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**COMMITTEE FOR
THE FARM ACCOUNTANCY DATA
NETWORK**

Typology Handbook

Based on Commission Implementing Regulation (EU) 2015/220 of 3 February 2015 consolidated on 1/1/2020, 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

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Preface

This handbook describes the methods for determining classifying agricultural holdings in the European Union (farm typology), defining standard output (SO) and calculating standard output coefficients (SOC).

Some sections are based on the previous versions of document RI/CC 1500. This new version takes into account the most recent legislation, clarifies certain aspects of the SO definition and the SOC calculation and includes information on data delivery and validation tools previously included in other ad hoc documents prepared by the Commission's Directorate-General for Agriculture and Rural development (DG AGRI) and Eurostat, the statistical office of the European Union.

This handbook will be updated following changes to the relevant legislation and in light of working group and users' comments.

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

Acknowledgements

The Committee for the Farm Accountancy Data Network (FADN) set up a working group that has been exchanging views on the development of the typology since 2019.

A smaller group of national experts from Denmark, Ireland, Czechia, Austria, Germany, Belgium, Portugal, Italy, Poland, the Netherlands, Croatia and Spain has collaborated with DG AGRI and EUROSTAT.

Abbreviations and acronyms

Code	Description
AWU	Annual work unit
EU	European Union
eWA	EDAMIS web application
eWP	EDAMIS web portal
FADN	Farm Accountancy Data Network
FSS	Farm structure survey
IACS	Integrated administration and control system
IFS	Integrated farm statistics
MoA	Ministry of Agriculture
MS	Member State(s)
NE	Non existing
n.e.c.	Not elsewhere classified
NS	Non-significant
NSI	National statistical institute
NUTS	Nomenclature of territorial units for statistics
SGM	Standard gross margins
SO	Standard output
SOC	Standard output coefficient
SRID	Spatial reference system identifier
UTC	Coordinated universal time

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1

Introduction

1.1 Aim

The aim of this handbook is to help EU Member States to implement the European Union typology in a harmonised way, and several examples are provided to illustrate this. However, to avoid repeating the description of the basic principles already in the EU legislation, this handbook should be considered a working document to complement the rules for calculating the total standard output of the farm and the farm typology, which are available in the regulations listed in Chapter 1.4.

1.2 History

In the European Union, there is a wide diversity of 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.

Starting in 1985, the typology of 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. Over time, the common agricultural policy (CAP) drastically changed and the majority of the direct payments were decoupled. Due to this decoupling of direct payments, which began in 2005, it was not possible to maintain the previous typology (Commission Decision 85/377/EEC) based on SGMs. An SGM without subsidies could be negative and therefore could not be used as classification criteria.

Therefore changes in typology were needed to account for the impact that the changes in the CAP had on SGMs. Since 2010, agricultural holdings are classified according to the amended rules.

A new typology has been established, based on the following principles:

- use of standard output (SO) instead of SGM,
- no reference to a balance of fodder,
- a 3-level farm classification⁽¹⁾,

¹ In the SGM-based typology (Regulation 85/377/EEC) there were 4 levels, of which there were 3 'types of farming' and 1 was 'subdivisions':

General types of farming,

Principal types of farming,

Particular types of farming,

subdivisions of certain particular types of farming.

- definition of the economic size of the holding directly in euro (it was defined in terms of European size unit (ESU) in the previous typology),
- introduction of a new classification variable reflecting the significance of the other gainful activities (OGA) directly related to the holding.

1.3 User needs

Standard output coefficients (SOC) are used to determine the farm typology, which is based on the standard output of the farm. This standard output accompanies the results of the farm structure statistics and the FADN, but the SO coefficients can also be used by the Member States as indicators. Therefore, the Member States should ensure that the SO coefficients have been determined with due care, are realistic and provide robust results.

1.4 Legal basis

Farm typology is based on:

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;

Commission Delegated Regulation (EU) No 1198/2014 of 1 August 2014, supplementing 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;

Commission Implementing Regulation (EU) 2015/220 of 3 February 2015, consolidated on 1/1/2020, 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.

1.4.1 European 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 4 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 the reference period for the purposes of calculating standard outputs for the EU farm structure survey.

It was replaced by the SO-based typology ([Regulation 1242/2008](#)) which had the following 3-level split of ‘types of farming’ only:

General **types of farming**,
Principal **types of farming**,
Particular **types of farming**.

Now it ([Regulation 1217/2009](#)) introduces an SO-based typology with 2 levels of ‘types of farming’ and 1 level of ‘types of farming specialisations’:

General **types of farming**, divided into
Principal **types of farming**, and
Particular **types of farming specialisations**.

In fact it does not have any effects on the typology algorithm – it is only a matter of nomenclature.

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.

1.4.2 Union typology – implementing rules

Chapter 2 and Annexes IV, V, VI and VII of Commission Implementing Regulation (EU) 2015/220 of 3 February 2015, consolidated on 1/1/2020, 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 standard output (SO), standard output coefficient (SOC) and total SO of a holding as well as the definition of the types of farming, the correspondence between the headings of the FSS/IFS 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 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.

1.4.3 Definition of the farm statistics variables

Two legal acts are relevant for defining the variables collected for farm structure statistics, presently called integrated farm statistics:

- Regulation (EU) 2018/1091 of the European Parliament and of the Council of 18 July 2018 on integrated farm statistics and repealing Regulations (EC) No 1166/2008 and (EU) No 1337/2011.
- Commission Implementing Regulation (EU) 2018/1874 of 29 November 2018 on the data to be provided for 2020 under Regulation (EU) 2018/1091 of the European Parliament and of the Council on integrated farm statistics and repealing Regulations (EC) No 1166/2008 and (EU) No 1337/2011, as regards the list of variables and their description.

1.5 Changes from previous versions

The Typology Handbook aggregates/consolidates information that was spread across different documents: the former Typology Handbook and FSS Handbook, the new IFS handbook and the information available in documents presented to working groups.

This handbook will be updated following changes to the relevant legislation and in light of users' comments.

1.5.1 Changes in structure

Not applicable to the current version.

1.5.2 Changes in classification

Concepts and codes were aligned with Regulation (EU) 2018/1091 of the European Parliament and of the Council of 18 July 2018 on integrated farm statistics and repealing Regulations (EC) No 1166/2008 and (EU) No 1337/2011 (OJ L 200, 7.8.2018, p. 1–29).

1.5.3 Changes in version 1.1

Not applicable to the current version.

1.6 Contacts

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

2

Methodology

2.1 General information

2.1.1 Farm typology

The European Union typology of agricultural holdings is a uniform classification of holdings in the European Union. Therefore, the classification is based on a set of economic coefficients calculated as regional averages, on the standard output coefficients (SOC), and on the structural information (area of crops and number of heads of livestock) collected under the integrated farm statistics (IFS) and in the Farm Accountancy Data Network (FADN).

The classification of the holdings is based on their type of farming (TF) and economic size (ES), determined on the basis of the SO of the various types of agricultural production. Holdings can also be classified according to the share of the holding's 'other gainful activities' (OGA), even though OGA is not taken into consideration to determine the ES or TF mentioned above.

Based on this typology, homogeneous groups of holdings can be assembled in a greater or lesser degree of aggregation.

2.2 Coverage

Pursuant to Article 2 of Commission Delegated Regulation (EU) No 1198/2014 of 1 August 2014, the field of the survey represents the largest possible share of agricultural output, agricultural area and farm labour of holdings run with a market orientation.

Member States, to the possible extent and for the sake of comparability, they should ensure that they cover the same percentage of land and livestock units with their SOCs, as they do in the IFS.

2.3 Data sources

The basic data used by national correspondents to determine an SOC for a certain combination of region and product includes:

- yield (average yield in a region or in a country)
- physical quantities produced
- prices
- cultivated area

- number of animals present and slaughtered
- technical information, such as length of production cycle, productivity of animals, mortality of newborn etc.

There are numerous data sources that can be used to calculate SOCs. Of course, in different Member States the data sources are not all the same, but examples of the main data sources are listed below.

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	

The data for calculating the SO coefficients can be taken from one or several of the referred sources. The Member States should also pay attention to the coherence of data sources, such as between yields and area. For example, while in the farm structure data the area of cereals refers to the field (also known as the main area), in the crop production survey the yield refers to the harvested area. Correction coefficients may need to be applied.

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.

2.3.1 Available data sources

2.3.1.1 AGRICULTURAL CENSUS AND FARM STRUCTURE SURVEYS

Eurostat provides [statistics on the structure of the agricultural holdings](#) (area and livestock) at different geographical levels either from the agricultural census or from the integrated farm statistics or farm structure surveys.

2.3.1.2 SPECIFIC SURVEYS

Specific surveys are based on a sample of farms. The required 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.

2.3.1.3 AGRICULTURAL PRICES

Eurostat and DG AGRI provide statistics on agricultural prices.

Two kinds of agricultural price statistics are managed by Eurostat:

- statistics of agricultural prices
- 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 the price indices. The periodicity is quarterly or annual.

Moreover, to implement the CAP, DG AGRI collects agricultural market prices (the market information system). The periodicity may be weekly.

All the prices used to calculate the SOC in year N must refer to year N. This simplifies the calculation and prevents inflation impacting on the price of the animals when they enter a category. For example, the value of a dairy cow in year 2019 should take into account the value of in-calf heifers in 2019 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 SOCs are referring to the output valued at farm gate price.

https://agridata.ec.europa.eu/extensions/DataPortal/agricultural_markets.html

https://ec.europa.eu/info/food-farming-fisheries/trade/agriculture-markets-and-prices_en

2.3.1.4 CROP AND ANIMAL PRODUCTION

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

- statistics on the production of crop products (such as area under cultivation, quantity produced or yields)
- milk statistics (such as quantity of milk collected or use of milk)
- meat production (such as number of slaughtered animals or carcass weight)
- livestock statistics (such as herd structure, number of heads by category).

The periodicity for these statistical products varies from 1 to 3 times a year (monthly for milk).

2.3.1.5 ADMINISTRATIVE DATA SOURCES

2.3.1.5.1 Access to administrative data

Regulation (EC) No 223/2009

Article 17a - Access, use and integration of administrative records

'In order to reduce the burden on respondents, the NSIs, other national authorities as referred to in Article 4, and the Commission (Eurostat) shall have the right to access and use, promptly and free of charge, all administrative records and to integrate those administrative records with statistics, to the extent necessary for the development, production and dissemination of European statistics, which are determined in the European Statistical Programme in accordance with Article 1.

The NSIs and the Commission (Eurostat) shall be consulted on, and involved in, the initial design, subsequent development and discontinuation of administrative records built up and maintained by other bodies, thus facilitating the further use of those records for the purpose of producing European statistics. They shall be involved in the standardisation activities concerning administrative records that are relevant for the production of European statistics.'

2.3.1.5.2 Quality of register data

When using register data for statistics, it is important to bear in mind that:

- statistics need to meet strict pre-defined quality criteria;
- for register data the quality criteria may or may not be applied and often the metadata to judge the quality of the registers is not available;
- sometimes the registers are not kept up-to-date if there is no quality assurance and checking mechanism in place; and
- quality assessment tools are needed to analyse the quality of register data and to judge if they are fit-for-purpose for statistics.

2.3.1.5.3 IACS - Integrated administration and control system

The integrated administration and control system is established by Regulation (EU) No 1307/2013 of the European Parliament and of the Council.

IACS is the most important system for managing and verifying payments made to farmers by the Member States in application of the common agricultural policy (EC, 2017). The system provides a uniform basis for checks and controls and, among other requirements, covers the administrative and on-the-spot controls of applications and the IT system supporting the national administration in carrying out its functions.

IACS is operated in the Member States by accredited paying agencies and applies to all direct payment schemes and certain rural development support measures which are granted according to the number of hectares or animals held by the farmer. Furthermore, it is also used to manage the checks and controls put in place to ensure compliance with the requirements and standards under the cross-compliance provisions. IFS and SAIO allow NSIs access to IACS for production stats and structural statistics.

In physical terms, IACS consists of a number of computerised and interconnected databases, in particular:

- a system for identifying all agricultural parcels in Member States called the land parcel identification system (LPIS);

- a system for the unique identification of beneficiaries;
- a computerised database for animals in Member States where animal-based aid schemes apply;
- a system for identifying payment entitlements in Member States applying the basic payment scheme;
- IT systems facilitating the smooth running of the IACS steps, in particular for submitting and receiving aid applications and for enabling the national administration to perform controls and cross-checks of data received from a farmer through his/her aid application.

2.3.1.5.4 System for identifying bovine animals

The system for identifying and registering bovine animals is established by Regulation (EC) No 1760/2000 of the European Parliament and of the Council. In April 1997 - in response to the BSE crisis - the European Union implemented a system of permanent identification of individual bovine animals enabling reliable traceability from birth to death.

The basic objectives for Community rules on the identification of bovine animals are to:

- be able to localise and trace animals for veterinary purposes, which is of crucial importance for the control of infectious diseases;
- ensure the traceability of beef for public health reasons;
- manage and supervise livestock premiums as part of the common organisation of the market in beef and veal.

The system for identifying and registering individual bovine animals includes the following elements:

- double identifiers:
 - one electronic identifier such as a ruminal bolus or an electronic ear tag,
 - one visible identifier such as a conventional ear tag, tattoo or mark on the pastern;
- a register on each holding (farm, market, etc.);
- a movement document for each movement of groups of animals (bovine passports);
- a central register or computerised database of all holdings and movements of batches of animals at national level (with a future voluntary interoperability of bovine databases <http://ec.europa.eu/avservices/video/player.cfm?ref=1107984>).

To enhance food safety and better safeguard animal health in the EU, since 18 July 2019 bovine animals can be identified using two means of identification: a conventional ear tag and an electronic identifier. For the electronic identifier, Member States and operators may choose, for example, between an electronic ear tag, a ruminal bolus or an injectable transponder.

2.3.1.5.5 Other animal registers

The system for identifying and registering ovine and caprine animals is established by Council Regulation (EC) No 21/2004.

Animal registers exist also for equine animals and pigs. Some countries, like Austria, Slovenia, Italy and Portugal also have beekeeping registers.

2.3.1.5.6 Vineyard register

The vineyard register is implemented in accordance with Article 145 of Regulation (EC) No 1308/2013 of the European Parliament and of the Council.

The vineyard register is currently under Regulation (EU) No 1308/2013 (Article 145) and Commission Regulation (EC) No 436/2009 repealed by Commission Delegated Regulation (EU) 2018/273 of 11 December 2017 supplementing Regulation (EU) No 1308/2013 of the European Parliament and of the Council as regards the scheme of authorisations for vine plantings, the vineyard register [...].

The Regulation stipulates that the Member State must ensure that the register is updated regularly and that at least every 5 years the register corresponds to the 'actual situation'. When collecting structural vineyard data in 2017, it was identified that in all countries the vineyard register is kept by an institution other than the one responsible for delivering agricultural statistics (NSI or MoA). Therefore in order to use the registers, cooperation was necessary between institutions at all levels:

- Eurostat with DG AGRI,
- DG AGRI and Eurostat with register holders at national level,
- national statistical authorities with register holders at national level,
- national and/or regional cooperation if the register was regionalised.

2.3.1.5.7 Organic farming register

The organic farming registers are set up pursuant to Council Regulation (EC) No 834/2007 or Regulation (EU) No 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products. Member States may also use administrative sources associated with specific rural development measures.

Several countries do not have specific national legal acts for collecting organic farming statistics. However, both Article 36 of Council Regulation (EC) No 834/2007 and Article 93 of Commission Regulation 889/2008 state that statistical data on organic farming is to be provided to Eurostat.

The entities responsible for collecting organic farming data at national level differ from country to country: in many countries, it is the Ministry of Agriculture (as supervisor of the control bodies) that is responsible, but in other countries it can be the Ministry of Rural Affairs or the Ministry for Nutrition and Food, other ministries or agencies.

The organic farming register can provide aggregated data and micro-data covering all organic certified operators. Most data on organic farming is public, except personal data or the unique identifier of the farm and tax ID number.

By linking the holdings in the registers of the control bodies with the statistical farm register, it is possible to compare structural data and provide data which is harmonised across domains.

2.3.1.6 RESEARCH AND ADVISORY INSTITUTES

It is also possible to use data from public or private research and advisory institutes such as:

- 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 also have their technicians and experts. These can be useful especially when looking for information on small-scale production that is not of big economic significance.

2.3.1.7 FARM ACCOUNTANCY DATA NETWORK (FADN)

The Farm Accountancy Data Network is implemented according to 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 (plus subsequent delegated and implementing acts).

The European Farm Accountancy Data Network (FADN) provides detailed financial, economic, structural and production information on more than 80,000 farms in Europe, including sales, farm use, farm consumption and changes in stocks. The data are collected in a systematic way on an annual basis. The information collected for each sample farm contains more than 1,000 variables. FADN contains harmonised farm-level data across Europe: the data elements to be provided to the European Commission and bookkeeping principles (such as depreciation) are the same in all countries.

The FADN field of observation includes those farms deemed to be commercial.

A commercial farm is defined as a farm large enough to provide a main activity for the farmer and a level of income sufficient to support his or her family. In practical terms, to be classified as commercial, a farm must exceed a minimum economic size. Because of the different farm structures across the European Union, a different threshold is set for each Member State. This means that small, non-commercial farms are not included.

FADN represents a population of about 5 million farms in the EU, covering approximately 90% of the total utilised agricultural area (UAA) and accounting for about 90% of the total agricultural production. For the main SO products, this coverage will be between 90 and 100%. For products which are often produced on small farms, this percentage could be somewhat lower.

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

2.3.1.8 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.

2.3.1.9 GEOGRAPHICAL DATA

2.3.1.9.1 Reference area

The reference area for determining SOCs is the SO Region.

The SOC of a variable corresponds to the weighted average situation on the agricultural holdings situated in a given geographical unit (referred to here as 'region'). These geographical units, the SO regions, are based on the nomenclature of territorial units for statistics (NUTS) and represent NUTS3 or regroupings of NUTS3 regions.

2.3.1.9.2 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 1059/2003². SO coefficients are calculated at regional level.

2.3.2 Evaluating a data source

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 the question in a given context. For example, is the data of the neighbouring 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 calculating the coefficients, 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? That is to say, is the figure statistically satisfactory for 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. is the information collected? Each data source is collected for its own purpose. For example, producer organisations collect data for different purposes that are not just the administration. Is information submitted 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 coefficient (for example, the price of wheat) should be used not only for all the years included in a SOC calculation of a given year (e.g. SOC 2013) but also for calculating the consecutive SO coefficients (e.g. SOC 2017). 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 sources in which it is possible to have a greater or lesser degree of confidence when using them to calculate SOCs. A data source may seem inappropriate 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.

² See Eurostat's website for the most updated information on NUTS: <http://ec.europa.eu/eurostat/web/nuts/history>

Choosing between national and regional level

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

- 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 SOCs. 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 to repeat the same questions in a few years' time and maintains continuity in the calculation method.

Yield of rye in Sweden

Yield of rye can be found in two surveys:

- FADN = the yield of rye in one region was 4 280 kg/ha +/- 16 %;
- the crop production survey = the yield in the same region was 5 090 kg/ha +/- 2%. In the production survey, the yield per hectare is defined as the quantity produced per area harvested. 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 the best data source to be used because:

- its purpose is to estimate yields: the data source is relevant;
- the population covers the same population as FSS: the data source is representative;
- the estimate is more precise (smaller deviation): the data source is reliable.

2.3.2.1 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.

