark og Oppland
	NO03	Sør-Østlandet
	NO04	Agder og Rogaland
	NO05	Vestlandet
	NO06	Trøndelag
	NO07	Nord-Norge
CH	CH	Schweiz/Suisse/Svizzera
ME	ME	Montenegro