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EVALUATION

Accompanying the document

Strategy for Agricultural Statistics 2020 and beyond and subsequent potential legislative scenarios

Contents

Please note that all references without a link are available at the Eurostat webpages, under the heading "Strategy for agricultural statistics 2020 and beyond"[1] .

[1] http://ec.europa.eu/eurostat/web/agriculture/strategy-for-agricultural-statistics-for-2020-and-beyond

Section 1 Executive Summary

The European agricultural statistics system (EASS) includes more than 50 different datasets which describe agricultural land use, production of crop and animal products, farming structure, prices, economic inputs and outputs and the impact of agriculture on environment, health and wellbeing. The domain consists of 10 basic legal acts with related implementing measures, but in addition a number of statistical datasets are based on gentlemen's agreements or are fully voluntary. Despite integration efforts, legislation and methodology have not been fully harmonised.

The objectives of agricultural statistics are to provide data to develop, implement and monitor the main objectives of the Common Agricultural Policy, namely viable food production (e.g. the production and supply of agricultural products, agricultural prices, and income in the agricultural sector), the sustainable management of natural resources and climate action (e.g., the impact of agriculture on the environment, sustainable farming practices), and balanced territorial development (including rural development issues), and other related policies, such as water and air quality, climate change, nature conservation and biodiversity soil , food safety, plant protection, animal health and welfare and regional cohesion.

The evaluation strives to answer a series of questions related to effectiveness, efficiency, relevance and coherence. Based on the assessment of these four criteria the overall conclusion on the EU added value of the European Agriculture Statistical System is drawn.

The evaluation answers to what extent are data needs adequately served, and if high-quality data are provided to the users, how flexible is the agricultural statistics system in producing new data, how coherent and harmonised the data are, if the burden in relation to costs is appropriate and if better statistics be produced without increasing the burden on respondents by exploring alternative data sources and efficiency improvement techniques.

The main categories of stakeholders of European agricultural statistics are **producers** (National Statistical Institutes and other national authorities), **respondents** (farmers, farmers' organisations and businesses) and **users** (public and private decision makers, in particular European Commission DGs; researchers and journalists). They have over several years been consulted extensively on problems and desired changes in the status quo, data needs and priorities, and possible policy options to solve the problems, as a mechanism of continuous performance evaluation and improvement. The main forums for these consultations have been the European Statistical System Committee (ESSC) meetings as well as meetings and seminars of the Standing Committee for Agricultural Statistics and its successor, the Directors' Group for Agricultural Statistics. The consultation methods included are: seminars, workshops and an open public consultation.

The main sources used in the evaluation are external and internal studies and documents, minutes and documents from seminars and expert groups, letters, notes and emails from Commission services and other users. Other sources such as internal, Commission or NSI surveys and external studies of relevance to the impact assessment are referenced where appropriate. Expert advice has been sought in the Commission expert groups on various aspects of agricultural statistics.

The evaluation has been conducted internally within Eurostat and focusses on the period since 2008.

The conclusions of the evaluation are:

- **The current agricultural statistics legislation does not adequately serve new and emerging data needs** because their provision is not included in the legislative acts, and the acts are not flexible and integrated enough to answer to new needs in a timely manner.
- **The quality of the agricultural statistics is "fit for purpose" for most of the requirements of the users,** thanks to the quality management approach put in place overall in the European Statistical System.
- **The EASS is not flexible enough and is not reacting sufficiently quickly to the emerging needs**, partly due to the inherent functioning of statistics, partly due to the way the regulations have been set up but as well because of lack of budget and human resources.
- **The data collections are not harmonised and coherent to a satisfactory degree** because new data needs are emerging, legislation has been developed separately over many years, and there are partly different definitions and concepts in different agricultural areas. Agricultural, forestry, land use and environmental statistics are not sufficiently coherent because it has not been possible to properly integrate agricultural statistics with forestry, land use and environmental statistics, partly due to the different aims of the domains.
- **The statistics could be produced more efficiently** if the legislation is adapted so that various sources of information can be used and if Member States adapt to modern technology, but **the burden/cost are appropriate** considering the substantial budget of the EU Common Agricultural Policy, and its impact on the economic situation in agriculture, including on the individual farms; the need for data to monitor, evaluate and plan the CAP and the potential impact of agriculture on the environment.
- **The burden of providing data is perceived high** because data needs are increasing, data collection is not harmonised, and resources continue to shrink at EU and national level.

Section 2 Introduction

Purpose of the Evaluation

The most important legislation in agricultural statistics, Regulation (EC) No 1166/2008 on farm structure surveys and the survey on agricultural production methods, expires in 2018. As the information on the structure and trends in agriculture is hugely important for the planning, implementation and monitoring/evaluation of the CAP and other policies related to food safety and security, rural areas, environment and climate change, it is imperative that there is a continuation of the decennial agricultural censuses and the interim sample surveys on the farm structures and management.

In line with the ESS Vision 2020[2] it is necessary to ensure that European agricultural statistics are "fit for the future" and provide the data that users need. The ESS Vision 2020 can be summarised as creating a European Statistical System that

- is guided by quality in all activities and continues to deliver coherent, relevant and reliable statistics based on internationally harmonised concepts, sound methodologies and a strict data protection regime;
- engages users proactively and meets their demands in a cost-efficient and responsive manner;
- promotes efficiency and realises productivity gains through collaboration in sharing methods, tools, technological infrastructure and where appropriate data and human resources, based on legal frameworks and all prerequisites needed to ensure statistical confidentiality;
- embraces opportunities provided by the digital transformation and harnesses new data sources to produce meaningful statistics;
- delivers information in an interactive and easily understandable way, and improves statistical literacy of European citizens and institutions by guiding them through the deluge of data and information from various origins.

The European Statistical System Committee in its meeting in May 2014 endorsed the launch of the work on a strategy for the European Agricultural Statistical System (EASS), an initiative that was identified in the Staff Working Document (SWD) on Regulatory Fitness and Performance Programme (REFIT): State of Play and Outlook in May 2015[3].

The aim is to:

- permit collection of existing and new data requested by users for new needs by having most data collection covered by legislation;

[2] ESS Vision document

[3] http://ec.europa.eu/smart-regulation/better_regulation/documents/swd_2015_110_en.pdf

- increase the efficiency of the statistical system and quality of collected data by keeping the burden on respondents and National Statistical Institutes moderate;

- increase the coherence and comparability of agricultural statistics by ensuring that common essential elements such as scope, precision and quality requirements are the same.

It is important to understand the functioning of agricultural statistics in order to adapt the system, the legislation and the methodological base in a manner that answers to the requirements of modern statistics as described in the ESS Vision 2020

The evaluation aims to assess the functioning of the European Agricultural Statistical System (EASS) and show the strengths and weaknesses as part of drafting a Strategy for Agricultural Statistics 2020 and beyond. It examines the following aspects:

i. how the present agricultural statistics system can provide the data that is needed by the users, especially considering the growing and changing needs,
ii. if the system can ensure that the data are consistent and coherent, considering the many data flows and
iii. if the present system could be enhanced to allow a reduction of the survey burden.

The results of the evaluation will be used to support the work on the Strategy on Agricultural Statistics 2020 and beyond.

Scope

The evaluation covers all agricultural statistics included in the European Statistical Programme. National agricultural statistics or statistics provided by other institutions are not part of the evaluation.

The evaluation focusses on the period since 2008 when the European Agricultural Statistics System was modernised.