2.3.2.2 EVALUATION OF DATA SOURCES AFTER CALCULATION (A *POSTERIORI* ASSESSMENT)

Often it is impossible to evaluate in advance 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 give different results but no clear distinction emerges from a *a priori* evaluation. A *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);
- advice of experts;
- 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, neighbouring countries with similar agricultural features;
- comparison of SO coefficients with their values from the previous reference period: are there any big differences?;
- comparison with FADN results or with the EAA.

2.3.3 What can be done if no data source is available

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

- check if this specific data exists in neighbouring regions or neighbouring countries and if it could be used and how;
- if possible, conduct a specific survey, for example, of the farmers belonging to the FADN;
- consult experts; make a list of contact people and ask their opinion.

2.4 Treatment of NS/NE variables

Non-significant/ non-existing variables (NSNE) refer to crops or livestock variables that have low or zero prevalence in a certain country or region. The information on NSNE variables is delivered to Eurostat by national statistical institutes in the year before the reference year of the data collection. The data on SOC is cross-checked with the NSNE data provided to Eurostat. For SOC2017, the relevant NSNE dataset is NSNE2020³.

Regional SOCs are determined for each crop and livestock characteristics/variables in the IFS and FADN. If a given crop or livestock does not exist in a region, then its SOC = 0.

2.5 Precision requirements

No specific requirements for SOCs (see **Section 2.8** Units of measurement).

³ The NSNE data delivery no longer follows the NS1-NS2 convention. Moreover, all SOCs in the table have to be provided under the SOC2017 data delivery (the table must be complete); if no SOC is available, then a zero is given (see the DSD matrix and the previous paragraph).

2.6 Reference period

The information relevant for determining the SOC has to refer to the five-year averages (or the five relevant yearly averages).

2.6.1 Reference period for standard output coefficients (SOC)

To smooth the effects of short-term fluctuations, which may be considerable in cyclical animal production or in horticulture, the SOCs are calculated as an average over a reference period covering 5 successive calendar or agricultural years.

For a farm structure on year N, the SOCs are the average of year N-5 to year N-1 and the SO set is labelled 'N-3'. All countries have to use the same 5 years, even if the survey is anticipated/postponed by 1 year.

The data used to calculate the standard output coefficient (SOC) covers a 12-month production period (either a calendar year or an agricultural year). If the period of production for crops and livestock is other than 12 months, the figure should be converted to values relating to a period of 12 consecutive months.

This is relevant when the production period is less than 12 consecutive months, for example 'other pigs' or 'broilers'. In these cases the period has to be extended to 12 months.

In cases where the production period for livestock is greater than 1 year, for example 'laying hens' or 'dairy cows', a SOC is calculated for a period of 12 months.

2.7 Reporting frequencies

At least once every 10 years, when the IFS is carried out in the form of a census, the basic data for determining SOCs are renewed. Within the 10-year reference period, the SOCs are updated each time a new European survey on the structure of agricultural holdings is conducted.

Figure 1 – Reference periods for standard output coefficient

		Reference data																																		
		Typology	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026		
IFS	2026	SO																																		
	2023	SO																																		
	2020	SO																																		
	2016	SO																																		
FSS	2013	SO																																		
	2010	SO																																		
	2007	SO																																		
	2007	SGM																																		
	2005	SO																																		
	2005	SGM																																		
	2003	SO																																		
	2003	SGM																																		
	2000	SO																																		
	2000	SGM																																		

2013 and 2010 data and recalculation of 2007 and 2005 data with SO coefficients
 Historical data SGM and typology calculated with SGM coefficients

Given the rules indicated above, the next SOCs are calculated according to the following scheme:

Table 2 – SO coefficients in the IFS cycle and FADN years⁴

IFS year	SOC set	SOC reference years	SOC delivery deadline
IFS2020	SOC2017	2015-2016-2017- 2018-2019	31-12-2020
IFS2023	SOC2020	2018-2019-2020- 2021-2022	31-12-2023
IFS2026	SOC2023	2021-2022-2023- 2024-2025	31-12-2026

2.8 Units of measurement

2.8.1 Standard output coefficients (SOC)

Normally, the standard output coefficients (SOC) are expressed in euro per unit (i.e. euro/hectare or euro/head), with the following exceptions:

- SOC for 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 case of multi-level shelves, the total area of all shelves should be taken into account to calculate the quantity of the production in 100m² of base area.
- SOC are calculated per head of livestock, except for poultry, for which SOs are calculated per 100 heads.
- For bees the SOC are calculated per hive.

Preferably the requirement should be set at 2 decimal places (i.e. euro cent), since the rounding could significantly affect results and SO calculations because of the potentially large number of units within one holding.

2.8.2 Date / time

Date and time must follow the ISO 8601 norm. The main feature of the norm is that date/time information is ordered so that the largest temporal term (the year) is placed to the left and successive smaller terms are placed to the right of the previous term (date elements can be separated by '-' and time elements by ':' to improve human readability). The norm also fixes a reference calendar as the Gregorian calendar. The norm also prescribes as a minimum a four-digit year (YYYY). Note that YYYYMM is not allowed for the representation of a month and YYYY-MM is to be used instead.

Example of a day: 2017-07-31 (YYYY-MM-DD) or 20170731 (YYYYMMDD)

Example of a month: 2017-03 (YYYY-MM) but not 201703

Example of a date with time in UTC: 2017-07-31T07:59:19+00:00

⁴ Whenever SOC are not available (eg: SOC2017 will not be available for the opening of Rical for the collections of AY 2020), provisional SOC 2017 calculated by DG AGRI, based on the 4 preceding years, may be used.

2.8.3 Currency

2.8.3.1 BASIC DATA

The basic data for determining the SOC are expressed in euro or in national currency.

2.8.3.2 STANDARD OUTPUT (SO)

The calculated standard output (SO) of a holding is expressed in euro.

3

Concepts

3.1 Standard output coefficients (SOC2017)

Standard output coefficient (SOC) is the average monetary value of gross production of each agricultural variable, corresponding to the average situation in a given region, per unit of production. SOC's are updated at least every time a European survey on the structure of agricultural holdings is conducted.

The method for calculating the standard output coefficient of each characteristic, as referred to in Article 5b(2) of Regulation (EC) No 1217/2009, and the procedure for collecting the corresponding data, are set out in Annexes IV and VI to Regulation 2015/220 (and its respective amendments).

The standard output coefficient of the different characteristics of a holding, as referred to in Article 5b(2) of Regulation (EC) No 1217/2009, are to be determined for the crop and livestock categories listed in Part B.I of Annex IV to Regulation 2015/220 (and its respective amendments) and for each geographical unit referred to in Annex I to Regulation 1217/2009.

For the SOC2017, the crops and livestock variables on the basis of which the coefficients are to be calculated are listed in annex to Commission Implementing Regulation (EU) 2018/1874 of 29 November 2018 on the data to be provided for 2020 under Regulation (EU) 2018/1091 of the European Parliament and of the Council on integrated farm statistics (and repealing Regulations (EC) No 1166/2008 and (EU) No 1337/2011, as regards the list of categories and their description).

3.1.1 Specific definitions and concepts

3.1.1.1 OUTPUT

The output consists of the main products plus secondary products.

In the case of main crops, the output for 12 months generally corresponds to a single harvest. For horticultural products, output for 12 months may cover several successive crops. For permanent crops (fruit trees, vines, etc.) the total cultivation period should be taken into account to determine an **'average annual output'**, which evens out the permanent crop's output in its various production stages over the total period of cultivation. No replacement value is deducted from the output of permanent crops.

For livestock, and especially bovine animals, the variables are split per category of age: in these cases the output corresponds to the growth in value 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 – see **Chapter 3.1.1.8**). Member States need to be careful not to count the animal growth twice.

3.1.1.2 GROSS OUTPUT

Gross output is the value of gross production after all special cases are applied to estimate this output and comprises the main products plus secondary products.

3.1.1.3 GROSS PRODUCTION

Gross production comprises all the products.

For animal activities, these are the main products such as meat, milk and eggs, plus secondary products such as calves and wool.

For vegetal activities, if there are main and successive cultures, the gross production is the value of the main product plus the value of the successive culture, which enters as a secondary product of the main activity.

3.1.1.4 MAIN PRODUCT

The main product is usually the one with the highest value such as ‘cereals’ or ‘beet roots’ in the case of crop production and ‘meat’, ‘milk’ or ‘eggs’, in the case of livestock production. Milk is the main product for ‘dairy cows’, but calves are the main product for ‘other cows’.

3.1.1.5 OTHER MAIN PRODUCT

The other main products are those with a value close to the main product.

3.1.1.6 SECONDARY PRODUCT

Secondary products generally have a lower value and must be valued if they are sold or used on the farm (e.g. collected straw of cereals to be used on the farm or for sale). In the case of livestock production, manure is not considered a secondary product from animal production.

3.1.1.7 FARM GATE PRICE

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. VAT, taxes and subsidies are not included in the farm gate price.

3.1.1.8 REPLACEMENT VALUE

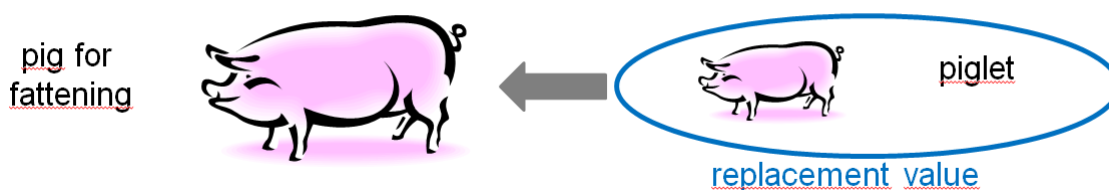
As already mentioned, in order not to count animal growth twice, the replacement value has to be deducted from the output. This replacement value corresponds to the difference between the value of the animal when it leaves the age category and its value when it enters the age category.

3.1.1.8.1 Full replacement value

For some livestock characteristics the animals enter the age category in the form of a full replacement value:

- a one-year old calf enters the category of ‘bovine animals (at least 1 but less than 2 years old), male’.
- a piglet having a live weight of about 50 kg enters the ‘pig for fattening (other pigs)’ category (see **Figure 2**).

Figure 2 – Replacement value for piglets

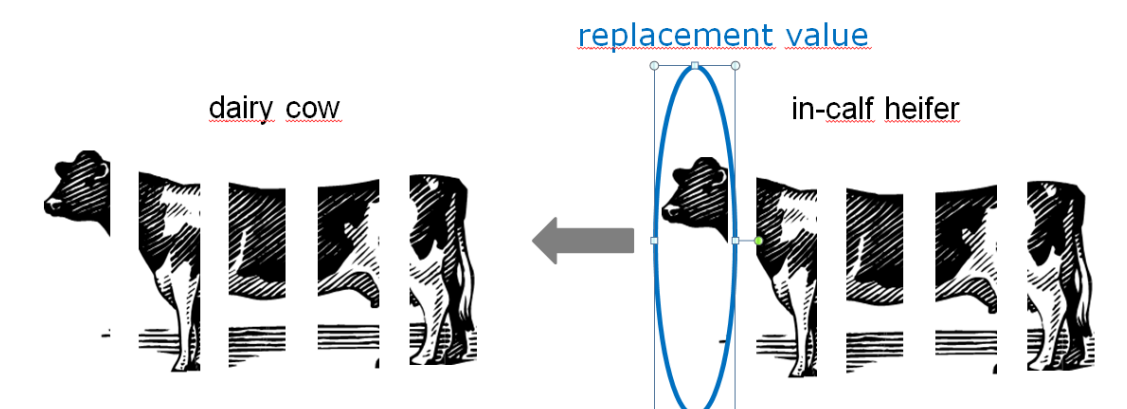


3.1.1.8.2 Partial replacement value

For other livestock characteristics such as dairy cows, the animals enter the age category in the form of a partial replacement value, instead only of cull animals, in accordance with the culling programme resulting from the length of production use of animals.

For example, for 'dairy cows' the length of production use of a cow is 5 years, which means that every year only one fifth (1/5) part of a cow is culled by the 1/5 part of an in-calf heifer (see **Figure 3**).

Figure 3 – Replacement values for dairy cows



3.1.1.8.3 No replacement value

There is one unique case in terms of replacement value methodology – namely for bee hives – where in the SOC calculation, no replacement value is to be deducted for the queen bee, as SO is concentrating on the output.

3.1.1.8.4 Replacement and culling rates

The replacement rate is the number of bred replacement heifers or purchased cows that are kept.

The culling rate is the number of cows that are removed from the herd. For more than 20 years, only once has the culling rate exceeded the replacement rate. In other words, through good times and bad times, producers are optimistic and have replaced at a greater percentage than they have culled.

3.1.1.9 STANDARD OUTPUT COEFFICIENT (SOC)

Standard output coefficient (SOC) is the average monetary value of gross production of **each agricultural variable**, corresponding to the average situation in a given region, per unit of production.

The SOC of a crop or livestock variable 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;
- 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 SOC is a unit value. It is calculated at farm gate price, in euro per hectare of crop or euro per head of livestock (exceptions apply for mushrooms in euro per 100 m², poultry in euro per 100 heads and bees in euro per hive). VAT, taxes and subsidies are not included in the farm gate price.

The SOC of a variable corresponds to the weighted average situation on the agricultural holdings situated in a given geographical unit (referred to here as region).

3.1.1.10 STANDARD OUTPUT (SO)

Standard output (SO) is the standard value of gross production. It is used for classifying farms according to the EU farm typology (in which the type of farming is defined by main production activities) and for determining the economic size of farms.

Total SO of a holding is the sum of the individual production units of a specific holding multiplied by their respective SOC.

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.

3.1.1.11 AGRICULTURAL HOLDING

Article 2 of Regulation (EC) no 2018/1091 of the European Parliament and of the Council of 18 July 2018:

(a) 'farm' or 'agricultural holding' means a single unit, both technically and economically, that has a single management and that undertakes economic activities in agriculture in accordance with Regulation (EC) No 1893/2006 belonging to groups A.01.1, A.01.2, A.01.3, A.01.4, A.01.5 or to the 'maintenance of agricultural land in good agricultural and environmental condition' of group A.01.6 within the economic territory of the Union, either as its primary or secondary activity. Regarding activities of class A.01.49, only the activities 'Raising and breeding of semi-domesticated or other live animals' (with the exception of raising of insects) and 'Bee-keeping and production of honey and beeswax' are included.

3.1.1.12 ECONOMIC SIZE OF THE HOLDING

The economic size of a holding is the value of its total standard output. Thus, the total economic size of the holding depends on its structure (number of hectares and animals) and on the SOCs applied in the region to which the holding belongs. 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.

Table 3 below shows the threshold values defining the different farm size groups, according to the 'TF-14' type of classification.

Table 3 – Lower and upper limits of the economic size classes (in euro)

Economic size classes	Lower limits of the economic size classes (in euro)	Upper limits of the economic size classes (in euro)
1		2 000
2	2 000	4 000
3	4 000	8 000
4	8 000	15 000
5	15 000	25 000
6	25 000	50 000
7	50 000	100 000
8	100 000	250 000
9	250 000	500 000
10	500 000	750 000
11	750 000	1 000 000
12	1 000 000	1 500 000
13	1 500 000	3 000 000
14	3 000 000	

3.1.1.13 TYPE OF FARMING

The type of farming of a holding characterises the production system of a farm based on the economic importance of the farming activities and its degree of specialisation. Given the activities of the farm, the farm is classified in one of the predefined farm types.

The SO is used for classifying farms according to the EU farm typology (in which the type of farming is defined by main production activities) and for determining economic farm size.

According to Article 5b of Commission Regulation (EC) No 1217/2009: 'The type of farming of a holding shall be determined by the relative contribution of the standard output of the different characteristics of that holding to the total standard output of the holding'.

3.1.1.14 ENTERPRISE

An enterprise is the part of an agricultural holding which can be considered an economic activity, for example a dairy enterprise. Depending on the relative weight of these 'sectors', the farm will be classified in one or another group (Type of farming).

3.1.1.15 IMPORTANCE OF THE OTHER GAINFUL ACTIVITIES (OGA) OF THE HOLDING

The importance of the OGA directly related to the holding is defined as the estimated share of the OGA turnover in the holding's total turnover.

3.1.1.16 TREATMENT OF CASES INVOLVING PROCESSING OF AGRICULTURAL PRODUCTS

In the SOC 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, the value of milk, not the value of cheese, will be taken into account in the calculation of the SOC of a dairy cow.

3.1.1.17 USING WEIGHTED AVERAGES FOR VARIABLES INCLUDING MORE THAN ONE CROP

For characteristics which include more than one crop, such as 'Fresh vegetables, melons and strawberries' or 'Fruit of temperate climate zones', the SOCs correspond to the weighted average of the SOCs 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 final choice of the methodology should be explained.

3.1.1.18 SUCCESSIVE CROPS

For a better harmonisation between FADN and IFS, the area of successive crops should not be valued in the FADN. Nevertheless, in those Member States where successive secondary crops are of considerable importance, they are taken into account in the SOC calculation of the main crops which precede or follow them. For example, broccoli may be cultivated after sugar beet 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.

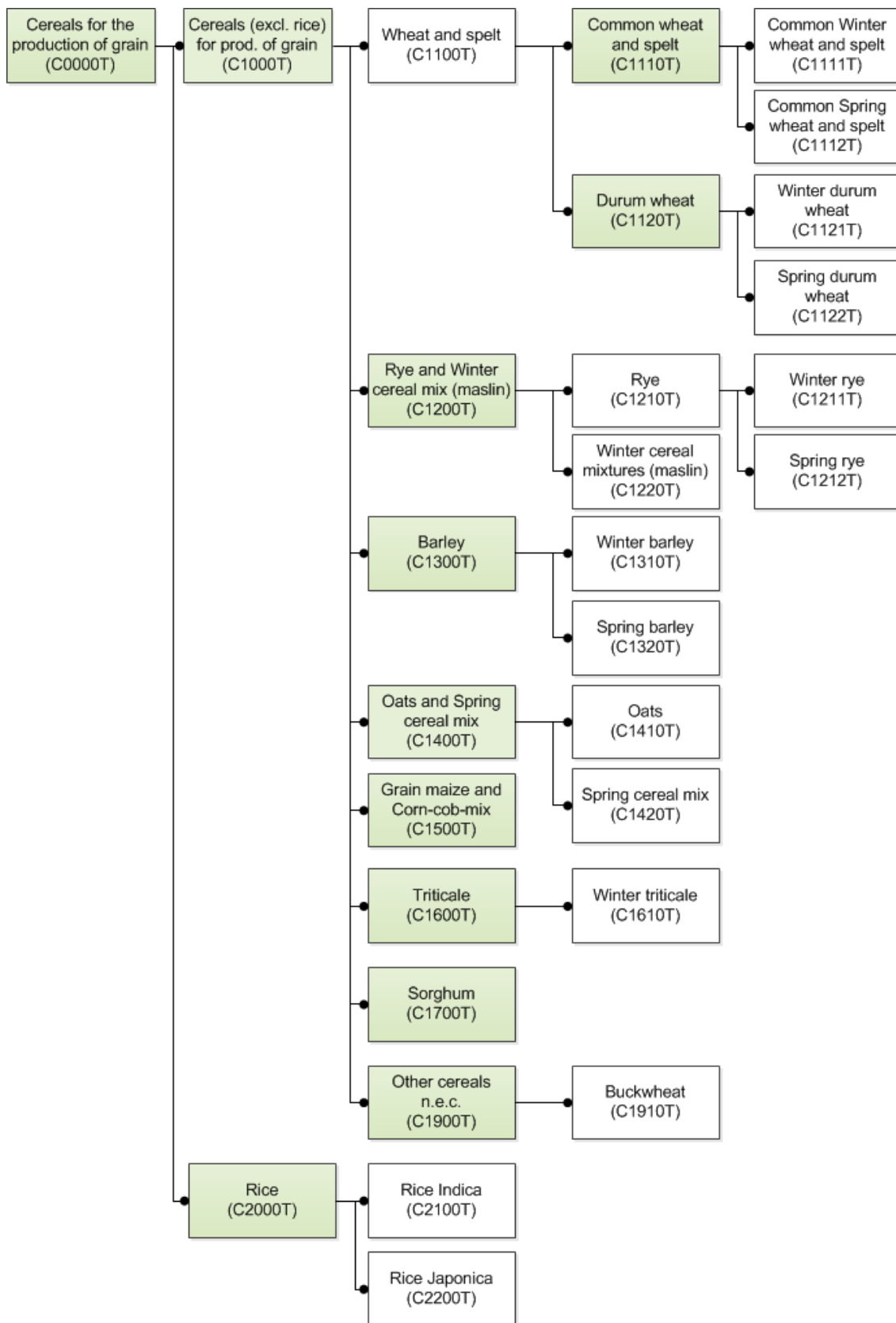
3.1.2 Variables of land

3.1.2.1 CEREALS

For the comprehensive lists of all variables of land, see in:

- 'IFS Handbook'
- Annex IV (Table B) of Commission Implementing Regulation (EU) 2015/220 (and its respective amendments)
<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02015R0220-20200101&from=EN>
- Reference and Management of Nomenclatures. Metadata, SCL - Agricultural products:
https://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL_LINEAR&StrNom=CL_AGRIPRO&StrLanguageCode=EN&IntCurrentPage=10

Figure 4 – Example of hierarchy of variables



3.1.2.1.1 Common wheat and spelt (C1110T)

Hectares of *Triticum aestivum* L. emend. Fiori et Paol., *Triticum spelta* L. and *Triticum monococcum* L.

Includes:

- common wheat (*Triticum aestivum* L. emend. Fiori et Paol.)
- einkorn wheat (*Triticum monococcum* L.)
- emmer wheat (*Triticum dicoccum* Schrank ex Schübl.)
- spelt (*Triticum spelta* L.)
- cereal grains harvested just before maturity.

Excludes:

- durum wheat (*Triticum durum* Desf.) (C1120)
- cereals harvested green or yellow as whole plant for fodder or renewable energy (G9100).

3.1.2.1.2 Durum wheat (C1120T)

Hectares of *Triticum durum* Desf.

Includes:

- durum wheat (*Triticum durum* Desf.)
- cereal grains harvested just before maturity.

Excludes:

- cereals harvested green or yellow as whole plant for fodder or renewable energy (G9100).

3.1.2.1.3 Rye and winter cereal mixtures (maslin) (C1200T)

Hectares of rye (*Secale cereale* L.) sown any time, mixtures of rye and other cereals and other cereal mixtures sown before or during the winter (maslin).

Includes:

- rye (*Secale cereale* L.)
- rye and winter cereal mixtures (maslin)
- cereal grains harvested just before maturity.

Excludes:

- cereals harvested green or yellow as whole plant for fodder or renewable energy (G9100).

3.1.2.1.4 Barley (C1300T)

Hectares of barley (*Hordeum vulgare* L.)

Includes:

- barley (*Hordeum vulgare* L.)
- cereal grains harvested just before maturity.

Excludes:

- cereals harvested green or yellow as whole plant for fodder or renewable energy (G9100).

3.1.2.1.5 Oats and spring cereal mixtures (mixed grain other than maslin) (C1400T)

Hectares of oats (*Avena sativa* L.) and other cereals, sown in the spring and grown as mixtures and harvested as dry grain, including seed.

Includes;

- oats (*Avena sativa* L.)
- cereal grains harvested just before maturity.

Excludes;

- cereals harvested green or yellow as whole plant for fodder or renewable energy (G9100).

3.1.2.1.6 Grain maize and corn-cob-mix (C1500T)

Hectares of maize (*Zea mays* L.) harvested for grain, as seed or as corn-cob-mix.

Includes:

- grain maize harvested by hand, corn-picker, corn-sheller or combine harvester, regardless of the use, including grain for silage
- grain harvested together with parts of the cob, but with humidity higher than 20% and used for silage (so called corn-cob-mix, CCM – humidity 30-35%)
- maize for popcorn (*Zea mays everta*).

Excludes:

- sweet corn cobs for human consumption (V0000_S0000; V3900 in ACS)
- maize harvested green as whole plant for fodder or renewable energy use (humidity of 65-70%) (G3000).

3.1.2.1.7 Triticale, sorghum and other cereals not elsewhere classified (buckwheat, millet, canary seed, etc.) (C1600_1700_1900T)

Hectares of triticale (*x Triticosecale* Wittmack), sorghum (*Sorghum bicolor* (L.) Conrad Moench or perennial sorghum (*Sorghum x sudanense* (Piper) Stapf.) and of cereals, harvested dry for grain, and which are not recorded elsewhere under the previous items such as millet (*Panicum miliaceum* L.), buckwheat (*Fagopyrum esculentum* Mill.), canary seed (*Phalaris canariensis* L.) and other cereals not elsewhere classified (n.e.c.).

Includes:

- triticale (*x Triticosecale* Wittmack)
- sorghum (*Sorghum bicolor* (L.))
- perennial sorghum (*Sorghum x sudanense* (Piper) Stapf.)
- millet (*Panicum miliaceum* L.)
- buckwheat (*Fagopyrum esculentum* Mill.)
- canary seed (*Phalaris canariensis* L.)
- other cereals not elsewhere classified (n.e.c.)
- cereal grains harvested just before maturity.

Excludes:

- cereals harvested green or yellow as whole plant for fodder or renewable energy (G9100).

3.1.2.1.8 Rice (C2000T)

Hectares of rice (*Oryza sativa* L.)

Refers to all rice, regardless of having longer grains, or short and roundish grains.

Includes:

- basmati rice
- jasmine rice
- ordinary rice
- glutinous rice.

3.1.2.2 DRY PULSES

Code	Label	Unit
P0000T	Dry pulses and protein crops for the production of grain (including seed and mixtures of cereals and pulses)	hectares
P1000T	Field peas, beans and sweet lupins	hectares

Dry pulses are crops sown and harvested mainly for their protein content.

This heading should be limited to crops harvested for dry grain only and excluding crops harvested green for forage, used as grazing or as green manure.

Includes:

- dry pulses and protein crops for the production of grain (including seed and mixtures of cereals and pulses)
- field peas, beans and sweet lupins.

Excludes:

- protein crops harvested green (not dry) if they are used for human consumption, such as fresh beans or fresh peas (V0000_S0000; V5000 in ACS)
- protein crops harvested green (not dry) if the whole plant is harvested green and used for fodder, renewable energy or other purposes (G2000).

3.1.2.3 ROOT CROPS

Such categories as potatoes and other roots in open air; potatoes (including seed potatoes); sugar beet (excluding seed) and 'other root crops n.e.c.'

3.1.2.4 INDUSTRIAL CROPS

All Industrial crops including aromatic, medicinal and culinary crops (AMCC) in open air. The AMCC could have more than one crop per year and several harvests, and all these situations must be registered for the SOC.

3.1.2.5 FODDER, TEMPORARY GRASS, PERMANENT PASTURE AND ROUGH GRAZING, OTHER FORAGE

The difference between temporary and permanent is the time during which the land is used for a crop. It is temporary when the use is less than 5 years and permanent when the use is for 5 or more years. In some regions there are a diversity of products from the same crop like silage, hay and grazing, so all these situations need to be taken into account.

Fodder always has to be 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.

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 calculating the SO coefficients for fodder, the Member States may compare their results with those of neighbouring 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 still has 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, by attributing a positive value to pasture used for grazing, it is possible to differentiate these pastures in use from the pastures without economic use.

3.1.2.6 FRESH VEGETABLE CROPS, FLOWERS AND ORNAMENTAL PLANTS - OUTDOORS

Fresh vegetable crops in open air/outdoors are produced in two systems: Market gardening (where the horticulture crop grows in rotation with other horticulture crops in the same year) and open field (where the crop grows in rotation year by year with other non-horticulture crops).

The market gardening group could have more than one crop per year and several harvests in the same area, and all these situations must be registered for the SOC. To determine the SOC, it is important to know how many harvests are normal in a year in the same area (ha).

The SOC for market gardening is a weighted average of several SOC's of different categories of products. In a region, there are different yields for the same product, depending on whether the production system is conventional or organic.

SOC of fresh vegetable crops, market gardening (example)

SOC= \sum (number of harvests X yield (kg/ha) X price (euro/kg) x % share for each product)

The open field group could have a secondary product from a secondary crop, as the time is one year; there are regions which plant other crops to make better use of the land. The SOC for open field is a weighted average of several SOC's of different categories of products based in an area.

SOC of fresh vegetable crops, open field (example)

$$\text{SOC} = \sum ((\text{yield (kg/ha)} \times \text{price (euro/kg) as main product}) + (\text{yield (kg/ha)} \times \text{price (euro/kg as secondary product)}) \times \% \text{ share for each product})$$

Flowers and ornamental plants (excluding nurseries) – outdoors

These groups use the same time frame as the market gardening group: they could have more than one crop per year and several harvests in the same area, and all these situations must be registered for the SOC.

3.1.2.7 FRESH VEGETABLE CROPS, FLOWERS AND ORNAMENTAL PLANTS- UNDER GLASS OR HIGH ACCESSIBLE COVER

This group of products under glass or high accessible cover uses the same time frame as the market gardening group: it could have more than one crop per year and several harvests in the same area, and all these situations must be registered for the SOC.

3.1.2.8 PERMANENT CROPS

To produce permanent crops, one has to plant young trees or plants and wait several years to obtain a standard production.

The SOC of fruits is a weighted average. The quantity refers to the annual production. To take into account the grace period of fruit trees until they enter full production, a correction coefficient is applied to annual production, which corresponds to a) the number of years of full production times b) the number of years of planting. Activities can be conventional or organic and irrigated or not. There are different densities and cultivars for the same product (see examples in Annex I).

SOC of permanent crops (example)

$$\text{SOC} = \sum ((a/b) \times \text{yield (kg/ha)} \times \text{price (euro/kg)} \times \% \text{ share for each permanent crop})$$

3.1.2.9 PERMANENT CROPS UNDER GLASS OR HIGH ACCESSIBLE COVER

The time frame for producing permanent crops under protection is similar to the time frame for outdoor crops, but the coefficient applied to annual production is sometimes a little different, because the production is intensified.

3.1.2.10 MUSHROOMS

The regional SO coefficients for the variable 'mushrooms' are calculated per 100 square metres (1 are) regardless of the number of harvests, i.e. the output includes all the successive harvests. In the case of multi-level shelves, the harvest from the total area of all shelves should be taken into account.

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

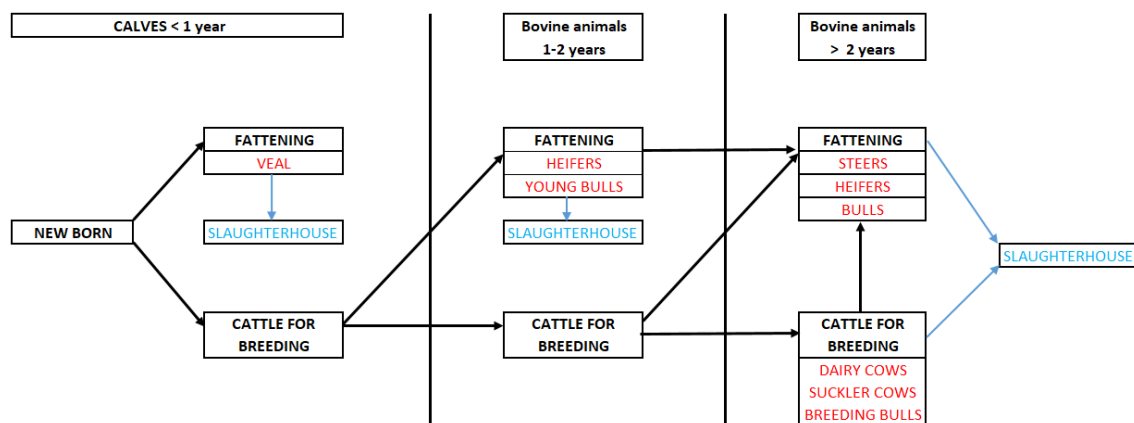
In the FADN, the cumulated area of all successive harvests is recorded. Therefore, for the purpose of the FADN, the coefficient is divided by the average number of harvests during the year. Member States must send to Eurostat this average number when transmitting the SO coefficients.

3.1.3 Variables of livestock

3.1.3.1 BOVINE ANIMALS

For cattle there is no good matching between the surveyed items and the marketable products. For instance, a high percentage of heifers is not intended to be slaughtered. The diagram below represents the change of bovine categories according to the age, gender and final use of the animals.

Figure 5 – Change of bovine categories according to the age, gender and final use of bovine animals



When an animal category in the IFS corresponds to a different type of animal in the FADN, the SOC 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 SOC is a weighted average of the value of milk and meat animals.

Buffaloes are taken into account in the bovine categories.

3.1.3.1.1 SOC of bovine animals

A first step in calculating the SOC for bovine animals is to determine the share of each use expressed in percentage of the livestock number.

It is very useful to determine the length of the production cycles for each category.

3.1.3.1.2 SOC of dairy cows, buffalo dairy cows and non-dairy cows

The value of the SOC 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 [estimated] value of calves at 1 year (if kept on the farm) or the value of the sold calves (if they are sold before the age of one).

For 'dairy cows' and 'non-dairy cows' the mortality rate is taken into account through the replacement rate.

SOC of dairy cows (example)

*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 in the example are explained below.

Value of milk

The value of milk is equal to the average yield multiplied by the farm gate price. The farm gate price is a regional average price for a standard quality of milk before deduction of any marketing or transporting costs. Based on expert knowledge, 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 such as cheese, cream, butter and other milk products, this value is not taken into account; the value of the milk itself may be higher due to it being used to produce high added value products.

Value of a calf less than 1 year old

When adding the value of a calf less than 1 year old to the dairy cow value, the same method used to calculate the value of calves has to take into account the gender of those calves (male or female) and what percentage is used for final uses. For example, males are usually sold at birth or in some cases, later, with some fattening, and have a different selling price depending on the length of stay on the farm, one week or 8 months. The females are kept so the herd can be replaced/renewed; the percentage of dairy cows to be kept when replacing the herd will depend on the type of production system. The price is also different because the cow does not just represent meat but is a female who will produce milk, the main product of a dairy cow.

In calculating the SOC of dairy cows, the value of the newborn is added as a product inside the value of a calf <1 year; the value depends on how many days, weeks the cow will stay on the farm and the value at the time of sale as explained above. It is a value generated by the cow to be added to the SO for dairy cows.

In a region where most of the dairy calves are sold in the first few weeks, the calf output to be included in the SOC coefficient for cows is limited to the value of the newborn. However the [implicit] value of the young female calves kept for the dairy herd's renewal should be included.

When calculating the value of the calves less than one year old to be included in the value of cows, the following points should also be taken into account in relation to the production system:

- fertility rate (total number of calves born alive divided by total number of inseminated females),
- mortality rate of calves (total number of calves divided by total number of calves born),
- lactation period (period of time between two calvings).

Special rules apply to certain categories of cattle:

- 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 SOC 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 old⁵.
- 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 SOC of calves under 1 year old kept without their mother is a weighted average of:
 - male and female calves
 - from the meat and dairy sector
 - kept for breeding or slaughtered before the age of 1 year.

The value of the calves slaughtered under the age of 1 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 %.

Value of a cull animal

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 over the number of productive years of the animal (see also the point on replacement rate). The price must 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](#)).

Value of in-calf heifer

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

Multiplying by the replacement rate

The cull animal value and the replacement value are divided by the average number of lactations, which is the same as multiplying by the replacement rate. The value of an in-calf heifer is often

⁵ For example, the calves for fattening or calves for breeding bought by specialised fatteners.

higher than the value of a cull dairy cow. Therefore, this part of the calculation can be expected to be negative.

However, considering that the final SOC value should be positive, particular care should be taken when choosing the data source and calculating, in order to avoid a wrong attribution of negative SOC values.

3.1.3.1.3 SOC of other bovine animals

For the calculation of the SOC of all the other bovine animals, each coefficient is a weighted average of the different categories of animals according to their final use (see **Figure 5**).

Mortality rate

The mortality rate of adult animals should be taken into account in the final value of the other bovine animals.

Calculating the value of animals

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

- 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
- The value of the finished animal can be calculated and spread over the length of the production cycle: (value at the time of slaughter minus value of newborn) divided by the length of the production cycle in years; OR
- In the regions where the fattening activity is specialised, it can be interesting to look at the value of the finished animal minus the weanling value, and then the length of the 'production' is limited to the fattening period.

Given the higher value of young animals, special care should be taken when using calculation methods under the first and third points above. Negative results for the category of older animals should be avoided when subtracting the value/weight of younger animals. In case of negative values, it is suggested that the data and their source be revised or the calculation method changed.

The choice between the different methods mainly depends on the data available and on the bovine systems in the region. In any case, it is important that the replacement value is deducted when necessary⁶.

3.1.3.1.4 Determining the SOC of bovine animals from 0 to 1 year old

The SOC of 'bovine animals from 0 to 1 year old' is a weighted average of the value of the males and females kept for breeding or fattening and the value of males and females that are slaughtered before the age of 1.

This value should reflect the output of these animals kept on farms without cows or when the relation between bovines from 0-1 Y old and cows in a farm are > 1. Until 1, the value is already included in the cow output.

(Number of bovines from 0-1 Y old) = (Number of cows) → the SOC of bovines from 0-1 Y old is not used.

⁶ When the SO is calculated based on the annual growth there is no need to deduct any replacement value.

(Number of bovines from 0-1 Y old) < (Number of cows) → the SOC of bovines from 0-1 Y old is not used.

(Number of bovines from 0-1 Y old) > (Number of cows) → the SOC of bovines from 0-1 Y old is used for the number of animals that exceed the number of cows.

3.1.3.1.5 Determining the SOC of male bovine animals from 1 to 2 years old

To give an example of the calculation methods, the value of 'male bovine animals from 1 to 2 years 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.

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

Value of young bulls

A young bull is a finished animal; its value can be calculated choosing one of the following options:

1. $\{ (\text{Weight when slaughtered} - \text{Weight at the age of one}) * \text{Young bull farm gate price} \} * \text{Number of young bulls per place per year}$
2. $\{ (\text{Weight} * \text{Young bull farm gate price}) - \text{replacement value (= newborn value)} \} / (\text{length of the production cycle in years})$
3. $\{ (\text{Weight} * \text{Young bull farm gate price}) - \text{replacement value (= weanling price)} \} / (\text{length of the fattening cycle in years})$.

Value of male to be fattened as steer

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

1. $\{ (\text{Weight at the age of 2} - \text{Weight at the age of one}) * \text{farm gate price of a two-year old steer} \}$
2. $\{ (\text{Weight} * \text{Steer farm gate price}) - \text{replacement value (= newborn value)} \} / (\text{length of the production cycle in years})$
3. $\{ (\text{Weight} * \text{Steer farm gate price}) - \text{replacement value (= weanling price)} \} / (\text{length of the fattening cycle in years})$.