The evaluation has been produced internally by Commission Services. Given that the review of the Agriculture Statistics started already in 2013, the process did not follow all the steps set out in the new Commission Better Regulation Guidelines adopted in May 2015. The evaluation has been conducted back-to-back to the work on the impact assessment, with one open public consultation covering both retrospective and prospective aspects.

Section 3 Background to the initiative

Agricultural statistics are the oldest statistics in the European Statistical Programme, with data available back to 1953. The European agricultural statistics system has been developed with stepwise introduction of new items. Agricultural statistics include more than 50 different datasets which describe agricultural land use, production of crop and animal products, farming structure, prices, economic inputs and outputs and the impact of agriculture on environment, health and wellbeing. Despite integration efforts, legislation has not been fully harmonised. The domain consists of 10 basic legal acts with related implementing measures, but in addition a number of statistical datasets are based on gentlemen's agreements or are fully voluntary (see table 2). In addition, DG AGRI manages the Farm Accountancy Data Network (FADN), a survey that, while not officially part of

European statistics, is very closely linked to the EASS. The main aim of the EASS is to support decision-making and policy design, monitoring and evaluation in areas related to agriculture, such as the CAP and climate change policies.

The objectives of agricultural statistics are to provide data to develop, implement and monitor the main objectives of the Common Agricultural Policy (CAP), namely viable food production (e.g. the production and supply of agricultural products, agricultural prices, and income in the agricultural sector), the sustainable management of natural resources and climate action (e.g., the impact of agriculture on the environment, sustainable farming practices), and balanced territorial development (including rural development issues), and other related policies (see Section 6):

i. the Water Framework Directive, including the Nitrates Directive and Groundwater Directive;

ii. Air related Directives (National Emission Ceiling, Air Quality, and Integrated Pollution and Prevention Control);

iii. Climate change policies (related to the UNFCCC Kyoto Protocol);

iv. Nature conservation legislation, the Birds and Habitats Directives and several other biodiversity policy tools;

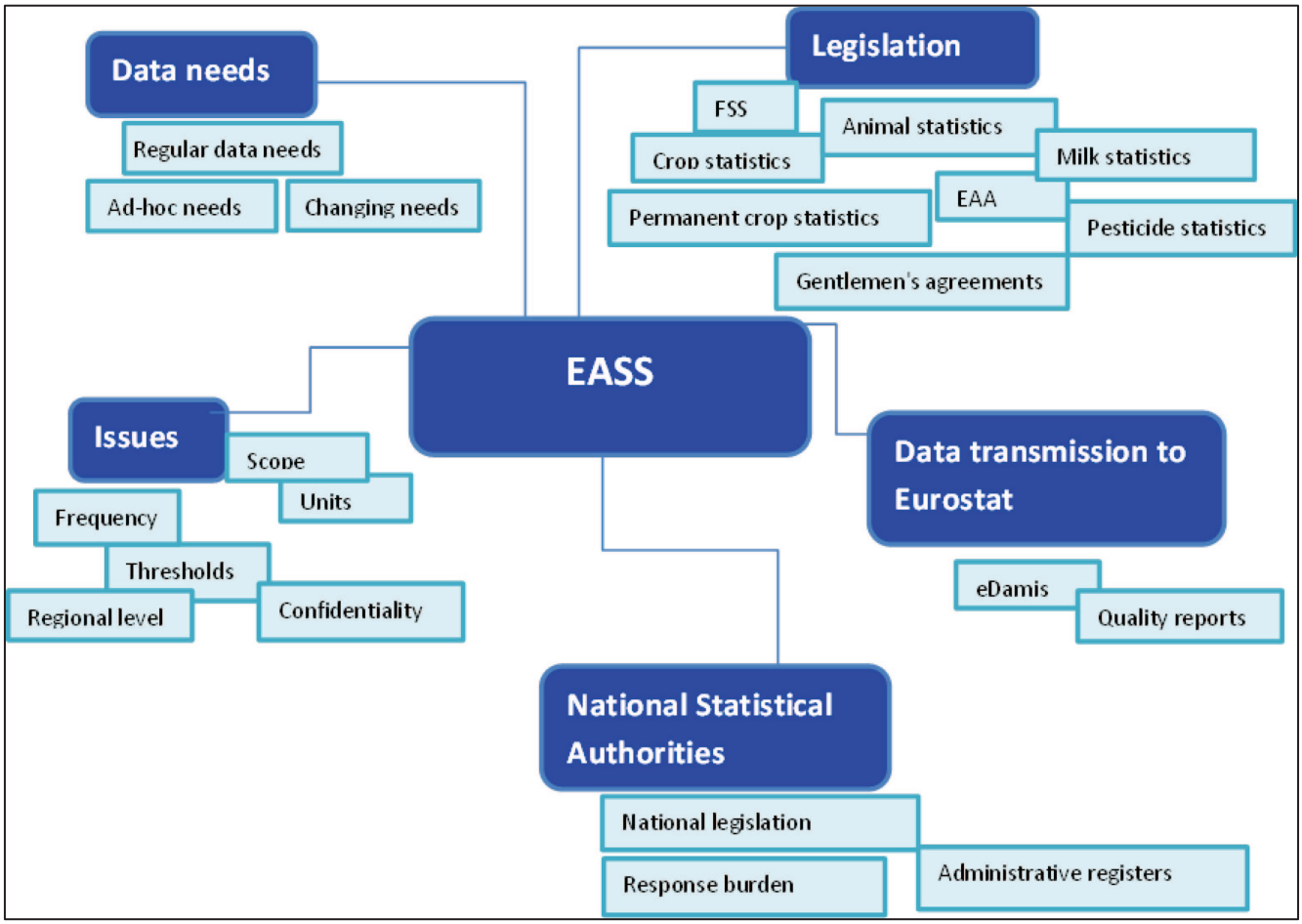
v. Soil related policies, including the Soil Thematic Strategy, Sewage Sludge Directive;

vi. Food safety, plant protection, animal health and animal welfare regulations; and

vii. Cohesion policy.

The policy processes steering the development in all these policy fields need a sound scientific knowledge base. Agricultural statistics form the fundamentals of this knowledge base. The need to further develop agricultural statistics in close cooperation with other statistical domains is therefore strong.

Picture 1. The main components of the European Agricultural Statistics System



As a result of a modernisation project launched in 2004, a series of actions were taken:

- The Supply Balance Sheets on the production, trade, use and stocks of agricultural production were gradually phased out during the period;
- A large reduction of data on agricultural prices and price indices;
- A reform of the legislation of the Farm Structure Surveys was undertaken, resulting in Regulation 1166/2008 where a first attempt of a modular approach was introduced;
- Crop and Animal production statistics were modernised, with the aim of better coherence and comparability within agricultural statistics.

In 2006 the Commission issued a Communication "Development of agri-environmental indicators for monitoring the integration of environmental concerns into the common agricultural policy"[4] highlighting the key results regarding indicator development but also the challenges for the future and the limitations of the initial set of proposed indicators. It also identified the main challenges for the future work on the indicator set. Subsequently, work continued on setting up a long-term system for the indicator work in the Commission and the European Environmental Agency with Eurostat responsible for setting it up.

[4] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2006:0508:FIN:EN:PDF

The baseline can be described as covering the same statistical components as after the modernisation initiative, with two important differences: the phasing out of the supply balances and the introduction of the agri-environmental statistics, and without the changes introduced in legislation. To describe the baseline as a situation without statistics would not be appropriate.

Section 4 Evaluation Questions

In order to structure the evaluation exercise, the current analysis sets out to answer a series of questions. As the evaluation covers not a policy but a statistical initiative, the questions have been formulated accordingly. The questions cover issues related to effectiveness, efficiency, relevance and coherence. Based on the assessment of these four criteria the overall conclusion on the functioning of the EASS will be drawn.

The evaluation answers the questions:

- To what extent are data needs of the various policies adequately served?
    - To what extent is the EASS producing high-quality data (effectiveness)?
    - How flexible is the EASS and how quickly is it reacting to the existing and emerging needs of agricultural statistics (effectiveness/relevance)?
- To what extent are data collections harmonised and coherent among different areas (coherence)?
    - How coherent are agricultural, forestry, land use and environmental statistics?
- To what extent are the data produced efficiently? Is the burden/cost appropriate for the purpose? (efficiency)
    - To what extent can better statistics be produced without increasing the burden on respondents by exploring alternative data sources and efficiency improvement techniques? Can the collection of data be made more efficient?

Section 5 Method

As the requirement to evaluate the existing legislation came after Eurostat had already started the work on the strategy on the future agricultural statistics, the Secretariat General allowed the evaluation to be carried out in parallel with the impact assessment. This has had an influence on the work carried out, even if Eurostat had de facto initiated appraisals of the EASS already in 2009.

Eurostat tries to achieve an appropriate development, production and dissemination of European agricultural statistics through cooperation in the European Statistical System, building upon partnership between Eurostat and the National Statistical Institutes (NSIs) as well as all other relevant authorities.

The main categories of stakeholders of European agricultural statistics are **producers** (NSIs and other national authorities), **respondents** (farmers, farmers' organisations and businesses) and **users** (public and private decision makers, in particular European Commission DGs; researchers and journalists). They have been consulted extensively on problems and desired changes in the status quo, data needs and priorities, and possible policy options to solve the problems as the following overview table shows. The main

forums for these consultations have been the European Statistical System Committee (ESSC) meetings as well as the Standing Committee for Agricultural Statistics (CPSA) meetings and seminars and its successor's, the Directors' Group for Agricultural Statistics (DGAS) meetings and seminars. The consultation methods included: seminars and workshops. In addition, the open consultation for the impact assessment contained questions relating to the evaluation of the EASS.

Table 1: Overview of stakeholder consultations on the agricultural statistics strategy 2020

	Consultation on problems and changes	**Consultation on needs and priorities**
Producers	ESSC Meeting May 2014	CPSA Meetings and Seminars
Respondents	CPSA Seminars, open public consultation	

The main stakeholder consultation events (for more information, see Annex 2) to discuss the functioning the current statistics and future options for the agricultural statistics strategy towards 2020 and beyond were:

1. The UN Global Strategy on Agricultural Statistics[5] that was the result of a working group, under the guidance of the United Nations Statistics Division (UNSD), including the World Bank, the United Nations Food and Agriculture Organization (FAO), Eurostat, the United States Department of Agriculture (USDA), and the International Statistical Institute (ISI);
2. The Eurostat commissioned study in 2009 on “Direct and indirect data needs linked to the farms for agri-environmental indicators (DireDate)[6]”, carried out by Wageningen University;
3. The Eurostat commissioned studies in 2012 on “Grassland areas, production and use[5]” and "Nitrogen and phosphorus excretion factors for livestock of the Methodological studies in the field of Agro-Environmental Indicators[5]" , carried out by Wageningen University;
4. A series of Eurostat seminars connected to the regular CPSA/DGAS meetings since 2009;
5. Commission services data requests to Eurostat 2014 and 2015;
6. Development and endorsement of the Strategy on agricultural statistics 2014-2015;
7. Strategy implementation 2015 and forward.

In addition, several internal documents have been used as background documents:

- Analyses of the National Methodological Reports of the Farm Structure Surveys
- Quality reports for crop, livestock and pesticide statistics
- Compliance assessments
- Results of grants to National Statistical Institutes for improving their methodology in various agricultural statistics domains
- Work on the use of administrative data in the framework of ESS Vision 2020 programme

5 http://www.fao.org/docrep/015/am082e/am082e00.pdf

6 Documents available at http://ec.europa.eu/eurostat/web/agri-environmental-indicators/overview

- Eurostat user satisfaction surveys

See Annex 4 for a more detailed description of each agricultural statistics domain, based on these documents and the experience of the domain managers from both the daily work with the data and from communication with both users and producers of statistics.

Given the time constraints, the evaluation relies on the evidence collected over the years. No new research has been conducted for the purpose of this evaluation.

However, considering the role of statistics in society, it is mainly the users and producers of statistical data that have sufficient in-depth knowledge to give a solid view on the state of play in the domain. These stakeholders have been working closely with Eurostat the last years in a series of activities aiming at further developing agricultural statistics. With this in mind, the reliability of the findings of the evaluation can be seen as quite high.

Limitations/problems

- Despite considerable input from users about their data needs, more detailed information about the ways the data are used would be needed for better understanding how requests can be fulfilled in the most efficient manner;
- Eurostat is aware that data are not always coherent and of sufficiently high quality. There is, however, no study made on how much these identified issues impact the use of agricultural statistics, on how the users take decisions on how to utilise the statistics and actions taken to improve the analyses made. Such a study could be carried out in the future;
- The burden of statistical surveys on farmers as respondents is often mentioned by farmer's associations and is reported by NSI's as a negative aspect of statistics. However, there are no studies that would provide full quantification of the total costs of producing agriculture statistics and more work would be required to fully assess the cost/benefit ratio between the potential added support and the actual burden of statistical surveys would be needed to shed more light on the subject. Considering the fact that the Common Agricultural Policy which ensures the viability of farming in many regions could not exist without statistics to back up the policy decisions, it can be assumed that the burden for most farmers is quite limited in relation to the cost of not having the statistics.

Section 6 Data users

As comparable statistics from all EU Member States to address common issues in a common manner are necessary for the effective and efficient design, implementation, monitoring and evaluation of EU policies, a strong need arises for an EASS that should serve information needs linked to all aspects of agricultural activities and inform policies connected to and influencing many vitally important areas of EU and world society. The main EU policies depending on agricultural statistics, and the respective Commission DGs handling them are:

1. The Common Agricultural Policy (CAP), including direct payments, market measures, and Rural Development Programmes; handled by DG AGRI
2. The Water Framework Directive, including the Nitrates Directive and the Groundwater Directive; handled by DG ENV

3. Air related Directives (National Emission Ceiling, Air Quality, and Integrated Pollution and Prevention Control); handled by DG ENV
4. Climate change policies (related to the UNFCCC Kyoto Protocol); handled by DG CLIMA
5. Nature conservation legislation, the Birds and Habitats Directives and several other biodiversity policy tools; handled mainly by DG ENV
6. Soil related policies, including the Soil Thematic Strategy and the Sewage Sludge Directive; handled by DG ENV
7. Food safety, plant protection, animal health and animal welfare regulations; handled mainly by DG SANTE
8. Regional cohesion policy; handled by DG REGIO

In addition, the JRC relies heavily on agricultural statistics for a great number of research projects, models and tools used by the DGs mentioned above and the European Environment Agency (EEA).