3.1.3.1.6 Determining the SOC of female bovine animals from 1 to 2 years old

For example, the SOC of '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.

3.1.3.2 SHEEP AND GOATS

To determine the SOC for sheep and goats, it should reflect the output of lambs and kid goats kept on farms with breeding females and other sheep and goats not for breeding.

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 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 newborn lambs or kids (if they are fattened on other farms).

The SOC for ewes and she-goats can be calculated in the same way as for cows:

SOC of breeding female sheep (example)

Value of fattened lamb/kid+

[(Value of (cull animal – young breeding ewe) *
replacement rate)]+

Value of other product (milk ;wool)

When calculating the value of the lambs to be included in the value of breeding female sheep, the following points should also be taken into account in relation to the production system:

- fertility rate (total number of lambs born alive divided by total number of inseminated females);
- mortality rate of lambs (total number of lambs alive divided by total number of lambs born);
- lactation period (period of time between two gestations);
- prolificacy (number of newborn by female).

The value of other sheep/goats is a weighted average of the lambs/kids kept on farms without breeding females⁷ and other sheep/goats for slaughter and the male reproducers. The male sheep reproducers may be non-significant and the SOC can be limited to the lamb value. Lambs may be slaughtered at different age, but there are regional quotations for lambs at the time of slaughter. The value should be corrected to cover a 12-month period.

SOC of other sheep and other goats (example)

*(Value at the time of slaughter – value of newborn) **

Number of sheep and goats produced per place per year

3.1.3.3 PIGS

3.1.3.3.1 Determining the SOC of piglets

The SOC for piglets under 20 kg should reflect the output of piglets kept on farms without sows. The piglets are not valued if there are sows on the farm, because their value is already included in the sow output.

⁷ When there are breeding females on the farm, the value of lambs and kids is included in the total breeding female output.

The value for piglets should be calculated by the length of production of a piglet in a year to cover a 12-month production period.

3.1.3.3.2 Determining the SOC of sows

The female pigs intended for breeding are included in the sow category, regardless whether they have farrowed or not.

SOC of sows (example)

Value of piglets+

[(Value of (cull animal – young breeding sow) * replacement rate]

For calculating the value of the piglets to be included in the value of sows, the following points should also be taken into account in relation to the production system:

- fertility rate (total number of piglets born alive divided by total number of inseminated females);
- mortality rate of piglets (total number of piglets alive divided by total number of piglets born);
- lactation period (period of time between two gestations);
- prolificacy (number of newborn by sow).

The value of piglets to be added corresponds to the number of piglets per sow and per year multiplied by the piglet selling price.

3.1.3.3.3 Determining the SOC of other pigs

The category 'other pigs' covers pigs for fattening and boars. As boars are rare, the SOC can be calculated as the value of the pigs for fattening.

SOC of pigs for fattening (example)

*(Value at the time of slaughter – piglet value) **

Number of pigs produced per place per year

3.1.3.4 POULTRY

The SOC is calculated per 100 heads.

3.1.3.4.1 Determining the SOC of broilers and laying hens

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' (not present in IFS), are the main product of the breeding hens.

SOC of poultry (example)

Value of product birds (meat) and/or eggs)+

*[(Value of (cull poultry – young poultry breeding or not) * replacement rate]*

When calculating the value of the birds/eggs to be included in the value of products, the following points should also be taken into account in relation to the production system:

- mortality rate of chicks (total number of chicks alive divided by total number of chicks born);
- mortality rate of growing birds/pullets or adult poultry (total number of growing pullets or adult poultry alive at end of production divided by total number of birds at beginning);
- number of birds per year or number of batches per year (coefficient obtained by time of growth period plus the time interval between batches per year: include the time in days/weeks of the growth period of the production system plus the interval time in days/weeks between batches for sanitary cleaning);
- production cycle of the adult product to understand the coefficient to cover a year;
- coefficient of production of egg/head/year;
- broken eggs rate.

3.1.3.4.2 Determining the SOC of other poultry

This category regroupes heterogeneous animals: turkeys (CLVS024), ducks (CLVS025), geese (CLVS026), ostriches (CLVS027) and other poultry fowls n.e.c. (CLVS028).

The calculation of an adequate value for the mandatory SOC for CLVS023, requires a specific methodology that will be developed in the future.

In the meantime, you can find an example of calculation method in Annex II.

The SOCs for subheadings are welcome as optional entries: It will be possible to include them following the official template for delivery, together with the main heading.

3.1.3.5 BEES

The SOC 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 SOC is concentrating on the output.

3.1.4 Exceptions and special cases

All Member States must send information for the SOC data transmission that is as complete as possible and in line with the most recent legal act.

If they cannot calculate all the details for a specific subheading, Member States may, as an exception, give a single regional SO coefficient for the corresponding 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 in order to keep the file complete.

The option of providing only a SOC for the main heading does not apply in the following cases:

- Subheadings of sheep and goats; given the different types of animals included in the subheadings, two different coefficients must be provided, one for the breeding females and 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.

SOC may be '0' for the following characteristics:

- Fallow land (with no intention of producing a harvest for the duration of a crop year), SOC_CLND049
- Kitchen gardens (with production mainly intended for the personal consumption of the holder's family and not for sale), SOC_CLND073_085
- Permanent grassland no longer used for production purposes and eligible for payments of subsidies, SOC_CLND053.

3.2 Calculating the economic size of a holding

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

As already stated, special rules apply 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:
 - IFS: number of bovine animals less than 1 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.

Figure 6 – Calculation of the economic size of the holding

IFS Code	Animals present on the farm and area per crop			SOC	Individual SO
	Label	Unit	Number (a)	(b)	(a) * (b)
CLND004	Common wheat and spelt	Ha	75.13	951	71 449
CLND007	Barley	Ha	5.80	811	4 704
CLND008	Oats	Ha	5.10	666	3 397
CLND022	Oilseed rape	Ha	13.30	708	9 416

CLND015	Peas, field beans and sweet lupins	Ha	26.85	736	19 762
CLND034	Aromatic, medicinal and culinary plants	Ha	0.01	1 921	19
CLND018	Sugar beet	Ha	23.20	2 388	55 402
CLND019	Fodder roots and brassicas	Ha	6.50	568	3 692
CLND049	Fallow land	Ha	2.04	0	0
Total SO of the holding (economic size in €)					167 840
Economic size class					VIII

Figure 7 – Another example of the calculation of the economic size of the holding

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

3.3 Determining the type of farming of a 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, olive trees and fruit trees including berry plantations),
- grazing livestock (bovines, sheep and 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 SOs 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 granivore holdings.

The poles P1 to P5 and the other regrouping codes are shown in Annex IV of Commission Implementing Regulation (EU) 2015/220 – see this Annex to Regulation 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).

However, 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 codes 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 code for roots (P17) includes fodder roots (SO_CLND019) only if there are no grazing livestock on the farm.

As a reminder, no value is attributed to common land and short-term renting 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:

1. 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);
2. the partial SO for the characteristics regrouped (sum of the individual SO);
3. 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 1

Is: P1 > 2/3 * total SO?

- ▶ YES: The general type of farming of the holding is '1. SPECIALIST FIELD CROPS'
 - ↳ Is: (P15 + P16 + SO_CLND014) > 2/3 * total SO?
- ▶ YES: The principal type of farming of the holding is '15. SPECIALIST C.O.P.'
 - ↳ Is: (P151 + P16 + SO_CLND014) > 2/3 * total SO?
 - ▶ NO
 - ↳ Is (SO_CLND013) > 2/3 * total SO?
 - ▶ YES: The particular type of farming of the holding is '152. SPECIALIST RICE'

Example 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: SO_CLND062 > 2/3 * total SO?**
 - ▶ YES: The principal type of farming of the holding is '35. SPECIALIST VINEYARDS'
 - ↳ **Is: SO_CLND064 + SO_CLND065 > 2/3 * total SO?**
 - ▶ NO
 - ↳ **Is: SO_CLND066 > 2/3 * total SO?**
 - ▶ NO
 - ↳ **Is: SO_CLND067 > 2/3 * total SO?**
 - ▶ YES: The particular type of farming of the holding is 'SPECIALIST TABLE GRAPES'

Any holding can therefore 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 occur when there is no SO value on the holding, for example, if a farm has only a kitchen garden or fallow land or land without economic use.

Determining the type of farming of the holding

1- Calculation of the regrouping codes

GL=0	FCP1	SO_CLND019
	P17	SO_CLND018 + SO_CLND019
	P1	SO_CLND004 + SO_CLND007 + SO_CLND008+ SO_CLND022+ SO_CLND015 + SO_CLND034+ SO_CLND018 + FCP1
	P15	SO_CLND004+ SO_CLND007+ SO_CLND008
	P16	SO_CLND022
	2.01.02	SO_CLND049
TOTAL SO		167 840

2- Comparison of the values of the regrouping codes:

First test to be done: TOTAL SO > 0

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

$$2/3 \text{ TOTAL SO} = 111\,893$$

P1 > 2/3 Total ?

General type of farming = 1 Specialist field crops

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

P15 + P16 + SO_CLND049 > 2/3 Total?

$$P15 + P16 + SO_CLND049 =$$

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

Principal type of farming = 16 general field crops

P17 > 2/3 Total ?

P15 + P16 + 2.01.02 > 1/3

Total ?

And P17 > 1/3 Total ?

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

Particular type of farming = 162 C.O.P. and root crops combined

4

Data processing

4.1 Introduction

According to EU legislation, once every 10 years when the IFS is carried out in the form of a census, the basic data for determining the SOC has to be renewed using the direct observation method. Between the two IFS censuses, each time there is a new IFS the SOC can be updated by using either:

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

4.2 Data integration

4.2.1 Direct observation method

The basic data needed for calculating the SOC are collected systematically during the same reference period in all Member States at least once every 10 years. For the IFS year N, the reference period will be year N-3, covering the 5 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 such as those listed in **Chapter 2**.

The Member States have to provide the following information:

- The value of the SOC coefficient in euro: if rounding is applied, the rounded value is transmitted.
- The five-year averages (or the five relevant yearly averages), per region and per characteristic of the quantity of the main product (per area or livestock unit), the corresponding unit price, the total value of any secondary product, the replacement value and the SOC in national currency. Nevertheless, providing the quantity and corresponding unit price is optional because this information may not be available when the SOC 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 SOC into euro (see point 4.7.1).
- 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.

As stipulated in Annex VI of Regulation 2015/220, the Member States are responsible for collecting the basic data needed to calculate the SOCs and calculating them, converting them into euro and collecting the data required to apply the updating method, if appropriate.

In addition, the Member States have to submit their collection and calculation methodologies to the Commission, and if required, provide explanations in order to harmonise the SOC calculations methodology throughout the Member States.

For the sake of clarity and comparability, the Member States should follow the proposed template (see Section 8 of this Manual) when submitting the methodologies mentioned.

4.2.2 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 SOC between the new five-year reference period and the preceding reference period.

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

The coefficient is applied to the values in national currency of the SOC of the preceding reference period. The 'updated' SOCs are then converted to euro using the calculated conversion rate.

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

4.3 Revision

No recommendations made at EU level.

4.4 Validation

No recommendations made at EU level.

4.5 Editing

No recommendations made at EU level.

4.6 Imputation

No recommendations made at EU level.

4.7 Derive new variables and units

4.7.1 Monetary conversion

For the countries not taking part in the Economic and Monetary Union, the SOs 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 rates, and the average of the reference years has to be calculated.

If in the reference period a country adopted the euro, the exchange rate to be used has to be calculated using the average monthly exchange rate until the date of the euro's adoption; for the months that the country was already included in the Eurozone, the value taken will be the fixed conversion rate in euro. This implies that the SOC has to be calculated in the following manner:

1. calculation of results of individual years in national currency for the whole reference period;
2. calculation of the five-year average in national currency;
3. conversion of the five-year average into euro using the five-year average exchange rate.

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

4.8 Calculation of weights

No recommendations made at EU level.

4.8.1 Extrapolation factors

4.8.2 Variance estimation

4.9 Calculation of national aggregates

No recommendations made at EU level.

5

Data structure

5.1 Introduction

The dataset structure definition (DSD) describes how information in a specific dataset is structured. Knowledge of the structure is important, because with such knowledge, information can be filtered very precisely based on specific dimensions.

5.2 Dataset structure definition

The data structures can be found on the repository under <https://webgate.ec.europa.eu/sdmxregistry/> and have the following artefact IDs:

ESTAT+IFS_SOC+X.Y

5.3 Data types

For the data transmission, data will be transmitted as either a:

- code
- positive integer
- positive real number.

The list of valid codes is given in Annex I.

5.4 Code lists

The following codes are extracted from Commission Implementing Regulation (EU) 2019/1975 of 31 October 2019 amending Implementing Regulation (EU) 2015/220. Note, however, that the reference for code lists to be used is also part of the SDMX registry. Aggregations are illustrated in Annex IV.

SOC code	Type	2017 SOC heading	Aggregated	Not aggregated
I. Crops				
SOC_CLND004		Common wheat and spelt	P1	
SOC_CLND005		Durum wheat	P1	
SOC_CLND006		Rye and winter cereal mixtures (maslin)	P1	
SOC_CLND007		Barley	P1	
SOC_CLND008		Oats and spring cereal mixtures (mixed grain other than maslin)	P1	
SOC_CLND009		Grain maize and corn-cob mix	P1	
SOC_CLND010_011_012		Triticale, sorghum and other cereals n.e.c. (buckwheat, millet, canary seed, etc.)	P1	
SOC_CLND013		Rice	P1	
SOC_CLND014		Dry pulses and protein crops for the production of grain (including seed and mixtures of cereals and pulses)	P1	
SOC_CLND015		Field peas, beans and sweet lupins	P1	
SOC_CLND017		Potatoes (including seed potatoes)	P1P17	
SOC_CLND018		Sugar beet (excluding seed)	P1P17	
SOC_CLND019	FC	Other root crops n.e.c.	P1P17	
SOC_CLND022		Rape and turnip rape seeds	P1	
SOC_CLND023		Sunflower seed	P1	
SOC_CLND024		Soya	P1	
SOC_CLND025		Linseed (oil flax)	P1	
SOC_CLND026		Other oilseed crops n.e.c.	P1	
SOC_CLND028		Fibre flax	P1	
SOC_CLND029		Hemp	P1	
SOC_CLND030		Cotton	P1	
SOC_CLND031		Other fibre crops n.e.c.	P1	
SOC_CLND032		Tobacco	P1	
SOC_CLND033		Hops	P1	
SOC_CLND034		Aromatic, medicinal and culinary plants	P1	
SOC_CLND035_036		Energy and other industrial crops n.e.c.	P1	
SOC_CLND037	(FC)	Plants harvested green from arable land	(P1P4)	
SOC_CLND038	FC	Temporary grasses and grazings	P1P4	
SOC_CLND039	FC	Leguminous plants harvested green	P1P4	
SOC_CLND040	FC	Green maize	P1P4	
SOC_CLND041_042	FC	Other plants and cereals (excluding maize) harvested green n.e.c.	P1P4	
SOC_CLND043		Fresh vegetables (including melons) and strawberries - outdoor	(P2)	

SOC_CLND044		Fresh vegetables (including melons) and strawberries - Market gardening	P2	
SOC_CLND045		Fresh vegetables (including melons) and strawberries - Open field	P1	
SOC_CLND046		Flowers and ornamental plants (excluding nurseries) – outdoor	P2	
SOC_CLND047		Seeds and seedlings	P1	
SOC_CLND048_083		Other arable land crops n.e.c. including under glass or high accessible cover	P1	
SOC_CLND049		Fallow land	P1	
SOC_CLND050	(FC)	Permanent grassland	(P1P4)	
SOC_CLND051	FC	Pasture and meadow, excluding rough grazings	P1P4	
SOC_CLND052	FC	Rough grazings	P1P4	
SOC_CLND053	(FC)	Permanent grassland no longer used for production purposes and eligible for the payment of subsidies		In size
SOC_CLND055		Fruits, berries and nuts (excluding citrus fruits, grapes and strawberries)	(P3)	
SOC_CLND056_057		Fruit of temperate climate zones	(P3)	
SOC_CLND056		Pome fruits	P3	
SOC_CLND057		Stone fruits	P3	
SOC_CLND058		Fruits from subtropical and tropical climate zones	P3	
SOC_CLND059		Berries (excluding strawberries)	P3	
SOC_CLND060		Nuts	P3	
SOC_CLND061		Citrus fruits	P3	
SOC_CLND062		Grapes	(P3)	
SOC_CLND063		Grapes for wines	(P3)	
SOC_CLND064		Grapes for wines with protected designation of origin (PDO)	P3	
SOC_CLND065		Grapes for wines with protected geographical indication (PGI)	P3	
SOC_CLND066		Grapes for other wines n.e.c. (without PDO/PGI)	P3	
SOC_CLND067		Grapes for table use	P3	
SOC_CLND068		Grapes for raisins	P3	
SOC_CLND069		Olives	(P3)	
SOC_CLND069A		Normally producing table olives	P3	
SOC_CLND069B		Normally producing olives for oil production	P3	
SOC_CLND070		Nurseries	P2	
SOC_CLND071		Other permanent crops	P3	
SOC_CLND072		Christmas trees	P3	
SOC_CLND073_085		Kitchen gardens and other UAA under glass or high accessible cover n.e.c.		In size
SOC_CLND079		Cultivated mushrooms	P2	

SOC_CLND081		Vegetables (including melons) and strawberries under glass or high accessible cover	P2	
SOC_CLND082		Flowers and ornamental plants (excluding nurseries) under glass or high accessible cover	P2	
SOC_CLND084		Permanent crops under glass or high accessible cover	P3	

II. Livestock

SOC_CLVS001	GL	Bovine animals less than 1 year old	P4	
SOC_CLVS003	GL	Male bovine animals, 1 to less than 2 years old	P4	
SOC_CLVS004	GL	Heifers, 1 to less than 2 years old	P4	
SOC_CLVS005	GL	Male bovine animals, 2 years old and over	P4	
SOC_CLVS007	GL	Heifers, 2 years old and over	P4	
SOC_CLVS008	(GL)	Cows	(P4)	
SOC_CLVS009	GL	Dairy cows	P4	
SOC_CLVS010	GL	Non-dairy cows	P4	
SOC_CLVS011	GL	Buffalo-cows	P4	
SOC_CLVS012	(GL)	Sheep (all ages)	(P4)	
SOC_CLVS013	GL	Breeding female sheep	P4	
SOC_CLVS014	GL	Other sheep	P4	
SOC_CLVS015	(GL)	Goats (all ages)	(P4)	
SOC_CLVS016	GL	Breeding female goats	P4	
SOC_CLVS017	GL	Other goats	P4	
SOC_CLVS018		Piglets, live weight of under 20 kg	P5	
SOC_CLVS019		Breeding sows, live weight 50 kg and over	P5	
SOC_CLVS020		Other pigs	P5	
SOC_CLVS021		Broilers	P5	
SOC_CLVS022		Laying hens	P5	
SOC_CLVS023		Other poultry	P5	
SOC_CLVS029		Breeding female rabbits	P5	
SOC_CLVS030		Bees		In size

6

Data and methodology

6.1 Deadlines for data transmission

Table 4 – Data transmission

Data collection	
SOC2017	31.12.2020

6.1.1 baSOC2017

Following Annex VI of Regulation (EU) 2015/220, the Member States are responsible for collecting the basic data needed to calculate the SOCs, converting them into euro and collecting the data required to apply the updating method, if appropriate.