Section 7 Implementation state of play (Results)

Steps taken to form the present EASS

After a stakeholder seminar in 2004, Eurostat decided to undertake a series of actions on

i. better integration of the agricultural surveys,

ii. moving from national to EU sample surveys (where appropriate and after implementation of harmonised farm registers),

iii. integration of agricultural concerns in population census and labour force surveys (in order to cover information needs on small agricultural units at minimum cost) and

iv. simplification of the legal architecture.

The Statistical Programme Committee (SPC) reaffirmed its general support for the main principles and the timetable for the European system of agricultural statistics in the future.

As a result of the SPC endorsement, the following actions were taken:

- The Supply Balance Sheets on the production, trade, use and stocks of agricultural production were gradually phased out during the period 2004 - 2013. Earlier Member States were to provide 156 balances for crop products, meat, milk, eggs, sugar and fats;
- A large reduction of the requested data on agricultural prices with absolute data reduced to annual data and agricultural price indices to quarterly and annual data instead of monthly and annual data.
- A reform of the legislation of the Farm Structure Surveys was undertaken, resulting in Regulation 1166/2008 where a first attempt of a modular approach was introduced.

- Crop and Animal production statistics were modernised, with the aim of better coherence and comparability within agricultural statistics, simplifying the related legislation and data requirements.

In 2006 the Commission issued a Communication on "Development of agri-environmental indicators for monitoring the integration of environmental concerns into the common agricultural policy"[7] which was subsequently discussed in the Agricultural Council (conclusions adopted on 21 December 2006[8]). The Communication highlighted the key results regarding indicator development but also the challenges for the future and the limitations of the initial set of proposed indicators, i.e. the further work needed on the indicators to improve the concepts and methodological approaches, improve the data collection methods, develop new data sets where necessary, and improve/validate existing modelling tools. For this, Eurostat launched a study to assess the data needs related to agricultural impact on the environment. This DireDate study analysed the detailed data needs for all related Union policies, showing considerable gaps in the present regulations. In cooperation with other DG's a system for collecting most of the necessary data has been set up, but data deliveries are on voluntary basis only.

The EASS as it stands today

The backbone of European agricultural statistics is the decennial **Agricultural Census** and the related triennial **Farm Structure Surveys (FSS)** that intend to obtain reliable data on the structure of agricultural holdings in the European Union to assess the situation of agriculture across the EU and monitor trends. The FSS is the only statistical source covering the widest range of farms, fitting its purpose to act as a pivot reference for all agricultural statistics. Since 1966, the FSS has been used as a basis for the other agricultural statistics, and the produced statistics are highly appreciated by policy makers. It is a key source for the design, implementation and monitoring of the CAP and other EU policies, and they are also required by the FAO.

FSS is a community-wide survey that uses the same list of characteristics and definitions in all countries. The information from the individual farms is sent to Eurostat for processing and publication. It gives an overview of the structure of production and provides a benchmark and basis for other agricultural statistics, especially a sampling basis. Data are, inter alia, provided on the location of the holding, a breakdown of the use of arable land by different crops, organic and irrigated areas, breakdown of the number of animals, the farm workforce, and other gainful activities on the farm. The implementation of the FSS is a resource-intensive operation: in 2013, between 1527 (Malta) and 321.581 (Romania) holdings were interviewed or replied to surveys by post or electronically, according to different national forms of survey organisation. The FSS is co-financed by the EU budget up to 75% of the fixed-ceiling costs, amounting to over 58 million Euro for the period 2008-2013 and over 20 million Euro for the period 2014-2018.

Statistics on **agricultural production** target those farms that make a significant contribution to total production, which can be very different across Member States. Use of administrative sources is promoted and well-developed in these domains, and modelling and forecasting are part of the statistical process. For example, crop production statistics determine the areas, production and yield of the most important crops: Member States

[7] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2006:0508:FIN:EN:PDF

[8] http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/agricult/92275.pdf

deliver data at national level, for some crops at regional level (NUTS1 and NUTS2). Animal production statistics deliver e.g. the number of animals, weights of carcasses, amount of milk collected etc.

Agri-monetary statistics refer to market signals and therefore represent that part of production that is put on the market. As to agricultural accounts, coverage of the agricultural industry is important. Coherence of the scopes of price and volume indices and of labour input is a core issue for producing accurate income indicators.

For **agri-environmental statistics**, a complete view is important for state indicators like the nutrient balance sheets. Here modelling is at the core of the statistical process.

The EASS contains a large number of data sets, covering various aspects of agricultural production and processing, as described in Table 2.

Table 2. An overview of the existing agricultural statistics

Domain	Data set	Legal basis	Frequency
Structural data	Agricultural census	Regulation (EC) No 1166/2008 Implementing Regulation (EC) No 1200/2009	Every 10 years
	Farm structure surveys		Every 3 years
Permanent crop statistics	Structure of orchards and vineyards	Regulation (EU) No 1337/2011 concerning European statistics on permanent crops and repealing Council Regulation (EEC) No 357/79 and Directive 2001/109/EC of the European Parliament and of the Council.	Every 5 years
Agri-monetary data	Economic Accounts for Agriculture	Regulation (EC) No 138/2004 on the economic accounts for agriculture in the Community.	Annually
	Agricultural Labour Input Statistics		
	Unit value statistics for agricultural products		
	Selling prices of agricultural products		
	Price indices of agricultural products		
	Agricultural Prices - Land (including rent)	Under development	
Crop production data	Crops from arable land - Area and Yield	Regulation (EC) No 543/2009 concerning crop statistics	Annually
	Permanent crops from arable land		
	Vegetables, melons, strawberries		
	Agricultural Land use		
	Early estimates for Crop production		
	Early estimates for Fruit and Vegetables		
Supply Balance Sheets	Wine	Regulation EC laying down detailed rules for the application of Council Regulation (EC) No 479/2008 as regards the vineyard register, compulsory declarations and the gathering of information to monitor the wine market, the documents accompanying consignments of wine products and the wine sector registers to be kept	Annually

	Main crops products	Under development	
Organic farming data	Certified registered organic operators	Regulation (EC) No 834/2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91	Annually
	Certified organic crop area and production		
	Certified organic livestock, animal products and aquaculture		
	Manufacturing of organic products		
Animal products and livestock data	Livestock Survey - Cattle - May/June	Regulation (EC) No 1165/2008 concerning livestock and meat statistics and repealing Council Directives 93/23/EEC, 93/24/EEC and 93/25/EEC.	Annually
	Livestock Survey - Cattle - November/December		
	Livestock Survey - Cattle – Regional		
	Livestock Survey - Pigs - May/June		
	Livestock Survey - Pigs - November/December		
	Livestock Survey - Pigs – Regional		
	Livestock Survey - Sheep & Goats - November/December		
	Livestock Survey - Sheep & Goats – Regional		
	Slaughterings other than in slaughterhouses		
	Slaughterings other than in slaughterhouses		Monthly
	Slaughterings in slaughterhouses		
	Gross Indigenous Production – Cattle		Sub-annually
	Gross Indigenous Production – Pigs		
	Gross Indigenous Production - Sheep & Goats		
	Activity of Hatcheries	Regulation (EC) No 617/2008laying down detailed rules for implementing Regulation (EC) No 1234/2007 as regards marketing standards for eggs for hatching and farmyard poultry chicks.	Monthly
	Trade of Chicks		
	Structure of Hatcheries		Annually
	Eggs for consumption	Under development	
	Milk collection - Table A	Council Directive 96/16/EC on statistical surveys of milk and milk products	Monthly
	Milk production - Table B		Annually
	Milk questionnaire		
	Milk on farms - Table C		
	Milk Protein Contents - Table H		
	Milk regional collection - Table I		
	Structure of Dairies - Collection Centres by volume of annual milk collection		Every 3 years
Agri-environmental data	Use of pesticides	Regulation (EC) No 1185/2009 concerning statistics on pesticides	Every 5 years
	Sales of pesticides		Annually
	Fertiliser statistics		
	National level Gross Nitrogen Balances		
	National level Gross Phosphorus Balances		

Not all of the statistics mentioned are defined in legislation as can be seen in table 2, some are partly and others fully voluntary or based on gentlemen's agreements (where countries commit to provide data without an existing legislation). In addition there are agri-environmental indicators that are either derived statistics from existing surveys, produced from other reporting requirements under various policies, or estimated in various models, depending on the available data sources and institution assigned to deal with them.