In addition, the Member States have to submit their collection and calculation methodologies to the Commission, and if required, provide explanations in order to harmonise the SOC calculation methodology throughout the Member States.

For the sake of clarity and comparability, the Member States should follow the proposed template (see Section 8 of this Manual) when submitting the methodologies mentioned.

6.2 Data Structure for transmission

The data structure describing the data files to be sent, can be obtained on the SDMX register (<https://webgate.ec.europa.eu/sdmxregistry/> -> Data Structures)

The fields and code lists can be used as guidelines to help MS setting up their systems and to better understand what to be sent.

6.3 Completeness

It is expected that for all relevant records, data for all variables will be supplied.

Each data supplier will supply the complete record with all fields in the specified order.

- Each value is given in ASCII characters with the full significant precision. The number of decimals to be delivered is not specified by Eurostat. It should be the same as used in the supplying country and may vary between variables.

- Eurostat's software programs are case-sensitive. 'x' and 'X', for example, are treated as different values. Data suppliers are asked to respect the codification for alphanumerical values as documented in this handbook.

6.4 Flags for data transmission

6.4.1 Observation status flags

The observation status flags are not applicable for the purpose of the SOC2017 data transmission.

6.4.2 Confidentiality status flags

The confidentiality status flags are not applicable for the purpose of SOC2017 data transmission.

6.5 File-naming conventions

The file names should follow the EDAMIS file-naming convention.

Table 5 – File-naming convention (where CC represents the country code)

Domain name	Dataset name	Examples
IFS	IFS_SOC_3_CC_2017_0000.csv	IFS_SOC_3_IE_2017_0000.csv IFS_SOC_3_ES_2017_0000.csv

6.6 Transmission method (EDAMIS)

Member States must transmit the datasets with the SOC via EDAMIS: <https://webgate.ec.europa.eu/edamis/helpcenter/website/index.htm>.

For the SOC transmission, it is necessary to select the dataset IFS_SOC_3 to ensure correct delivery of the file to Eurostat.

In the event of problems with the data transmission through EDAMIS, 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).

When the file is received, EDAMIS interacts with the data validation tool (EDIT) and emails back an error report to the Member State if any errors are detected.

The Member State will then need to correct the data and submit the file to EDAMIS again.

The EDAMIS web application (eWA) is installed in all national statistical institutes and a number of other organisations. A local coordinator is available in each NSI and can provide access to eWA and offer any assistance that might be necessary.

Where an EDAMIS web application is not available, data providers can use the EDAMIS web portal (eWP). This is an internet-based solution, available through an internet browser, which does not require a local installation.

6.6.1 Preparation of CSV files

Eurostat asks that the SOC be supplied in a .csv file with a pre-defined structure.

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.

6.6.2 Preparation of SDMX-ML files

6.6.2.1 GENERATING SDMX-ML FROM PRODUCTION ENVIRONMENTS

Not available for SOC2017.

7

Data validation

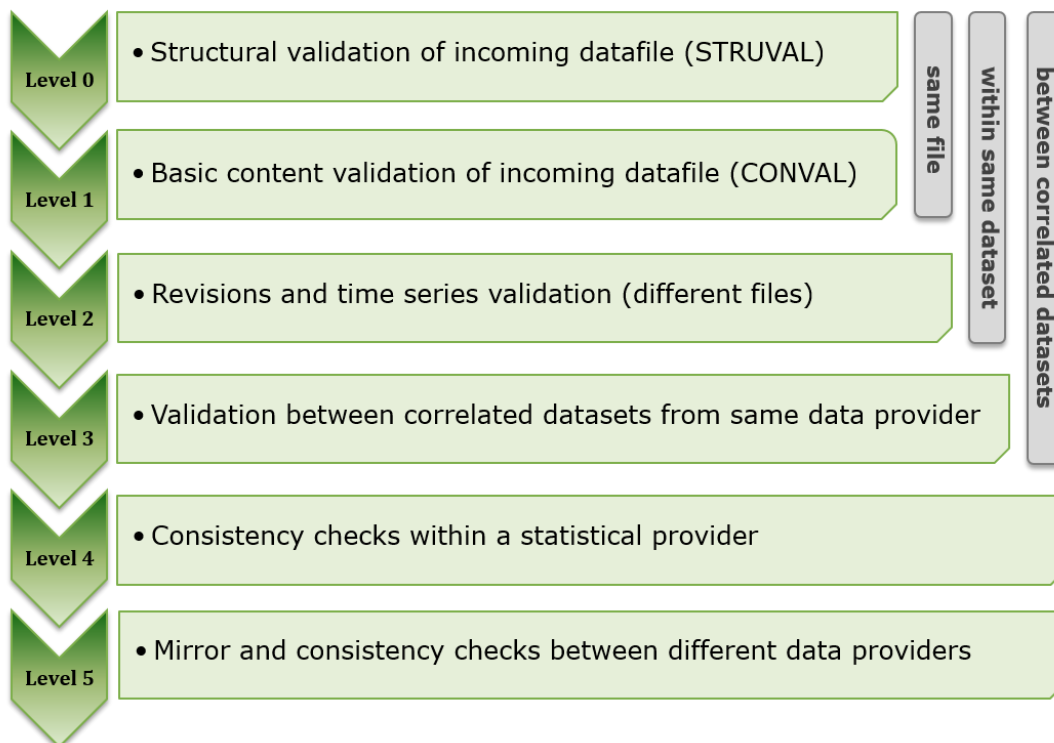
7.1 Introduction

Validation is a key task performed in all statistical domains.

Efficient data validation is essential for high quality statistics. Important elements of a good data validation policy include guidelines for assigning validation responsibilities within the whole production chain, standard validation levels, a good selection of validation rules, standards for validation reports and error/warning messages and common documentation standards for the validation process.

In principle, all data validation processes share a common approach, as illustrated in the diagram below.

Figure 8 – Validation



7.2 Revision

To verify the Member States' implementation of the common rules and principles of the EU typology, the following consecutive steps of checks and validations are carried out:

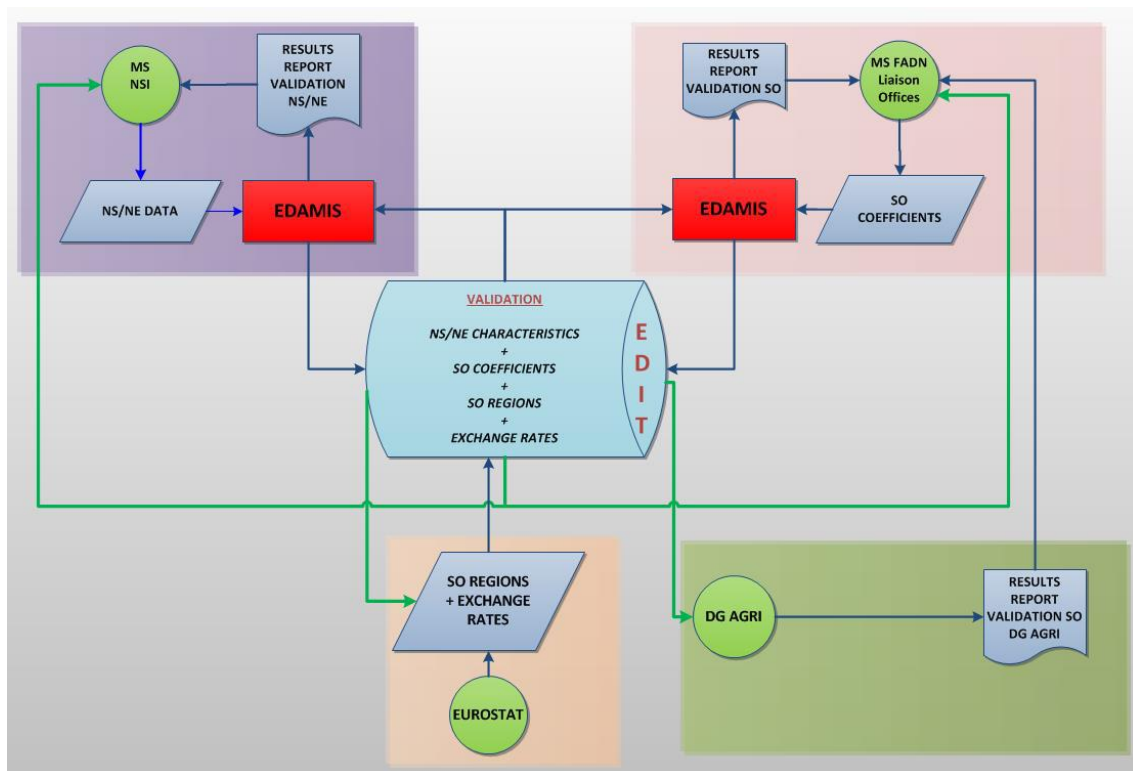
After validation by the data validation tool (EDIT), data files are sent to DG AGRI, where a number of tests are carried out:

- SOC values are compared with previous years;
- SOC values are compared with averages for the EU;
- SOC values are compared with specific product output levels per hectare in FADN;
- missing SOC values for products that appeared in the FADN data collection.

If the results of these tests indicate potentially problematic data, DG AGRI informs Member States through the FADN Liaison Offices and asks that this data be verified and if necessary corrected.

Should this lead to changes in the SOC, the new files will have to be submitted again via EDAMIS.

Figure 9 - Data flow for sending and validating the SOC and the information on the characteristics with zero or low prevalence

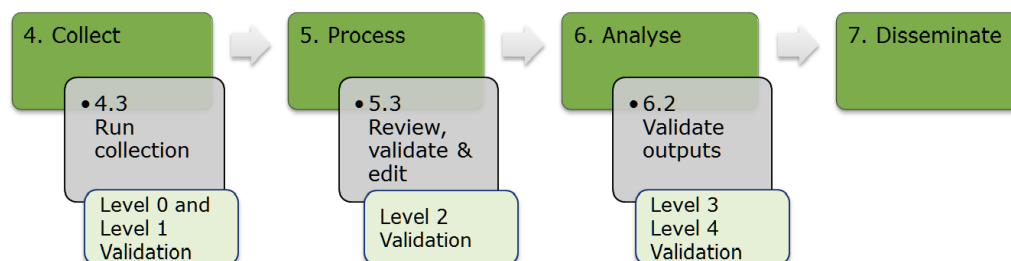


In practice, this is an iterative process, and only after passing all the structure and content steps can the data start to be processed in order to produce dissemination products.

7.3 Validation procedure

The data supplied to Eurostat are validated according to the following procedure:

Figure 10 – Validation process (GSBPM notation)



Step 4.3 is the first subprocess of GSBPM where validation checks are done. These checks are purely related to one instance of a dataset.

Eurostat's EDAMIS web portal uses the corresponding SDMX files. Therefore the data files are created automatically, and this implies that they are syntactically correct and well formed. This corresponds to a level 0 structural validation.

Closely linked is a level 1 validation, which is a basic content validation. There a basic checking of the records within the data file is done. Firstly, a semantic check of the records is carried out. Then a set of validation rules for an intra-file check is applied.

Step 5.3 is the part of the process where a level 2 validation takes place. In GSBPM this subprocess is specifically referred to as validation, but is in fact named 'review & validate'. This subprocess examines data to try to identify potential problems, errors and discrepancies. It can also be referred to as input data validation. At this stage of the process, the new data file is checked against the corresponding time series. The new data are checked using predefined validation rules in a set order. If problems are found, suspicious or erroneous data are marked for manual inspection. At this stage it is also checked whether all data for the reference year were reported, i.e. a check for completeness.

Step 6.2 is named 'validate outputs'. In this subprocess, statisticians validate the quality of the outputs produced in accordance with a general quality framework and with expectations.

7.3.1 Structural validation (STRUVAL)

Once the data arrives in Eurostat's input hall, they are verified against the defined SDMX files.

The input hall is not visible to NSIs, but a report will be sent in response to a data delivery. The data files are only accepted and sent for content validation when they are syntactically correct and well formed. This corresponds to a level 0 structural validation.

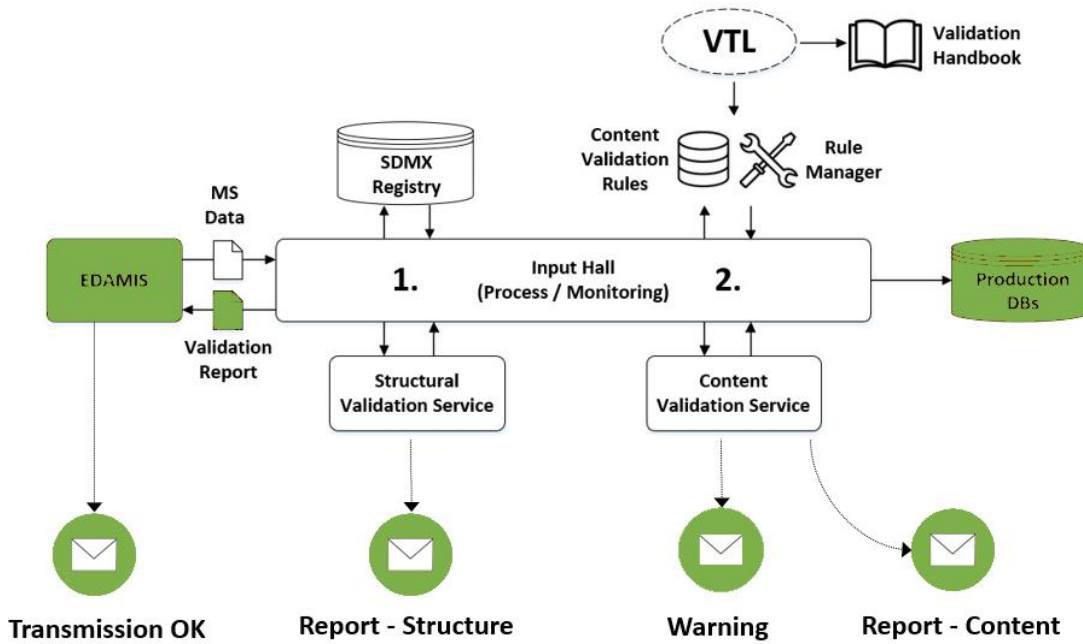
The Structural Validation Service (STRUVAL) performs the structural validation of statistical data files based on a set of pre-defined validation rules, contained in a data structure definition (DSD).

Structural validation performed by STRUVAL is the first step within a sequence of automated data validation activities conducted by Eurostat before statistical processing and dissemination of the collected data. STRUVAL returns a validation report to the data provider listing the failures detected in the dataset that need to be corrected before the dataset can be resubmitted.

STRUVAL verifies that:

- the transmitted file is an accepted and processable format (CSV for SOC2017);
- the dataset contains the structures as defined in the DSD, including dataflow definition, code lists, concepts, key families and constraints;
- the values contained within the dataset follow basic requirements defined in terms of completeness, data format, data consistency and constraints applied.

Figure 11 – Schematic of the input hall (green highlights are items visible to data providers)



7.3.1.1 COMPLETENESS

The completeness of the file is verified.

7.3.1.2 CODES

Codes used for categorical fields are checked against the list of valid codes given in this handbook.

7.3.1.3 CROSS-VALIDATION

The SOC2017 data is cross-checked against the NSNE2020 data and exchange rates for the relevant periods.

7.3.2 Content validation (CONVAL)

Closely linked is a level 1 validation, which is a basic content validation (the EDIT tool is used). There a basic checking of the records within the data file is done. Firstly a semantic check of the records is carried out. Then a set of validation rules for an intra-file check is applied (see **Annex III**)

7.4 Validation rules

7.4.1 Content validation

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

1. A SOC must be reported for every FADN Region.
2. A SOC must be transmitted for each SOC characteristic in the list of SOC characteristics.

Additionally, when the Integrated Farm Statistics Survey data is processed, every characteristic that has a value greater than zero in the IFS dataset is verified to ensure that it also has a SOC that is greater or equal to zero (thus not blank or null).

3. For every crop characteristic with an SOC (with code =1), 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: SOC_CLVS009 (Dairy cows), SOC_CLVS010 (Non-dairy cows), SOC_CLVS011 (Buffalo-cows), SOC_CLVS013 (Breeding female sheep), SOC_CLVS016 (Breeding female goats), SOC_CLVS019 (Breeding sows, live weight 50 kg and over), SOC_CLVS022 (Laying hens) and SOC_CLVS029 (Breeding female rabbits), 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 formulas used to calculate the final SOC will be checked in line with the validation rules presented in **Annex III**.

7.4.2 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 major discrepancies) and data plausibility (i.e., check of the value of the SO coefficients for the same or related products against the 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.

7.4.2.1 . CHECK THE RELATION OF THE COEFFICIENTS WITH PREVIOUS YEARS

The first step is to stipulate a maximum and minimum change rate. All values outside the thresholds have to 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.

Table 6 – Example of comparison of former SOC 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%

7.4.2.2 . VERIFY IF COUNTRIES ARE CALCULATING THE COEFFICIENTS WITH THE SAME LOGIC

Major 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.

Table 7 – Example of comparison of former SOC 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 it is possible to identify those values which come first or last in the ranking by FADN region and by SO coefficient. For some agricultural products (such as in the case of regional products of high quality), this ranking is not considered an anomaly as such, while in other cases some analysis and explanations may be needed.

Table 8 – Example of ranking of SO values, with values coming in the first positions highlighted in red

so_2017_region_code	SOC_CLIND004	SOC_CLIND005	SOC_CLIND006	SOC_CLIND007	SOC_CLIND008	SOC_CLIND009	SOC_CLIND010	SOC_CLIND011	SOC_CLIND012	SOC_CLIND013	SOC_CLIND014	SOC_CLIND015	SOC_CLIND016	SOC_CLIND017	SOC_CLIND018	SOC_CLIND019	SOC_CLIND020	SOC_CLIND021	SOC_CLIND022	SOC_CLIND023	SOC_CLIND024	SOC_CLIND025	SOC_CLIND026					
1 Frequency	143	110	143	143	143	130	143	55	143	143	143	86	142	143	139	143	116	125	106	142	136	58	143	129	75	125	142	
2 Distinct values	120	71	104	118	110	104	99	29	43	41	20	47	105	113	83	92	42	19	15	33	20	10	102	87	50	24	75	
Region code	108	58	94	83	100	63	124		78	95	77	78	132	98	90	50		15	1	100	23		77	85	15	82	70	
Region code	87	58	63	72	88	57	118		78	95	77	78	119	91	78	32		15	1	100	30		59	33	17	82	68	
Region code	110	58	82	100	89	64	116		78	95	77	78	135	74	89	31		15	1	100	23		76	34	32	82	72	
Region code	100	58	75	65	96	54	114		78	95	77	78	105	89	88	88		15	1	100	23		96	92	4	82	67	
Region code	78	58	56	64	79	27	123		78	95	77	78	112	88	82	71		15	1	100	22		51	86	2	82	23	
Region code	64	58	66	51	71	43	113		78	95	77	78	111	92	48	25		15	1	100	29		42	89	10	82	64	
Region code	99	58	84	82	78	66	125		78	95	77	78	115	86	62	63		15	1	100	23		67	66	12	82	71	
Region code	85	58	61	101	122	60	117		78	95	77	78	118	78	60	61		15	1	100	23		56	39	19	82	73	
Region code	134	58	72	80	111	62	115		78	95	77	78	117	111	62	65		15	1	100	23		56	47	11	82	50	
Region code	122	92	129	109	130	121	143		141	77	54	98		136	98			118	95	139		40	86	96	66	122	96	
Region code	121	91	111	138	131	129	131	48	23	1	77	11	2	11	136	143		1	118	95	31	125	48	143	25	74	122	1
Region code	80	68	48	66	73	86	103		129	93	77	68	103	116	103	99			1		94	99		58	35	44	79	93
Region code	46	21	34	39	23	35	36		88	25	2		77	47	51	40	13	46	31	49	42		48	7		38	61	
Region code	50	24	43	41	29	28	42		88	25	2		70	49	85	52	13	46	31	49	42		29	3		38	51	
Region code	44	46	33	38	21	13	38		88	25	2		85	55	86	55	13	46	31	49	42		13	6		38	36	
Region code	42	25	29	28	18	19	19		88	25	2		82	60	58	44	13	46	31	49	42		12	9		38	36	
Region code	39	19	39	37	34	32	53		88	25	2		87	83	46	35	13	46	31	49	42		30	22		38	52	
Region code	36	43	38	40	42	24	62		88	25	2		72	51	39	29	13	46	31	49	42		26	14		38	47	
Region code	43	55	41	52	49	35	65		88	25	2		90	80	40	30	13	46	31	49	42		43	17		38	57	
Region code	60	53	51	55	51	59	68		88	25	2		97	108	96	64	13	46	31	49	42		52	20		38	63	
Region code	56	44	47	53	52	55	66		88	25	2		96	94	77	49	13	46	31	49	42		54	22		38	66	
Region code	57	44	42	54	58	39	69		88	25	2		100	90	54	39	13	46	31	49	42		53	16		38	65	
Region code	34	12	37	20	28	29	40		88	25	2		75	57	42	33	13	46	31	49	42		21	15		38	45	
Region code	58	35	59	69	99	77	93		88	25	2		114	105	111	78	13	46	31	49	42		45	87		38	58	
Region code	59	35	59	57	76	77	88		88	25	2		116	105	111	78	13	46	31	49	42		44	87		38	58	

7.4.2.3 CHECK THE SO COEFFICIENTS AGAINST OBJECTIVE REFERENCE DATA

In case of apparently unjustifiable/implausible 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 increases 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 calculating SO can also be used to assess 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 that the contact point provide more evidence (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 reference value mentioned above.