Eurostat's role in these data collections consists of receiving the data, data flow management, validation and quality assurance, monitoring and improving quality, analysing and investigating it, providing handbooks and guidelines, keeping methodologies and legal bases up to date, disseminating the data on its website, supporting Member States, organising Working Group meetings for expert discussion of relevant issues., ensuring

compliance and following it up bilaterally. New approaches for data validation are being implemented through pilot projects especially for FSS and animal production data in the framework of a data validation project, part of the ESS Vision Implementation Programme[9].

Most of the feedback on the data made available comes from DG AGRI which uses them for policy and economic analyses, market monitoring, regular indicator updates, and to reply to a wide range of ad-hoc requests for information. Feedback is mostly provided as complaints or questions. Negative feedback refers especially to missing data at a given time, i.e. with timeliness (all data missing for a country and a period) or completeness (only some data missing), and to plausibility of the figures, i.e. data validation. This latter kind of feedback is considered as far as possible for a continuous improvement of the processes.

The use of statistics for monitoring policies requires especially timeliness and completeness of the data. Data validation is progressively implemented, conducting to quality improvement. The validation pressure is moderated in order to keep the follow-up of data file rejection balanced.

Compliance is reported at least two times a year and particular cases can be treated also at other times, either in relationship with issues found in other domains or when bigger problems have been found.

More information on the actual state of play for each agricultural statistics domain can be found in Annex 4.

Section 8 Answers to the evaluation questions

Below the answers to the evaluation questions are summarised from the findings in the sources outlined in section 5 above. In addition, the managers of the various agricultural statistical domains have summarised the situation in their domains in Annex 5.

- *To what extent are data needs adequately served?*

  Even though the data needs have been developed over quite a long time, new needs emerge constantly.

  These new data needs mainly stem from new developments in agriculture, revised legislation and changing policy priorities, in particular the recently reformed Common Agricultural Policy (CAP) which introduces new elements such as “greening” and climate change objectives, but also from actions in DG ENV, DG CLIMA, DG REGIO etc., such as environmental accounts or biodiversity policies.[10] [11] These policies require high-quality data to enable evidence-based policy design, implementation and evaluation. Key stakeholders expressed this need at multiple specific occasions in the last years:

  a. DG AGRI evaluated its use of FSS data to identify priority characteristics, desired frequencies and other required features in 2011. It was found that the FSS is a unique source of information for a wide range of farm structural elements in the EU, and its data are used in a number of publications and for evaluations of different

[9] http://ec.europa.eu/eurostat/documents/4031688/5932276/KS-03-13-405-EN.PDF/dd07f598-9bfb-4929-97f6-5a9dcc6960a1?version=1.0

[10] Minutes of the 21st ESSC Meeting May 2014

[11] Presentation by DG AGRI Director General at the ESSC Meeting May 2014

policies, sectors and impacts. However, many more data were needed on environmental aspects, especially with increasing “greening” requirements in the then-upcoming CAP reform.

b. Commenting on the DireDate project, stakeholders and representatives of NSI's and farmers' organisations confirmed the need for more data on environmental aspects of agriculture.

c. Member State representatives have confirmed and supported specific new data needs identified for the 2016 and future FSS following the CAP reform.[12] Moreover, representatives discussed and welcomed specific requirements for new FSS legislation.[13]

d. The Director-General of DG AGRI, Jerzy Bogdan Plewa, stressed at a presentation for the ESSC that relevant, timely and comprehensive agricultural statistics are needed for designing, monitoring and evaluating the CAP and its expenditure and that the need for high-quality agricultural statistics is stronger than ever, enumerating several specific data needs for different policies and actions. As an example of a costly lack of data, he mentioned that after phasing out supply balance sheets starting from 2005, the EU did not have enough data to deal appropriately with the food crisis of 2007-2008.

e. Several data users’ specific needs were queried and then presented and confirmed at the CPSA meeting in November 2014, including main Commission data users' and Member States'.[14] [15] Since then, other users, among them the EEA, have communicated their data needs to Eurostat.

Furthermore, stakeholders underlined that new, changing and emerging as well as existing, stable data needs must be answered in a more flexible and integrated way to react faster to new developments, provide data in a timelier manner and account for different data collection modes and situations in Member States without a burdensome and slow process. Examples of agricultural data that have recently increased in importance are the agri-environmental indicators.

Some of these expressed needs have been included in the agricultural statistics system, but unfortunately those not included in legislation have not been always accepted by the national budget authorities to be included in national statistical programmes. Several Member States have sent letters explaining the situation over the years, or informed the Commission by other means, for example in meetings.

Part of the agricultural statistics is based on voluntary data delivery or gentlemen's agreements. This does not lead to a satisfactory situation, as Member States do not always provide the data expected, leading to patchy statistics and lower quality.

In addition, the negotiations in expert groups, consisting of representatives of National Statistical Institutes, show that it is increasingly difficult to come to agreements on the introduction of new data in the collections, due to the lack of resources in Member States, the rigidity of the systems and the need to build up the methodological documentation before launching data collections.

12 Minutes of the CPSA Meeting November 2013

13 CPSA Meeting November 2013 Point 3.4.

14 CPSA Meeting November 2014 Point 4.1.

15 CPSA Meeting November 2014 Point 4.1. Annex I

The evidence collected shows that the current agricultural statistics legislation does not adequately serve new and emerging data needs because their provision is not included in the legislative acts, and the acts are not flexible and integrated enough to answer to new needs in a timely manner. This was proven in the negotiations on introducing changes to the list of variables to be surveyed in FSS 2013, when parties could agree on the need of new data, but where Regulation 1166/2008 did not allow any flexibility in precision requirements and allowing subsamples that would have reduced burden response and costs, thus leading to negotiations failing[16]. Moreover, the Farm Structure Survey (FSS) regulation which is a central piece in the current overall European agricultural statistics legislation will cease to provide any statistical information after 2016 if new legislation is not introduced.

- *To what extent is the EASS producing high-quality data?*

  Eurostat's mission is to be the leading provider of high-quality statistics on Europe. Accordingly, quality considerations play a central role with regard to Eurostat corporate management as well in the day-to-day statistical operations.

  The European Statistics Code of Practice (CoP)[17] sets the standard for developing, producing and disseminating European statistics, building on a common European Statistical System (ESS). The Quality Assurance Framework of the European Statistical System (ESS QAF)[18] identifies possible activities, methods and tools that can provide guidance and evidence for the implementation of the Code of Practice when developing, producing and disseminating European statistics.