7.5 Compliance

Where evidence is found that the methodology is not in compliance, Eurostat considers the received data as non-publishable. These data are especially not comparable with the other series, and therefore non-usable for compiling the EU results.

8

Methodological reports

8.1 Introduction

Annex VI (point 4) of Commission Implementing Regulation (EU) 2015/220:

'The Member States are responsible, in accordance with the provisions of this Annex, for collecting the basic data needed for calculating the SOCs and for calculating them, for converting them into EUR and for collecting the data required for applying the updating method, if appropriate. The Member States shall submit their collection and calculation methodologies to the Commission, and if required, provide explanations in order to harmonise the SOC calculations methodology throughout the Member States'.

8.2 Methodological reports

When submitting data, the methodology should be forwarded, including the correspondence between the FADN regions and the SO regions (see **Section 2.3.1.9.1**), directly to the AGRI RICA HELPDESK: AGRI-RICA-HELPDESK@ec.europa.eu

Table 9 Data sources and calculation methods

<u>Data sources</u>	<p>**Each data source has a specific coverage that the Member State should specify**</p> <p><u>Data sources used for the full set of SOCs for:</u></p> <ul style="list-style-type: none">• yield (average yield in a region or 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 newborn, etc. <p>This may be provided in tabular form and similar products (using the same data source) can be grouped together.</p> <p><u>Also to be reported:</u></p> <ul style="list-style-type: none">• the date of the last update and date of extraction• whether the data were taken from Eurostat or from national databases.
<u>Calculation</u>	<p><u>With a special emphasis on the calculation methods for the more complex items:</u></p>

method	<ul style="list-style-type: none">• What methodology was chosen to calculate weighted averages for variables including more than one crop? (see Section 3.1.1.17 in the handbook)• Successive crops: Are there cases where the output of successive crops has been taken into account in calculating the SOC for the main crop?• Fodder, temporary grass, permanent pasture and rough grazing: detailed calculation method.• Fresh vegetables, flowers and ornamental plants – outdoors: How many harvests per year were taken into account? What weights were used to calculate the SOC for market gardening? What products were involved?• Permanent crops: What methodology was used to calculate the weighted average for the SOC of permanent crops? What coefficients and weights were used?• Mushrooms: detailed calculation method.• Bovine animals: detailed calculation method, including the weighted average between meat and milk animals, the price of milk (was it adjusted for any high value products? If so, how and for which regions?)• Sheep and goats: detailed calculation method.• Pigs: detailed calculation method.
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9

Data dissemination

9.1 Confidentiality

Regulation (EU) 2018/1091 states that 'the Commission is to respect the confidentiality of the data transmitted in line with Regulation (EC) No 223/2009 of the European Parliament and of the Council. The necessary protection of confidentiality of data should be ensured, among other means, by limiting the use of the location parameters to spatial analysis of information and by appropriate aggregation when publishing statistics. For that reason a harmonised approach for the protection of confidentiality and quality aspects for data dissemination should be developed, while making efforts to render online access to official statistics easy and user-friendly'.

9.1.1 General Data Protection Regulation - GDPR

Conclusions of the informal workshop of Directors-General on the implications of the GDPR in European statistics held in Luxembourg on 8 February 2018

The Directors-General and Presidents of the National Statistical Institutes (NSIs) and of the European Union's statistical authority (Eurostat):

1. acknowledged the high relevance of the GDPR implementation for the production of high quality official statistics and for maintaining the confidence of the respondents providing personal data for statistical purposes;
2. recognised that in almost all Member States procedures have been initiated to enact derogations from the data subjects' rights referred to in some or all of the following Articles of the GDPR: 15 (access), 16 (rectification), 18 (restriction) and 21 (objection);
3. agreed that the same derogations should apply across all statistical domains and should not be domain-specific;
4. acknowledged that the NSIs and other statistical authorities (ONAs) are responsible for the protection of all personal data they process, both those collected in the framework of an EU regulation and those collected for purely national interests;
5. noted that appropriate derogations in national law, when granted, could in most cases be sufficient to effectively address the potential ramifications of the GDPR and the specific needs of the statistical production in each Member State;
6. agreed that, in the interest of harmonising the protection of the data subjects' rights in the field of official statistics, additional uniform derogations at EU level, notably in Regulation 223/2009, could be useful and should be considered once enough experience in the application of the GDPR has been collected; in this respect discussion at expert level should be organised at a later stage;
7. agreed to share experience and best practice in addressing the implications of the GDPR for

official statistics at the national level; to this end, Eurostat will create a collaborative platform to store and share examples of national provisions and justifications for derogations;

8. emphasised the need to establish constructive dialogue with data protection authorities at national and European level in order to clarify the specificities of statistical production, including a better understanding of statistical methodology and existing safeguards.

9.1.2 Data storage and dissemination

Not applicable.

9.1.3 Confidentiality measures for location

Not applicable.

9.2 Flags for data dissemination

Not applicable.

9.3 Codes in data dissemination

As much as possible, the codes used for data collection should also be used in data dissemination. But there are many cases where exceptions need to be applied.

9.4 Calculation of EU aggregates

Not applicable.

However, the SOC2017 data is to be used in calculating farm type and total standard output of the farm. These derived variables are further aggregated.

9.5 Dissemination of tabular data

9.5.1 Farm structure data

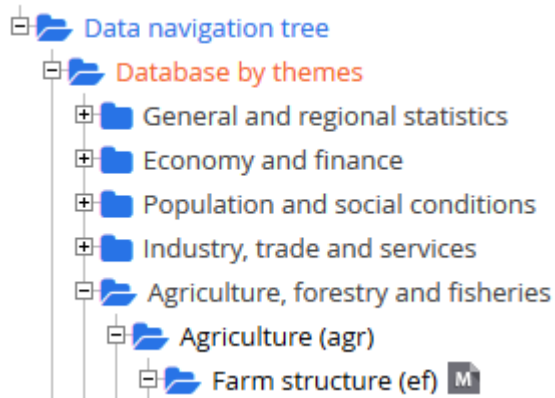
Data available by country and NUTS-2 with relevant structural information.

Tables published by Eurostat are available online:

<https://ec.europa.eu/eurostat/web/agriculture/so-coefficients>

<https://ec.europa.eu/eurostat/data/database>

Figure 12 – Navigation tree on <https://ec.europa.eu/eurostat/data/database> showing the farm structure (ef) theme



A number of buttons allow access to different views of the information





	Access the data explorer
	Download the complete (compressed) table in TSV (tab separated values) format
	Access information on the leaf
	Access to explanatory texts (metadata)

Figure 13 – General aspect of a table on the data explorer

The screenshot shows the Eurostat Data Explorer interface. At the top, there is the Eurostat logo and version information: v3.4.11b-20190314-e2667-ESTAT_LINUX_PROD DATA-EXPLORER_PRODmanaged13. Below this are navigation icons for Explanatory texts (metadata), Information, Download, Preview, Bookmark, Demo, Help, and Login. The main title is "Farm indicators by agricultural area, type of farm, standard output, legal form and NUTS 2 regions" with a reference code [ef_m_farmleg]. The last update is 28-06-2018. A "Table Customization" section allows users to filter by INDIC_AGR (Legal form: Total), GEO (Standard output in Euros: Total), and Farm type (Total). The period is set to 2016. The main table displays data for various countries, with columns for Farm - number, Utilised agricultural area, Farm area excluding, Farms with livestock, Standard output - eu, Labour force directly, and Farms whose house. A legend at the bottom explains available flags: b (break in time series), c (confidential), d (definition differs), e (estimated), f (forecast), n (not significant), p (provisional), r (revised), s (Eurostat estimate), u (low reliability), and z (not applicable). A special value symbol indicates data not available.

GEO	INDIC_AGR	Farm - number	Utilised agricultural area	Farm area excluding	Farms with livestock	Farms with livestock	Standard output - eu	Labour force directly	Farms whose house
Belgium		36,890	1,354,250	1,419,490	25,440	3,772,750	8,037,986.420	55,350	:
Bulgaria		202,720	4,468,500	4,947,740	134,970	1,094,240	3,842,891.030	248,020	0
Czechia		26,530	3,455,410	4,846,770	18,680	1,756,520	5,081,940.920	103,270	4,120
Denmark		35,050	2,614,600	2,955,350	20,670	4,128,470	10,062,442.040	49,480	0
Germany (until 1990 former b		276,120	16,715,320	18,417,550	184,690	18,182,310	49,249,020.560	490,060	0
Estonia		16,700	995,100	1,204,560	6,960	279,330	801,547.060	19,880	4,900
Ireland		137,560 ^(b)	4,883,650 ^(b)	5,137,950 ^(b)	126,590 ^(b)	6,199,890 ^(b)	6,324,900,700 ^(b)	160,750 ^(b)	:
Greece		684,950	4,553,830	4,735,290	238,520	2,102,870	7,574,803.910	448,220	109,600
Spain		945,020	23,229,750	30,012,080	216,700	14,442,530	38,365,605.150	801,160	33,400
France		456,520	27,814,160	29,239,050	247,570	22,081,990	61,343,138.670	708,170	7,040
Croatia		134,460	1,562,980	1,688,330	91,470	754,710	2,034,939.130	159,360	70,130
Italy		1,145,710 ^(b)	12,598,160 ^(b)	16,525,220 ^(b)	154,680 ^(b)	9,467,720 ^(b)	51,689,024,310 ^(b)	874,950 ^(b)	289,880 ^(b)
Cyprus		34,940	111,930	128,440	9,980	172,080	616,692.170	16,680	19,560
Latvia		69,930	1,930,880	3,028,490	44,970	498,640	1,221,341.010	76,860	27,160
Lithuania		150,320	2,924,600	3,165,700	95,300	849,990	2,226,207.560	148,350	67,430
Luxembourg		1,970	130,650	137,380	1,540	173,600	365,008.400	3,400	:
Hungary		430,000	4,670,560	6,245,770	261,540	2,444,890	6,532,474.660	391,730	257,100
Malta		9,210	11,120	12,170	2,740	32,470	98,016.860	5,110	2,630
Netherlands		55,680	1,796,260	1,963,630	36,960	6,819,960	23,087,034.100	147,200	0
Austria		132,500	2,669,750	5,454,730	93,920	2,432,030	6,141,561.460	101,740	0
Poland		1,410,700	14,405,650	16,236,200	718,240	9,443,240	25,005,635.420	1,649,400	259,000
Portugal		258,980	3,641,690	4,663,170	172,350	2,223,720	5,144,206.850	313,830	108,380
Romania		3,422,030	12,502,540	13,864,510	2,567,430	4,828,780	12,105,491.800	1,587,650	2,956,380
Slovenia		69,900	488,400	906,460	56,580	512,120	1,158,773.470	79,970	40,150
Slovakia		25,660	1,889,820	3,077,470	16,120	621,590	1,931,433.530	46,690	15,800
Finland		49,710	2,233,080	5,573,520	16,610	1,102,310	3,514,583.720	79,090	0
Sweden		62,940	3,012,640	6,306,000	34,290	1,699,990	5,158,678.850	55,970	0
United Kingdom		185,060	16,673,270	18,847,730	138,050	13,340,200	25,403,447.340	285,760	:
Iceland		:	:	:	:	:	:	:	:
Norway		:	:	:	:	:	:	:	:
Switzerland		:	:	:	:	:	:	:	:
Montenegro		:	:	:	:	:	:	:	:

9.5.2 Standard output coefficients

The standard output coefficients are published in Eurostat's dedicated section under <https://ec.europa.eu/eurostat/web/agriculture/so-coefficients>

Figure 14 – Standard output coefficients in Eurostat’s dedicated section

The screenshot shows the Eurostat website interface. At the top, there is a search bar and a navigation menu with options: News, Data, Publications, About Eurostat, and Help. Below the menu, the breadcrumb trail reads: European Commission > Eurostat > Agriculture > Data > Standard Output coefficients.

The main content area is titled 'STANDARD OUTPUT COEFFICIENTS'. It contains the following text:

The standard output of an agricultural product (crop or livestock), abbreviated as SO, is the average monetary value of the agricultural output at farm-gate price, in euro per hectare or per head of livestock. There is a regional SO coefficient for each product, as an average value over a reference period (5 years, except for the SO 2004 coefficient calculated using the average of 3 years). The sum of all the SO per hectare of crop and per head of livestock in a farm is a measure of its overall economic size, expressed in euro.

The SO 2004 was calculated using the average of 2003, 2004 and 2005 prices. It is applied in 2007 Farm structure survey data and has been applied to 2005 Farm structure survey to allow comparability over the time periods.

The SO 2007 was calculated using the average of 2005, 2006, 2007, 2008 and 2009 prices. It is applied in the 2010 Farm structure survey data.

The SO 2010 is being calculated using the average of 2008, 2009, 2010, 2011 and 2012 prices. It is being applied in the 2013 Farm structure survey data.

Below the text, there are three sections:

- Member States:** A grid of 28 boxes, each containing a country's flag and name: Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden, and United Kingdom.
- Candidates countries:** Three boxes: Montenegro, Former Yug. Rep. of Macedonia, and Albania.
- EFTA countries:** Three boxes: Iceland, Norway, and Switzerland.

At the bottom right of the page, there is a note: * File format . At the bottom left, there is a small text string: ts.xlsx/b9074e8e-3f76-430e-9f9c-0b9b67fe1b76.

9.6 Interpretation of results

Purpose of the EU farm typology

Agricultural production structures and systems are very diverse in the EU. To make it easier to analyse the structural characteristics of the agricultural holdings and their economic results, Eurostat has created an appropriate and homogenous classification of agricultural holdings by economic size and type of farming. The farm typology is designed so that homogeneous groups of holdings can be assembled in a greater or lesser degree of aggregation and the situation of holdings can be compared.

The farm typology is solely designed for farm classification. The economic size of farms, in particular, is not a measure of their viability nor is it even a perfect measure of their agricultural activity or farm diversification activities.

Limits of the EU farm typology

The farm typology has a defined coverage, mainly dependent on the scope, availability and contents of the standard output coefficients. These coefficients refer to many, but not all, agricultural crops and livestock. For example, they do not include fur animals, horses, farm diversification activities, etc., regardless of whether or not these are a sizeable part of the farm.

Changes to EU farm typology

Every few years the farm typology undergoes minor changes, like updates of SOC values or their list and definitions. Occasionally, fundamental changes are made like changing the building blocks of the farm typology from standard gross margin to standard output from reporting year 2010. While the rationale of the typology is to provide a stable framework for analysing farm populations, it should be verified whether the typology serves its purpose, and the necessary changes should be made to ensure that it does.

Annex I

The following examples illustrate methodologies to calculate the SO coefficients.

They refer to the particular situation in 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.

SO calculation example – Other poultry

Below an approach proposed by Portugal, using livestock unit (LSU) on Number of birds to get the % of share, to weight each category present on a fictive farm, and to obtain the SO for the main category.

Product:	Main product value	Other main P Value	Replacement value	Standard output € (100birds)	LSU	Number (X 100 birds)	LSU * number (X 100 birds)	% share	SO
				a	b	c	d=b*c	e	f=a*e
Other Poultry									3427
Turkeys	3916.9	0	364	3553	0.030	1290243	38707	0.93	3313
Ducks	2204.4	0	440	1764	0.010	261926	2619	0.06	111
Other Poultry: Quails	790	10	147	653	0.001	189751	190	0.00	3
Total						1741920	41516	1	

* Livestock units in accordance with Annex I of Regulation (EU) 2018/1091

SO calculation example – Market gardening:

PORTUGAL	Activity	Year	2018	Market Gardening	SOC(€)			12.525			
					Category	ha	%	% valor SOC			
	SO	SOC_CLND044			Conventional Irrigated	10.322	99%	12226			
	IFS	CLND044			Organic Irrigated	149	1%	299			
	FADN	10712			Total	10.471	100%	12525			
1- Comments											
The SOC for market gardening is a weighted average of several SOC of different categories of products. In a region, there are different yields for the same product, depending on the production system (Type 1, 2). For other products the available area reflects the number of harvests (yields), in these cases, the area is divided by the number of harvests.											
2-Weighting and detailed calculation											
Production system: Conventional and Irrigated											
Code of data sources	Product	Type of product	Unit	Harvest /year	Quantity (kg)	Price(€)	Output(€)	Total Area(ha)	Base Area(ha)	Share(%)	Weighted SOC(€)
				a	b	c	d = a*b*c		e	f=e/Total e	g=d*f
1	Main Product	Broccoli 1	kg	1	15500	0,79	12206	105	105	0,01	124
1	Main Product	Broccoli 2	kg	2	12230	0,60	14675	1320	660	0,06	938
1	Main Product	Cabbage	kg	2	27536	0,30	16522	250	125	0,01	200
1	Main Product	Cabbage "Coração de boi"	kg	2	17000	0,54	18360	860	430	0,04	765
1	Main Product	Cabbage sprouts	kg	1	18300	0,12	2196	1280	1280	0,12	272
1	Main Product	Cabbage "Flat "	kg	1	39000	0,20	7800	60	60	0,01	45
1	Main Product	Cabbage "Red"	kg	1	24000	0,25	6000	90	90	0,01	52
1	Main Product	Cabbage "Savoy "	kg	2	21335	0,17	7254	1670	835	0,08	587
1	Main Product	Carrot	kg	2	70000	0,15	21000	220	110	0,01	224
1	Main Product	Cauliflower 1	kg	2	11000	0,24	5280	346	173	0,02	88
1	Main Product	Cauliflower 2	kg	2	29493	0,54	31853	480	240	0,02	741
1	Main Product	Cucumber 1	kg	1	85000	0,56	47813	5	5	0,00	23
1	Main Product	Cucumber 2	kg	2	11333	0,34	7706	20	10	0,00	7
1	Main Product	Eggplant	kg	1	57939	0,60	34764	30	30	0,00	101
1	Main Product	Garlic	kg	1	10000	3,00	30000	21	21	0,00	61
1	Main Product	Green bean "Fava"	kg	1	4997	0,37	1849	50	50	0,00	9
1	Main Product	Green bean 1	kg	1	30209	1,19	35949	90	90	0,01	313
1	Main Product	Green bean 2	kg	1	26400	1,76	46464	85	85	0,01	383
1	Main Product	Green pea	kg	1	5230	0,92	4811	30	30	0,00	14
1	Main Product	Green Pepper	kg	1	34500	0,57	19665	76	76	0,01	145
1	Main Product	Leek	kg	2	29121	0,28	16308	580	290	0,03	458
1	Main Product	Lettuce 1	kg	3	50000	0,25	37500	350	117	0,01	424
1	Main Product	Lettuce 2	kg	4	28384	0,28	31790	490	123	0,01	377
1	Main Product	Lettuce 3	kg	3	19000	0,57	32490	660	220	0,02	692
1	Main Product	Melon	kg	1	22964	0,97	22218	26	26	0,00	56
1	Main Product	Onion	kg	1	41987	0,22	9237	867	867	0,08	776
1	Main Product	Onion 2	kg	2	15000	0,19	5700	220	110	0,01	61
1	Main Product	Pumpkin 1	kg	1	25064	0,18	4512	1130	1130	0,11	494
1	Main Product	Pumpkin "Butternut"	kg	1	28000	0,25	7000	1205	1205	0,12	817
1	Main Product	Radish	kg	2	23000	0,82	37720	110	55	0,01	201
1	Main Product	Spinach	kg	1	10682	0,49	5234	90	90	0,01	46
1	Main Product	Strawberries	kg	1	42000	3,15	132300	13	13	0,00	167
1	Main Product	Sweet Potato	kg	1	40000	0,45	18000	100	100	0,01	174
1	Main Product	Tomato	kg	1	38000	0,97	36860	119	119	0,01	425
1	Main Product	Turnip	kg	1	24730	0,75	18547	670	670	0,06	1204
1	Main Product	Turnip sprouts	kg	1	28000	0,23	6440	430	430	0,04	268
1	Main Product	Watercress 1	kg	4	30000	0,39	46800	100	25	0,00	113
1	Main Product	Watercress 2	kg	6	10000	2,50	150000	102	17	0,00	247
1	Main Product	Watermelon	kg	1	32722	0,20	6544	17	17	0,00	11
1	Main Product	Zucchini	kg	1	58641	0,27	15833	120	194	0,02	298
								14487	10322	1,00	12402
Production system: Organic and Irrigated											
Code of data sources	Product	Type of product	Unit	Harvest /year	Quantity (kg)	Price(€)	Output(€)	Total Area(ha)	Base Area(ha)	Share(%)	Weighted SOC(€)
				a	b	c	d = a*b*c		e	f=e/Total e	g=d*f
1	Main Product	Broccoli	kg	2	8000	1,01	16160	16	8	5%	868
1	Main Product	Cauliflower	kg	2	9000	1,00	18000	8	4	3%	483
1	Main Product	Cabbage	kg	2	14000	0,61	17080	14	7	5%	802
1	Main Product	Lettuce	kg	2	16000	1,00	32000	16	8	5%	1718
1	Main Product	Pumpkin 1	kg	1	10000	0,20	2000	16	16	11%	215
1	Main Product	Pumpkin "Butternut"	kg	1	25000	0,35	8750	9	9	6%	529
1	Main Product	Leek	kg	1	11000	1,20	13200	6	6	4%	532
1	Main Product	Onion 1	kg	2	12000	0,65	15600	28	14	9%	1466
1	Main Product	Onion 2	kg	1	50035	0,25	12509	7	7	5%	588
1	Main Product	Spinach	kg	4	6600	2,75	72600	64	16	11%	7796
1	Main Product	Green Peas	kg	1	3300	4,00	13200	16	16	11%	1417
1	Main Product	Green Bean	kg	1	6306	2,10	13243	5	5	3%	444
1	Main Product	Sweet Potato 1	kg	1	40000	0,60	24000	8	8	5%	1289
1	Main Product	Sweet Potato 2	kg	1	18000	1,25	22500	12	12	8%	1812
1	Main Product	Potato	kg	1	20000	0,60	12000	13	13	9%	1047
								238	149	100%	21005
3-Data sources		Quantity	Price	Areas							
1		Min. de Agricultura									
4-Observations											

SO calculation example – Fresh foods, pomeoideas

PORTUGAL	Activity	Year	2018	Fresh Fruits, Pomeoideas	SOC(€)			8.513						
					Category	ha	%	% valor SOC						
	SO	SOC_CLND056			Conventional Irrigateg	24.650	83%	7794						
	IFS	CLND056			Conventional NOT Irrigateg	5.079	17%	711						
	FADN	401012			Organic Irrigated	31	0%	8						
					Total	29.760	1	8.513						
1- Comments														
The SOC of the Fresh Fruits, Pomeoideas, is a weighted average. The quantity refers to the annual production. To take into account the grace period of fruit trees until they enter full production, a correction coefficient is applied to annual production, which corresponds to the number of years of full production divided by the number of years of planting. Activities can be conventional or organic and irrigated or not. There are different densities and varieties for the same product.														
2-Weighting and detailed calculation														
Production system: Conventional and Irrigated														
Density/ Nr of plant/ha	Variety	Designation	Unit	Nº years harvest	Nº years plantation	Coefficient	Quantity (kg)	Price(€)	Outup(€)	Value(€)	Area(ha)	Share(%)	Weighted SOC(€)	
				a	b	c = a/b	d	e	f= d*e	g=c*f	h	i=h/ Total h	j=g*i	
>500	Napoleão;Saco Douro	Cherry	kg	15	20	0,75	7.000	1,60	11200	8.400	2.732	11%	931	
1667	Folha no pé; Galega	Sour Cherry	kg	15	19	0,79	7.500	1,60	12000	9.474	50	0%	19	
< 1200	Goldens; Reds	Apple (4x2)	kg	20	23	0,87	17.000	0,28	4760	4.139	611	2%	103	
1200 a	Goldens; Reds	Apple	kg	18	22	0,82	19.000	0,28	5320	4.353	145	1%	26	
> 2500	Goldens; Reds	Apple	kg	17	21	0,81	29.000	0,28	8120	6.573	39	0%	10	
< 1200	Galas	Apple (4x2)	kg	20	23	0,87	15.200	0,33	5016	4.362	320	1%	57	
1200 a	Galas	Apple	kg	18	22	0,82	21.000	0,33	6930	5.670	150	1%	35	
> 2500	Galas	Apple	kg	17	20	0,85	27.000	0,33	8910	7.574	57	0%	18	
>2500	Golden delicious	Apple	kg	17	20	0,85	29.000	0,40	11600	9.860	2.875	12%	1150	
>2500	Red delicious	Apple	kg	17	20	0,85	32.000	0,50	16000	13.600	1.307	5%	721	
>2500	Royal Gala	Apple	kg	17	20	0,85	29.000	0,55	15950	13.558	1.045	4%	575	
>833	Maçã Bravo Esmolfe	Apple	kg	19	23	0,83	10.370	0,60	6222	5.140	190	1%	40	
>650	Golden, Red e Gala	Apple	kg	17	20	0,85	9.680	0,35	3388	2.880	538	2%	63	
>833	Golden, Red e Gala	Apple	kg	17	20	0,85	20.740	0,35	7259	6.170	592	2%	148	
2500 a	Galas;Fuji;	Apple central axi	kg	12	15	0,80	50.000	0,31	15500	12.400	2.680	11%	1348	
1250 a	Galas;Fuji;	Apple central axi	kg	15	18	0,83	45.000	0,31	13950	11.625	2.680	11%	1264	
>833	Gamboa	Quince 1	kg	14	17	0,82	9.611	0,90	8649,9	7.123	18	0%	5	
>883	Gamboa	Quince 2	kg	15	20	0,75	13.052	0,58	7570,16	5.678	35,0	0%	8	
1250	Gamboa; Gigante	Quince (4x2)	kg	20	23	0,87	15.000	0,30	4500	3.913	69	0%	11	
>333	M.Mouros;Odeáxere	Loquat	kg	20	20	1,00	3.202	0,94	2997,072	2.997	115	0%	14	
>667	Rocha	Pear	kg	17	20	0,85	8.820	0,38	3351,6	2.849	222	1%	26	
>833	Rocha	Pear	kg	17	20	0,85	12.600	0,38	4788	4.070	100	0%	17	
2500	Rocha	Pear central axis	kg	12	14	0,86	40.000	0,30	12000	10.286	3.230	13%	1348	
1666	Rocha	Pear central axis	kg	15	18	0,83	30.000	0,30	9000	7.500	4.850	20%	1476	
											24.650	1	9.410	
Production system: Conventional and NOT Irrigated														
Density/ Nr of plant/ha	Variety	Designation	Unit	Nº years harvest	Nº years plantation	Coefficient	Quantity (kg)	Price(€)	Outup(€)	Value(€)	Area(ha)	Share(%)	Weighted SOC(€)	
				a	b	c = a/b	d	e	f= d*e	g=c*f	h	i=h/ Total h	j=g*i	
500	Rocha	Pear potted cond	kg	1	1	1,00	18.000	0,3	5400	5.400	2.700	53%	2871	
>277	Gamboa	Quince	kg	20	24	0,83	6.360	0,18	1144,8	954	1.031	20%	194	
500 a 580	Reineta; Casa Nova	Apple Conductio	kg	1	1	1,00	17.000	0,31	5270	5.270	150	3%	156	
>667	Produto Principal	Cherry (6x2,5)	kg	25	30	0,83	2.169	2,2	4.750	3.958	1.168	23%	910	
1250	Folha no pé; Galega	Sour cherry (4x2)	kg	1	1	1,00	4.000	1,6	6400	6.400	30	1%	38	
											Total	5.079	1	4.168
Production system: Organic and Irrigated														
Density/ Nr of plant/ha	Variety	Designation	Unit	Nº years harvest	Nº years plantation	Coefficient	Quantity (kg)	Price(€)	Outup(€)	Value(€)	Area(ha)	Share(%)	Weighted SOC(€)	
				a	b	c = a/b	d	e	f= d*e	g=c*f	h	i=h/ Total h	j=g*i	
< 1200		Apple	kg	20	28	0,71	6.000	1,40	8400	6.000	11	35%	2129	
1200 a		Apple	kg	18	24	0,75	8.000	1,40	11200	8.400	14	45%	3794	
> 2500		Apple	kg	17	22	0,77	9.000	1,40	12600	9.736	6	19%	1884	
											Total	31	1	7.807
3-Data sources		crops; expert; Magricultura												
4-Observations														

Annex II

Transmission of SOC's

Transmission of standard output coefficients (SOC) and the data referred to in part 3 of Annex VI of Commission Implementing Regulation No 2015/220.

This table serves as a reference of how data transmission structure is described in the legal act. These 'headings' are then converted into 'variables' (Matrix) to get the data through the IT systems.

See the latest version of the Matrix overview page for the complete list of variables that are to be transmitted.

The table below explains the link between the legal act, and what is sent in practice in either the "direct observation" years (e.g. SOC2017) and in "update" years:

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
Exchange rate	Standard output coefficient national currency	Standard output coefficient EURO	Comments

(1) The list of valid product codes is presented in annex: 'List of SOC characteristics'.

(2) The list of valid SOC regional codes is presented in annex: 'List of SOC regions'.

(3) Optional.

(4) Not to be provided if the calculation is based on the annual growth in weight.

(5) Only for animal products.

Annex III

Validation rules for SOC2017 (struval and conval)

The data structure can be consulted in SDMX. The present table is just an example based on version 0.04, now superseded by newer versions.

Please, refer always to the latest version of the file SDMX_SOC2017_MATRIX_... which is available in CIRCABC:

<https://circabc.europa.eu/ui/group/880bbb5b-abc9-4c4c-9259-5c58867c27f5/library/32d42050-4268-47b2-abc4-43791624d5d0/details>

VRNUM	SEVERITY	PRECONDITION	CONDITION	ERROR MESSAGE
VR_SOC2017_001	Error		TIME_PERIOD = '2017'	The reference year must be 2017
VR_SOC2017_002	Error			Time period needs to be consistent with the file name
VR_SOC2017_003	Error			Reference area needs to be consistent with the FROM token in file name
VR_SOC2017_004	Error			It is not possible to have duplicate CD_PRODUCT in a FADN_REGION
VR_SOC2017_005	Error			FADN region needs to be consistent with REF_AREA
VR_SOC2017_006	Error			A product is missing. Confirm all products in CL_SOC_PRODUCT are included for each relevant region in CL_FADN2018. NSNE products need to be included as well (quantity and value reported as 0).
DR_SOC2017_007		REF_AREA = 'BG'	XRATE_p = AVG([ert_bil_eur_m], BGN, X_RATE_START_PERIOD, X_RATE_END_PERIOD)	
DR_SOC2017_008		REF_AREA = 'CZ'	XRATE_p = AVG([ert_bil_eur_m], CZK, X_RATE_START_PERIOD, X_RATE_END_PERIOD)	

ETC...

Annex IV

List of FADN regions

The following list of FADN regions refers to the SO2017 dataset. Differences may exist with FADN regions used for previous SO datasets. The Commission must be informed of any changes in the FADN regions before delivering the SO coefficients.

FADN_2018	FADN_name	CNTR
015	Schleswig-Holstein/Hamburg	DE
030	Niedersachsen	DE
040	Bremen	DE
050	Nordrhein-Westfalen	DE
060	Hessen	DE
070	Rheinland-Pfalz	DE
080	Baden-Württemberg	DE
090	Bayern	DE
100	Saarland	DE
110	Berlin	DE
112	Brandenburg	DE
113	Mecklenburg-Vorpommern	DE
114	Sachsen	DE
115	Sachsen-Anhalt	DE
116	Thüringen	DE
121	Île-de-France	FR
131	Champagne-Ardenne	FR
132	Picardie	FR
133	Haute-Normandie	FR
134	Centre	FR
135	Basse-Normandie	FR
136	Bourgogne	FR
141	Nord-Pas de Calais	FR
151	Lorraine	FR
152	Alsace	FR
153	Franche-Comté	FR
162	Pays de la Loire	FR
163	Bretagne	FR
164	Poitou-Charentes	FR
182	Aquitaine	FR
183	Midi-Pyrénées	FR
184	Limousin	FR
192	Rhône-Alpes	FR
193	Auvergne	FR
201	Languedoc-Roussillon	FR
203	Provence-Alpes-Côte d'Azur	FR
204	Corse	FR
205	Guadeloupe	FR
206	Martinique	FR
207	La Réunion	FR
221	Valle d'Aosta	IT
222	Piemonte	IT
230	Lombardia	IT
241	Trentino	IT

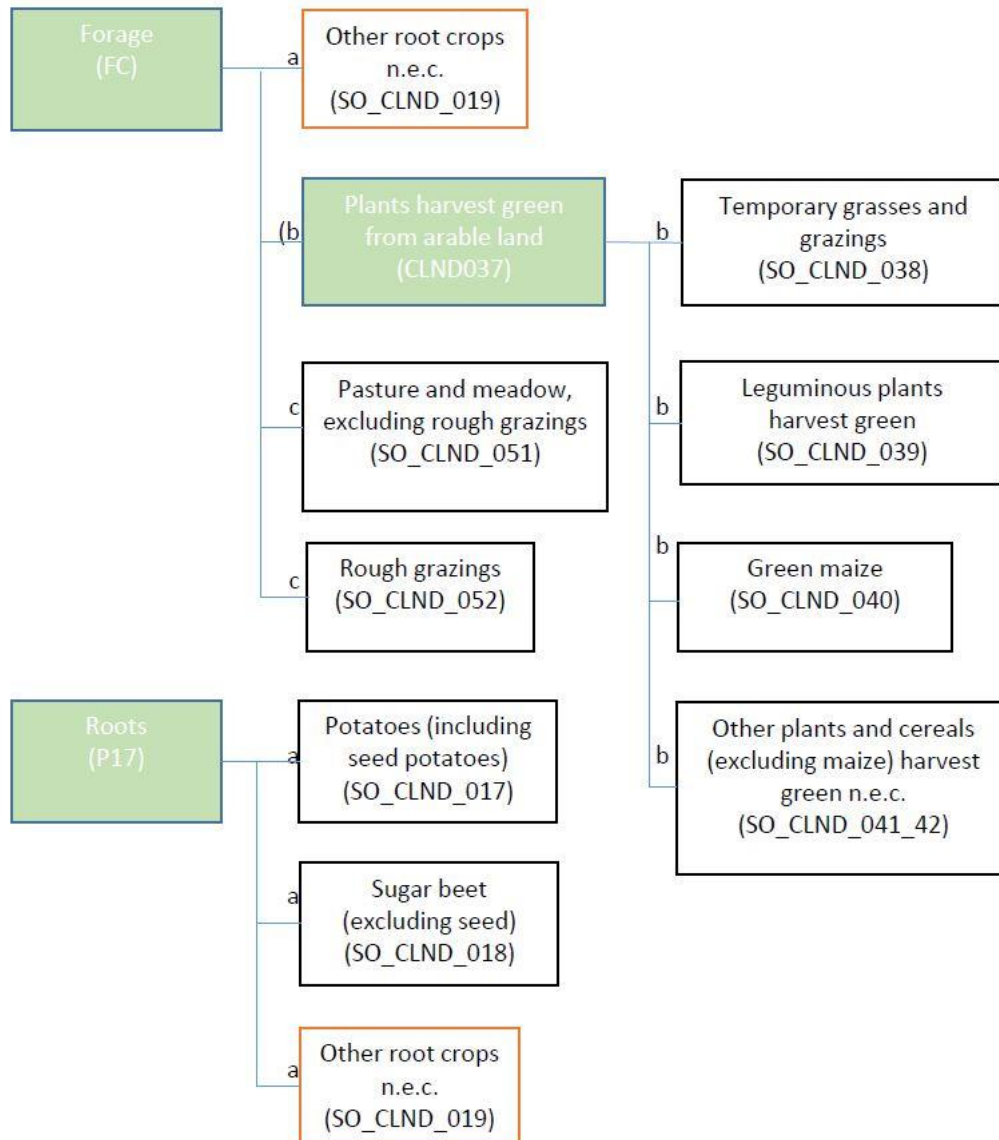
FADN_2018	FADN_name	CNTR
242	Alto-Adige	IT
243	Veneto	IT
244	Friuli-Venezia Giulia	IT
250	Liguria	IT
260	Emilia-Romagna	IT
270	Toscana	IT
281	Marche	IT
282	Umbria	IT
291	Lazio	IT
292	Abruzzo	IT
301	Molise	IT
302	Campania	IT
303	Calabria	IT
311	Puglia	IT
312	Basilicata	IT
320	Sicilia	IT
330	Sardegna	IT
341	Vlaanderen	BE
342	Bruxelles-Brussel	BE
343	Wallonie	BE
350	Luxembourg	LU
360	Netherlands	NL
370	Denmark	DK
380	Ireland	IE
411	England - North Region	UK
412	England - East Region	UK
413	England - West Region	UK
421	Wales	UK
431	Scotland	UK
441	Northern Ireland	UK
450	Macedonia-Thrace	EL
460	Epiros, Peloponnese, Ionian Islands	EL
470	Thessaly	EL
480	Stereia Ellas, Aegean Islands, Crete	EL
500	Galicia	ES
505	Asturias	ES
510	Cantabria	ES
515	País Vasco	ES
520	Navarra	ES
525	La Rioja	ES
530	Aragón	ES
535	Cataluna	ES
540	Illes Balears	ES
545	Castilla y León	ES
550	Madrid	ES
555	Castilla-La Mancha	ES
560	Comunidad Valenciana	ES
565	Murcia	ES
570	Extremadura	ES
575	Andalucía	ES
580	Canarias	ES
615	Norte e Centro	PT
630	Ribatejo e Oeste	PT
640	Alentejo e Algarve	PT