  Eurostat follows an encompassing quality management approach based on the CoP covering all the statistical domains. In reality, the quality of statistics is neither one-dimensional nor absolute. Instead, it has to be understood as a relative concept, the products' characteristics being defined in relation to users' needs. As with other products, statistical information has to be 'fit for purpose' and this approach, leading to differentiated quality assurance (for statistics for direct policy use, standard and experimental statistics), emerges from continuous optimisation and learning in close interaction with users.

  Eurostat carries out evaluations in specific statistical domains. They may take the form of reports to the European Parliament and the Council when they stem from the obligation to produce these reports enshrined in the regulations themselves. These reports are normally produced every 3 years by the units in Eurostat responsible for this particular statistical area. Eurostat also carried out Rolling Reviews. Rolling Reviews involved not only the assessment of the statistical data produced but also the process to produce them, the interactions with data providers and interactions with users of the data. They form part of the Quality Assurance Framework developed by Eurostat in 2007. In the agricultural domain only the fruit tree surveys have been reviewed in this manner so far[19], but it covered the former regulation.

  There have also been evaluations[20] of agricultural statistics domains, and in addition a number of peer reviews and supported self-assessments. There are precision

16 Minutes of the CPSA meeting in November 2010

17 http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-32-11-955

18 http://ec.europa.eu/eurostat/documents/64157/4392716/ESS-QAF-V1-2final.pdf/bbf5970c-1adf-46c8-afc3-58ce177a0646

19 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0340:FIN:EN:PDF

20 http://ec.europa.eu/eurostat/web/quality/domain-specific-results

requirements included in the statistical legislation, and countries have to provide quality reports that are validated by Eurostat. The result of the evaluations and analyses described above show that there are no major quality problems in agricultural statistics.

- *How flexible is the EASS and how quickly is it reacting to the emerging needs of the agricultural statistics system?*

  As can be seen from above, users are complaining that it takes too long to adapt the statistics and to introduce new needs, see for example the UNECE Review of Agricultural Statistics. Policy measures or market disturbances can have rapid implications that need to be measured, but the EASS has no possibility of reacting quickly to new data needs. This is partly due to the inherent functioning of statistics: they have to be set up in a certain manner in order to fill the quality and other methodological requirements. The ways the regulations are organised ensure that the requirements for the statistics to be collected and delivered by the Member States are described in detail. Changing or adding these requirements, or actively integrating new developments in the data collection process is therefore almost impossible, due to the necessity to go through the whole legal processes, involving the European Parliament and Council when there are no delegation rights in the basic regulations. This means that the instruments are well developed but rather inflexible. In addition, the lack of budget and human resources in National Statistical Institutes remains a constraint, as well as existing response burden not allowing new surveys to be easily added.

  Eurostat data are used in many different policy areas, and by several DG's, as described in section 3. It is therefore important to ensure that the statistical system is reacting to changes in the policies depending on data for planning, monitoring and evaluation. Presently, the rigidity shown above prevents a timely adaptation of the statistics made available to policy makers, researchers and the public at large, thus reducing the relevance of the EASS in the long-term.

- *To what extent are data collections harmonised and coherent among different areas?*

  The need for harmonisation and coherence was expressed several times recently:

  1. Data providers and users have expressed a wish to increase harmonisation and coherence in order to improve data comparability and usefulness and be able to do more with fewer resources at the CPSA meeting in November 2013. This need has been echoed by other users such as the research community for years.

  2. Eurostat's Internal Audit Capability (IAC) recommended in its 2013 audit on statistical processes of agriculture statistics that voluntary data collections should be formalised, all variables should be applied consistently by Member States, Member State compliance with quality requirements should be documented and monitored systematically, completeness of disseminated data should be increased, and using administrative and other data sources should be considered in view of the identified issues.

  3. The latest Eurostat User Satisfaction Survey in 2014, a wide consultation open to the general public, revealed that only about half of respondents rated the completeness and comparability of European agriculture and fishery statistics as "good" or "very good", below the Eurostat average for each criterion.

After the introduction of new legislation in 2008 and 2009, the items and definitions in FSS, animal and crop statistics were harmonised better than before, but not completely, due to historical and methodological aspects. However, due to the various aims of the data collection, it is not always possible to harmonise the actual data collections. Where the aim of FSS is to show the structure of farms, the purpose of livestock and crop statistics is to make available data on the actual production. This means that surveys are set up in the manner best suited to get the required data, not necessarily to get harmonised and coherent data.

New data needs are emerging, legislation has been developed separately over many years, and there are partly different definitions and concepts in different agricultural areas.

However, this does not explain all the differences, as the areas and number of livestock should be reasonably close regardless of the aim of the survey. The validation of the FSS 2013 data in 2015 included cross-domain analyses[21]. The cross-check was made separately against both the land use and crop details data in Annual Crop Statistics (ACS). The displayed results correspond to 28 FSS land characteristics although around 40 characteristics were contrasted and analysed. Characteristics with discrepancies bigger than 10% between both surveys were highlighted and communicated to the Member States in order to gather explanations or further comments for a better understanding of these differences.

The following examples show the number of Member States distributed in four classes depending on the percentages differences. A final column shows the total number of Member States with important discrepancies.

[21] Document to the FSS Working Group October 2015

Table 3. Differences between FSS and annual crop statistics in FSS 2013 validation

	Difference				Total number of MS*
	≥ 10%-20%	≥20-40%	≥40%-70%	≥70	
UAA	1	3			4
Arable land	2	2			4
Cereals	3	1			4
Common wheat durum wheat	4	2	1		7
Rye and maslin	1	3			4
Barley	3	1			4
Grain maize	4				4
Oats and mixed garin other than maslin	4	3	1		8
Other cereals	1	4	1	1	7
Pulses	1	4		5	10
Potatoes	4	3	4	1	12
Industrial crops	2	1	3	1	7
Sunflower		4			4
Fresh vegetables,melons and strawberries	3	7	4	1	15
Flower and ornamental plants	11	2	4	3	20
Plants harvested green	2	2		1	5
Temporary grass	3	2	1	2	8
Green maize		2	1	1	4
Other arable crops	1	2	6	9	18
Fallow land	3	1	1	3	8
kitchengardens		1		1	2
Permanent grassland	2	3		1	6
Permanent crops	6	9	3	1	19
Nuts	2	5	1	1	9
Citrus	1				1
Olive plantations	2	5			7
Vineyard	5	5			10
Nurseries		4	2	2	8

Graph 1. Most relevant explanations for differences found

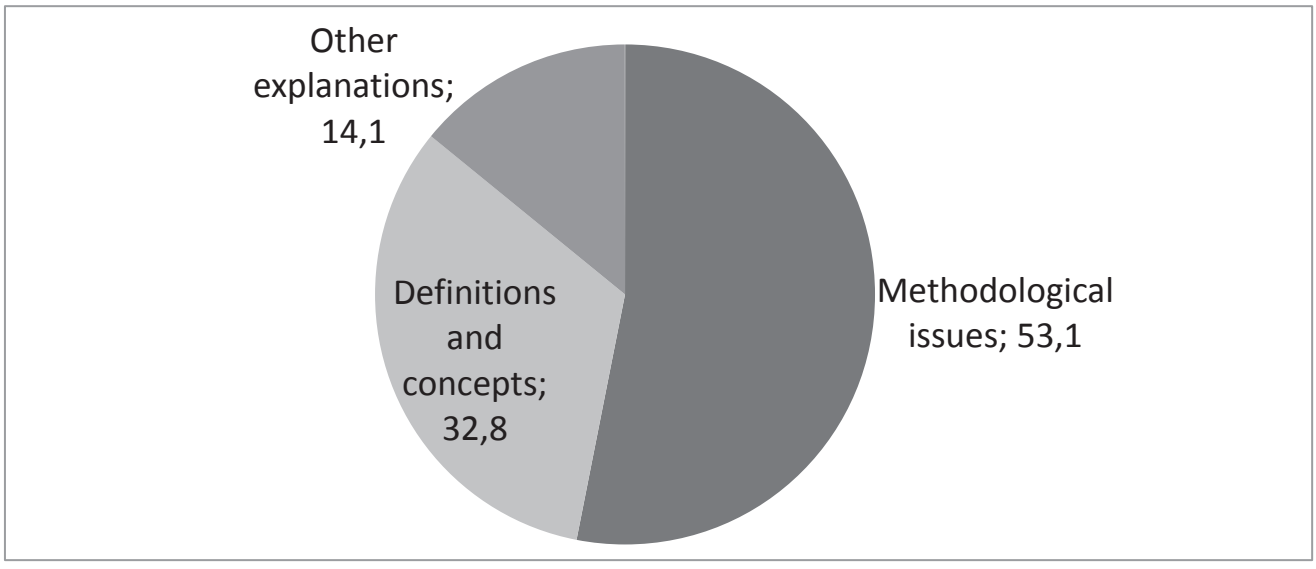


Table 4: Differences between FSS and Annual Crop statistics (ACS) in most important land use categories, 2013 (1000 ha)[22]

	Utilised agricultural area (UAA)			Arable land			Permanent grassland			Permanent crops		
	FSS	**ACS**	**%**	**FSS**	**ACS**	**%**	**FSS**	**ACS**	**%**	**FSS**	**ACS**	**%**
BE	1.308	1.338	*2,3*	800	818	*2,3*	487	499	*2,5*	22	19	*-12,8*
BG	4.651	4.995	*7,4*	3.280	3.463	*5,6*	1.272	1.382	*8,6*	95	136	*43,2*
CS	3.492	3.521	*0,8*	2.493	2.505	*0,5*	961	974	*1,4*	40	42	*5,0*
DK	2.620	2.628	*0,3*	2.398	2.406	*0,3*	196	196	*0,0*	27	27	*0,0*
DE	16.700	16.700	*0,0*	11.876	11.876	*0,0*	4.621	4.621	*0,0*	200	200	*0,0*
EE	958	966	*0,8*	629	629	*0,0*	325	325	*0,0*	4	3	*-25,0*
IE	4.960	4.478	*-9,7*	1.042	1.114	*6,9*	3.916	3.364	*-14,1*	2	2	*0,0*
EL	4.857	3.959	*-18,5*	1.817	1.514	*-16,7*	2.103	1.081	*-48,6*	930	1.212	*30,3*
ES	23.301	23.650	*1,5*	11.295	12.391	*9,7*	7.963	6.487	*-18,5*	4.043	4.662	*15,3*
FR	27.740	28.976	*4,5*	18.467	18.374	*-0,5*	8.243	9.439	*14,5*	1.025	1.016	*-0,9*
HR	1.572	1.301	*-17,2*	879	875	*-0,5*	619	350	*-43,5*	73	74	*1,4*
IT	12.099	12.227	*1,1*	6.729	6.827	*1,5*	3.317	3.011	*-9,2*	2.033	2.390	*17,6*
CY	110	89	*-19,1*	81	59	*-27,2*	2	3	*50,0*	28	28	*0,0*
LV	1.878	1.878	*0,0*	1.205	1.208	*0,2*	655	664	*1,4*	7	7	*0,0*
LT	2.862	2.892	*1,0*	2.278	2.289	*0,5*	561	568	*1,2*	24	28	*16,7*
LU	132	132	*0,0*	63	63	*0,0*	67	67	*0,0*	2	2	*0,0*
HU	4.657	5.340	*14,7*	3.801	4.326	*13,8*	703	760	*8,1*	139	175	*25,9*
MT	11	12	*9,1*	9	9	*0,0*	0	0	*0,0*	2	2	*0,0*
NL	1.848	1.848	*0,0*	1.038	1.029	*-0,9*	774	774	*0,0*	37	37	*0,0*
AT	2.727	2.863	*5,0*	1.364	1.354	*-0,7*	1.297	1.441	*11,1*	66	66	*0,0*
PL	14.410	14.410	*0,0*	10.760	10.760	*0,0*	3.207	3.207	*0,0*	413	413	*0,0*
PT	3.642	3.780	*3,8*	1.101	1.203	*9,3*	1.817	1.817	*0,0*	709	746	*5,2*
RO	13.056	13.905	*6,5*	8.198	8.747	*6,7*	4.399	4.717	*7,2*	303	326	*7,6*
SI	486	479	*-1,4*	173	175	*1,2*	285	278	*-2,5*	28	28	*0,0*
SK	1.902	1.929	*1,4*	1.364	1.363	*-0,1*	519	514	*-1,0*	19	20	*5,3*
FI	2.258	2.259	*0,0*	2.224	1.970	*-11,4*	31	31	*0,0*	4	4	*0,0*
SE	3.029	3.031	*0,1*	2.582	2.591	*0,3*	443	438	*-1,1*	5	3	*-40,0*
UK	17.097	17.259	*0,9*	6.269	6.272	*0,0*	10.792	10.940	*1,4*	28	36	*28,6*
EU-28	**173.055**	**175.507**	***1,4***	**103.415**	**105.392**	***1,9***	**59.088**	**57.449**	***-2,8***	**10.286**	**11.685**	***13,6***

[22] Data extracted from the Eurostat public dissemination database in November 2015

Table 5: Differences between FSS and Annual Livestock statistics (LivS) in most important livestock categories, 2013 (1000 heads) [23]