FADN_2018	FADN_name	CNTR
650	Açores e Madeira	PT
660	Austria	AT
670	Etela-Suomi	FI
680	Sisa-Suomi	FI
690	Pohjanmaa	FI
700	Pohjois-Suomi	FI
710	Slattbyggdsln	SE
720	Skogs-och mellanbyggdsln	SE
730	Lan i norra Sverige	SE
740	Cyprus	CY
745	Czech Republic	CZ
755	Estonia	ES
764	Észak-Magyarország	HU
767	Alföld	HU
768	Dunántúl	HU
770	Latvia	LV
775	Lithuania	LT
780	Malta	MT
785	Pomorze i Mazury	PL
790	Wielkopolska i Śląsk	PL
795	Mazowsze i Podlasie	PL
800	Malopolska i Pogórze	PL
810	Slovakia	SK
820	Slovenia	SI
831	Severozapaden	BG
832	Severen tsentralen	BG
833	Severoiztochen	BG
834	Yugozapaden	BG
835	Yuzhen tsentralen	BG
836	Yugoiztochen	BG
840	Nord-Est	RO
841	Sud-Est	RO
842	Sud-Muntenia	RO
843	Sud-Vest-Oltenia	RO
844	Vest	RO
845	Nord-Vest	RO
846	Centru	RO
847	Bucuresti-Ilfov	RO
861	Jadranska Hrvatska	HR
862	Kontinentalna Hrvatska	HR
9001	Istanbul	TR
9002	Bati Marmara	TR
9003	Ege	TR
9004	Dogu Marmara	TR
9005	Bati Anadolu	TR
9006	Akdeniz	TR
9007	Orta Anadolu	TR
9008	Bati Karadeniz	TR
9009	Dogu Karadeniz	TR
9010	Kuzeydogu Anadolu	TR
9011	Ortadogu Anadolu	TR
9012	Güneydogu Anadolu	TR
9020	Republic of North Macedonia	MK
9030	Serbia	SR

FADN_2018	FADN_name	CNTR
9050	Montenegro	ME

List of aggregations

The boxes below illustrate how SOs are aggregated in groups like poles, grazing livestock animals, etc, as described in Commission Implementing Regulation (EU) 2019/1975 of 31 October 2019 amending Implementing Regulation (EU) 2015/220.

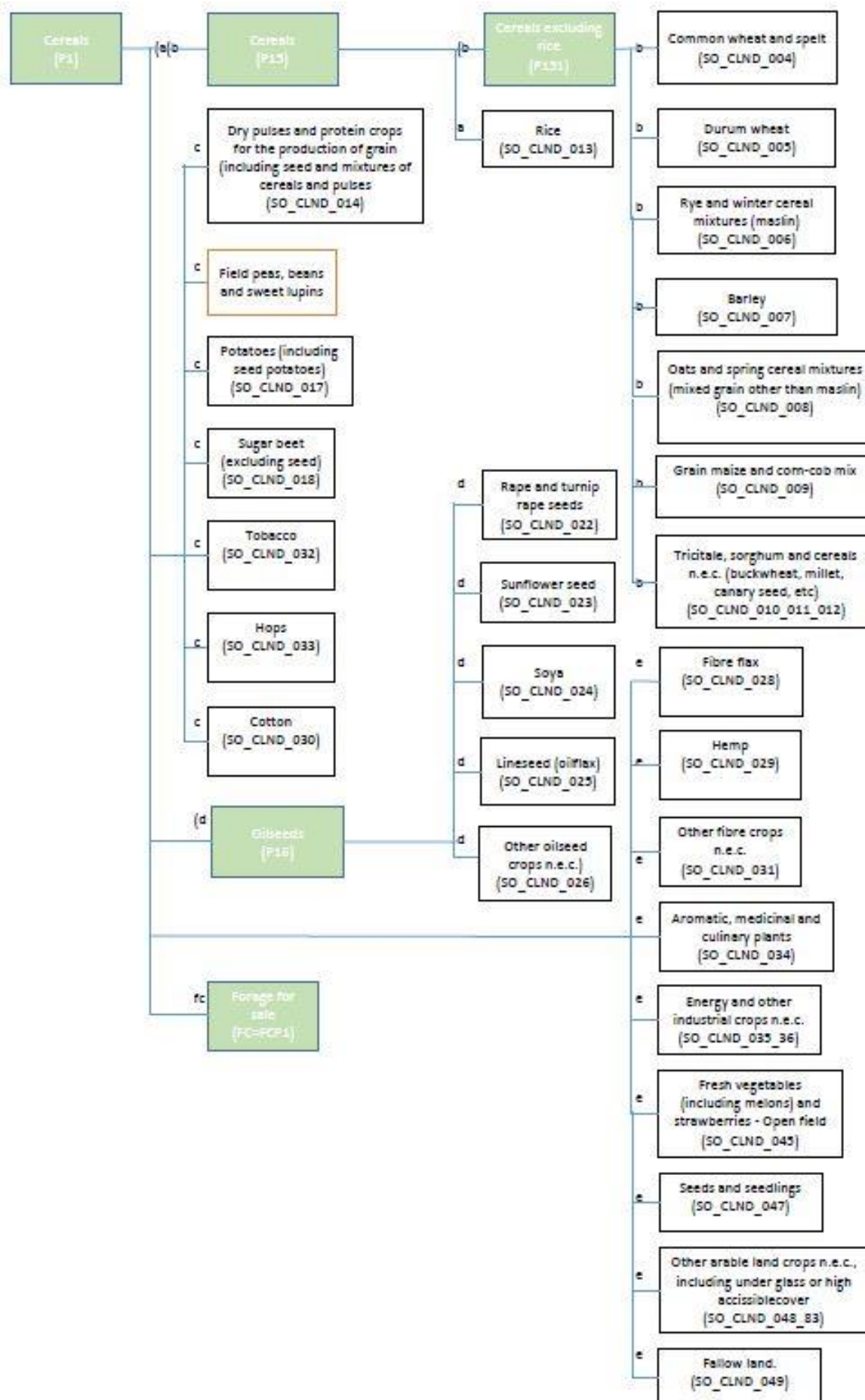


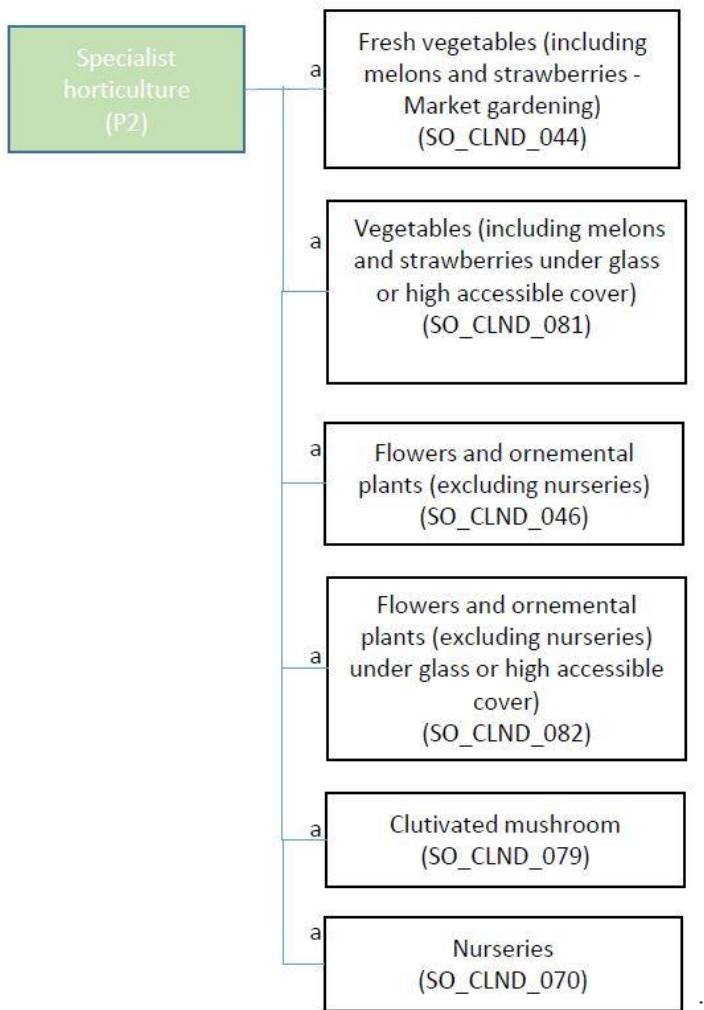
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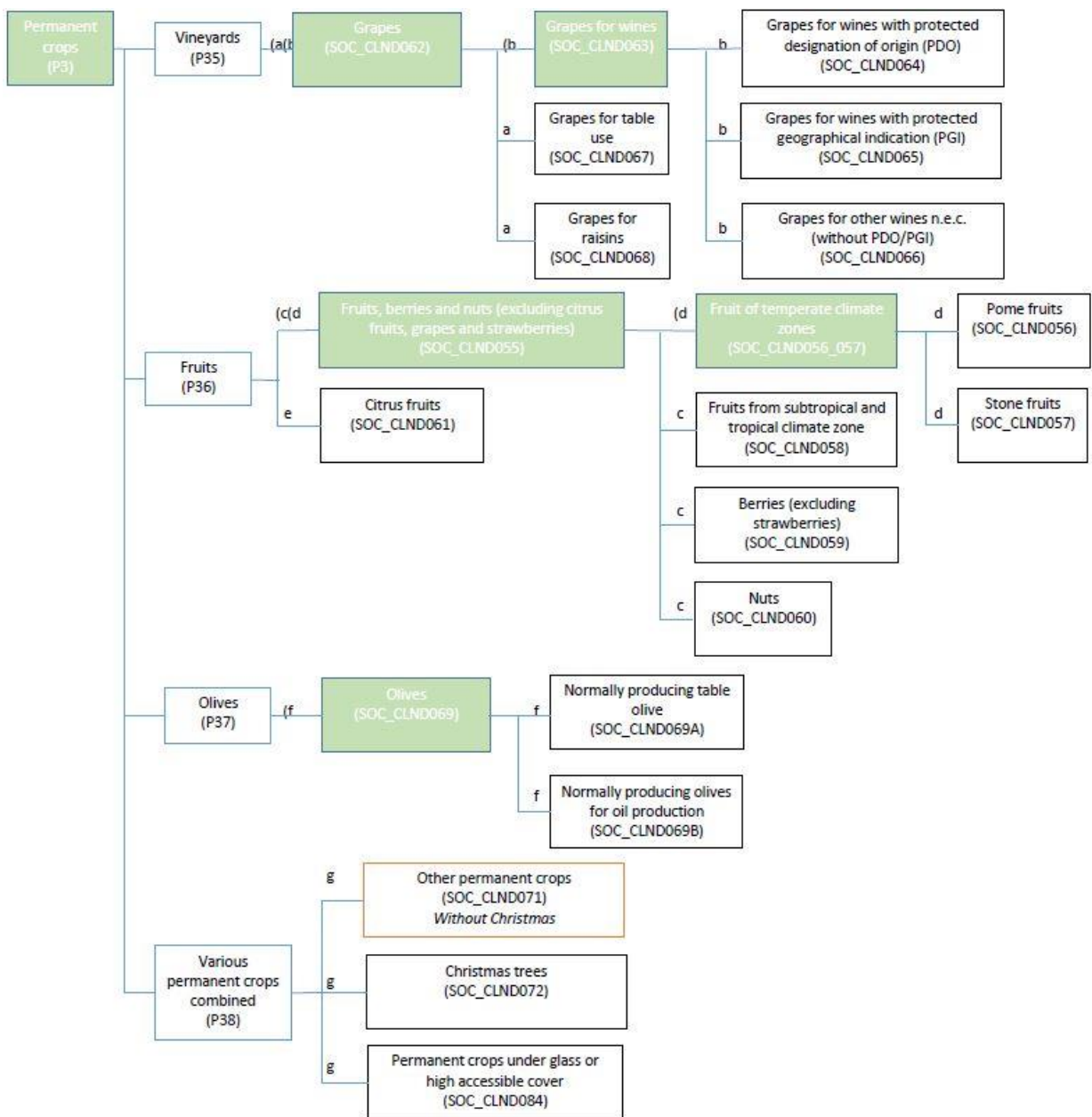
FC assigned to Pole P4 (FCP4=FC)
and remove value of Other roots (SO_CLND_019=0)

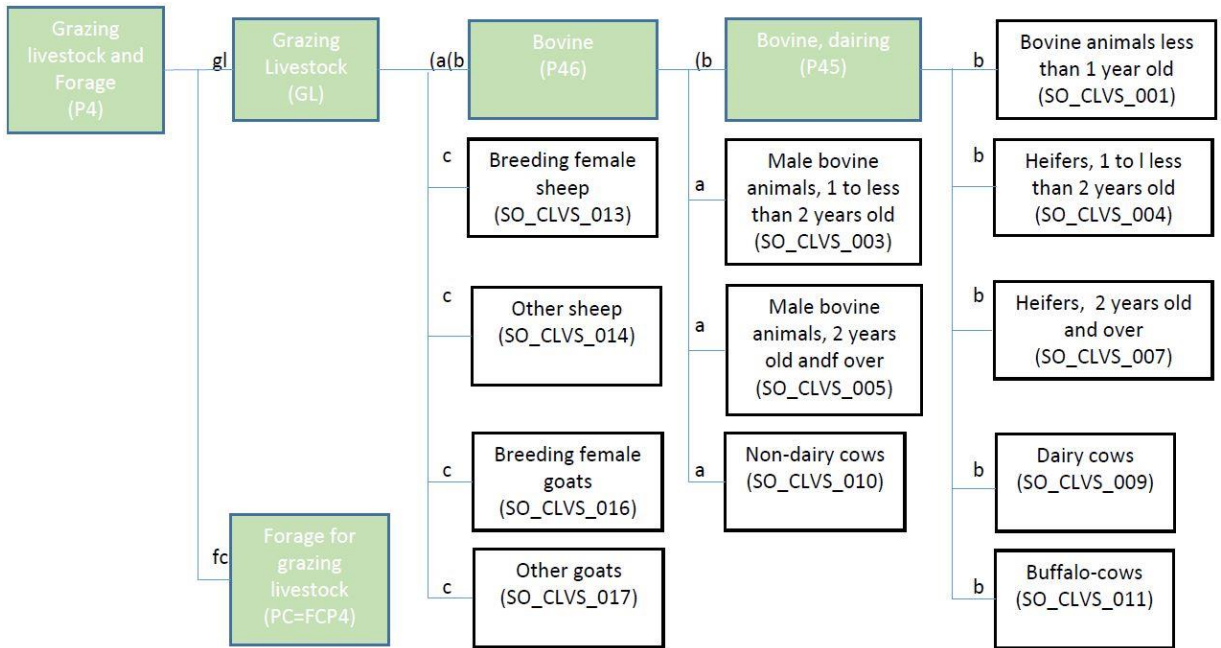
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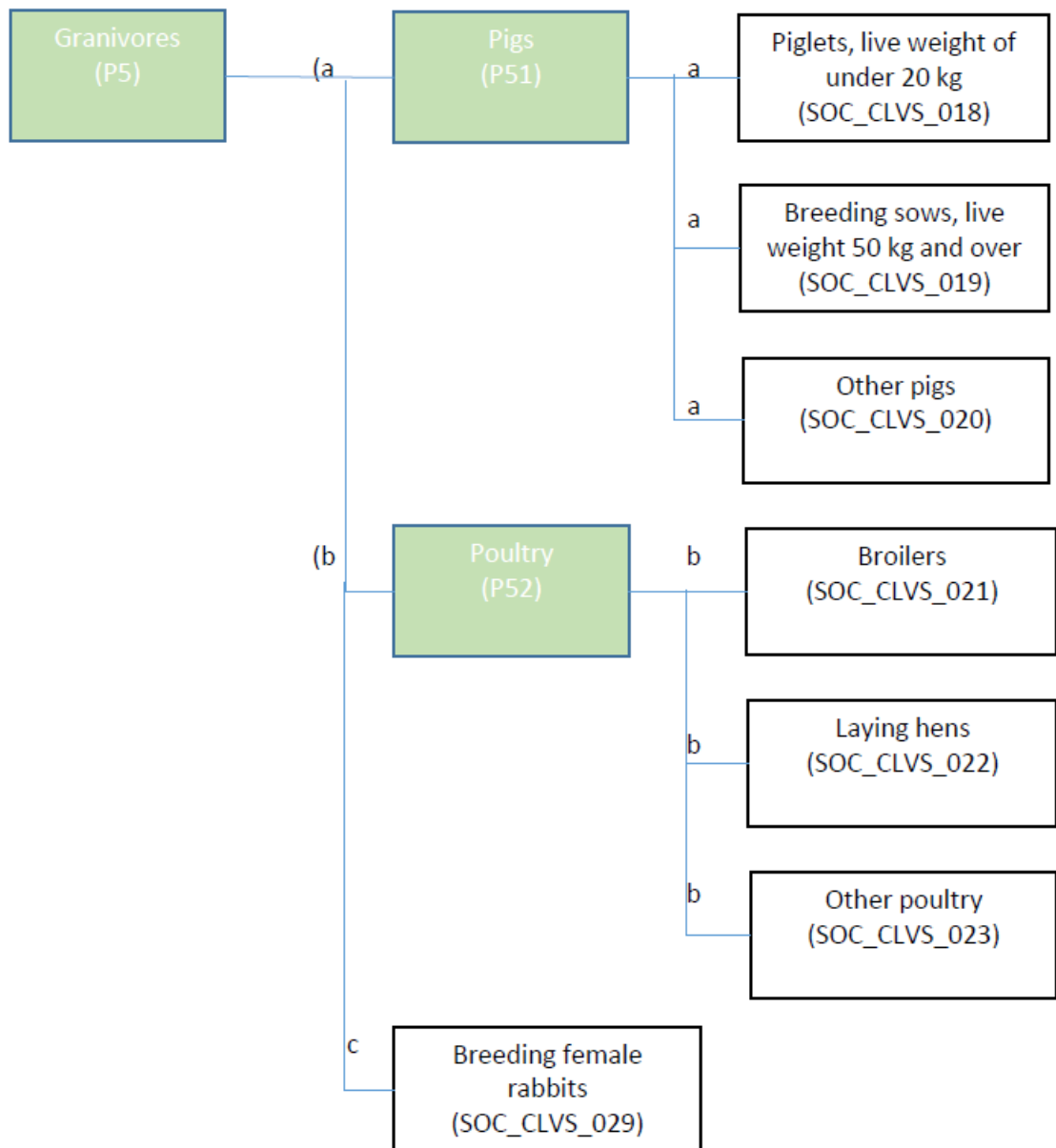
FC assigned to Pole P1 (FCP1=FC)











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