	Cattle - total			Dairy cows			Sheep - total			Goats			Pigs		
	FSS	LivS	%	FSS	LivS	%	FSS	LivS	%	FSS	LivS	%	FSS	LivS	%
BE	2360	2442	*3,5*	465	516	*11,0*	118	117	*-0,8*	39	39	*0,0*	6228	6.352	*2,0*
BG	587	586	*-0,2*	315	313	*-0,6*	1.354	1.370	*1,2*	286	289	*1,2*	574	587	*2,3*
CS	1.369	1.332	*-2,7*	370	375	*1,4*	200	:	*:*	18	:	*:*	1.575	1.548	*-1,7*
DK	1.615	1.583	*-2,0*	583	567	*-2,7*	152	:	*:*	13	:	*:*	12.076	12.402	*2,7*
DE	12.371	12.686	*2,5*	4.252	4.268	*0,4*	1.894	1.570	*-17,1*	131	130	*-0,6*	28.698	28.134	*-2,0*
EE	262	261	*-0,2*	97	98	*0,9*	88	:	*:*	4	:	*:*	379	359	*-5,3*
IE	6.903	6.309	*-8,6*	1.164	1.082	*-7,0*	4.943	3.324	*-32,8*	11	:	*:*	1.552	1.470	*-5,3*
EL	621	653	*5,2*	134	130	*-3,0*	8.687	9.356	*7,7*	3.655	4.387	*20,0*	768	1.031	*34,2*
ES	5.777	5.802	*0,4*	877	844	*-3,8*	15.953	16.119	*1,0*	2.392	2.610	*9,1*	24.167	25.495	*5,5*
FR	18.906	19.129	*1,2*	3.738	3.697	*-1,1*	7.380	7.193	*-2,5*	1.424	1.283	*-9,9*	13.468	13.428	*-0,3*
HR	454	442	*-2,6*	173	168	*-2,9*	803	620	*-22,8*	87	69	*-20,7*	1.187	1.110	*-6,5*
IT	5.705	6.249	*9,5*	1.763	2.075	*17,7*	6.598	7.182	*8,8*	921	976	*6,0*	8.599	8.562	*-0,4*
CY	54	57	*5,7*	22	25	*11,6*	258	313	*21,5*	172	243	*41,4*	291	358	*23,0*
LV	413	406	*-1,6*	167	165	*-1,2*	99	:	*:*	14	:	*:*	365	368	*0,8*
LT	717	714	*-0,5*	319	316	*-1,0*	111	100	*-10,3*	16	14	*-13,8*	765	755	*-1,3*
LU	194	198	*2,2*	47	48	*2,7*	9	:	*:*	5	:	*:*	88	90	*2,3*
HU	756	782	*3,4*	242	250	*3,3*	1.150	1.214	*5,6*	90	73	*-18,9*	2.866	3.004	*4,8*
MT	15	15	*1,5*	7	6	*-9,6*	10	11	*9,3*	5	5	*-8,0*	52	50	*-3,8*
NL	4.000	4.090	*2,3*	1.553	1.597	*2,8*	1.034	1.074	*3,9*	413	409	*-1,0*	12.213	12.013	*-1,6*
AT	1.953	1.958	*0,3*	536	530	*-1,2*	401	357	*-10,9*	84	72	*-14,2*	3.028	2.896	*-4,4*
PL	5.890	5.590	*-5,1*	2.344	2.299	*-1,9*	271	:	*:*	82	:	*:*	11.301	10.995	*-2,7*
PT	1.408	1.471	*4,4*	265	231	*-12,9*	2.068	2.074	*0,3*	384	398	*3,7*	1.845	2.015	*9,2*
RO	1.937	2.022	*4,4*	1.148	1.169	*1,8*	8.945	9.136	*2,1*	1.326	1.313	*-1,0*	4.235	5.181	*22,3*
SI	463	461	*-0,5*	104	110	*5,4*	131	:	*:*	35	:	*:*	288	289	*0,3*
SK	469	468	*-0,3*	146	145	*-0,8*	400	400	*0,0*	14	35	*153,3*	545	638	*17,1*
FI	912	903	*-0,9*	284	282	*-0,7*	136	:	*:*	5	:	*:*	1.301	1.259	*-3,2*
SE	1.497	1.444	*-3,6*	345	346	*0,3*	577	577	*0,0*	:	:	*:*	1.399	1.481	*5,9*
UK	9.805	9.682	*-1,3*	1.767	1.817	*2,8*	32.353	22.027	*-31,9*	96	:	*:*	4.825	4.383	*-9,2*
EU-28	**85.053**	**87.736**	***3,2***	**22.762**	**23.468**	***3,1***	**96.005**	**84.132**	***-12,4***	**11.683**	**12.346**	***5,7***	**138.450**	**146.253**	***5,6***

In addition to the validation process, an internal project on harmonising codes and classifications has also taken place in Eurostat. The aim of this project has been to ensure that only one code and, eventually, one definition will be used for every item collected in agricultural statistics. In practice this means that for example wheat will have one code, regardless of the aim of the data collection. The various aspects will be identified by using dimensions and measurement units, such as sown area, harvested area, main crop area, yield, production, price, humidity, use, etc. The project so far has shown that it is quite easy to harmonise between structural and production statistics, but already price statistics and especially Economic Accounts for Agriculture create quite some complications, due to methodological aspects but especially because both these domains have not been properly modernised with harmonisation in mind[24].

- *How coherent are agricultural, forestry, land use and environmental statistics?*

[23] Data extracted from in Eurostat public dissemination database in November 2015

[24] Document for the joint WG on crop statistics and FSS October 2015

Agriculture, forestry and other land use have a great impact on the environment, in the form of emissions to the air, nutrient and other chemicals leakage to the water bodies, soil degradation, and on biodiversity. As the impacts depend not only on the intensity of the use, but also on the changes in land cover or –use, it is important to have an overview of both state and trends, thus an integrated approach would be needed to ensure coherent and high quality data. Despite much effort, it has not been possible to properly integrate agricultural statistics with forestry, land use and environmental statistics, partly due to the different aims of the domains. Work is on-going in cooperation with other DG's, the European Environmental Agency and Member States.

- *To what extent are the data produced efficiently? Is the burden/cost appropriate for the purpose?*

  The burden of providing data is considered high by NSI's and respondents, with possible causes being increasing data needs, not harmonised data collections, and shrinking resources at EU and national level. Table 6 shows the overview of the burden measurement exercise in 2010 for the agricultural statistics regulations. It shows clearly that the perceived burden vary depending on the statistics to be provided, with the surveys carried out either very regularly from a limited number of enterprises (milk statistics) or with a low frequency (vineyards and orchards) considered to be rather low cost and not very burdensome. On the other side, the farm structure surveys are considered to be the most burdensome and costly (see table 7), which can be considered logical as the number of variables to be surveyed from each farm sampled is very high and requires the use of interviewers in many countries.

Table 6. Burden Measurement Exercise 2010 for 8 legal acts

Legal Act	Production costs	Response Burden
Regulation (EC) No 1166/2008 of the European Parliament and of the Council of 19 November 2008 on farm structure surveys and the survey on agricultural production methods	High	High
Regulation (EC) No 543/2009 of the European Parliament and of the Council of 18 June 2009 concerning crop statistics	Medium	Medium
Regulation (EC) No 1165/2008 of the European Parliament and of the Council of 19 November 2008 concerning livestock and meat statistics	Medium	Medium
Regulation (EC) No 1185/2009 of the European Parliament and of the Council of 25 November 2009 concerning statistics on pesticides	Medium	Medium
Regulation (EC) No 138/2004 of the European Parliament and of the Council of 5 December 2003 on the economic accounts for agriculture in the Community	Medium	Low
Directive 2001/109/EC of the European Parliament and of the Council of 19 December 2001 concerning the statistical surveys to be carried out by the Member States in order to determine the production potential of plantations of certain species of fruit trees	Medium	Low
Council Directive 96/16/EC of 19 March 1996 on statistical surveys of milk and milk products, as amended by Directive No 2003/107/EC of the European Parliament and of the Council	Low	Low
Council Regulation (EEC) No 357/79 of 5 February 1979 on statistical surveys of areas under vines	Low	Low

Eurostat has no general overview of the costs of providing the agricultural statistics, but as Regulation 1166/2008 stipulates that the EU shall reimburse the Member States 75% of the eligible costs for carrying out the FSS, including the agricultural census 2010, up

to specific maximum ceilings, thus reducing the burden of the statistical authorities to carry out the surveys, some indications on the costs for this survey are available, as described in more detail in Table 7.

Table 7: Total own estimated costs for carrying out the farm structure surveys (in thousands of Euro)

	FSS 2010 (census)	FSS 2013 (sample)	FSS 2016 (sample)
AT	3.530	2.240	2.950
BE	960	850	720
BG	6.010	1.170	1.330
CY	5.540	1.600	1.370
CZ	640	200	250
DE	15.650	6.380	5.980
DK	920	260	240
EE	810	350	240
EL	32.130	4.720	4.760
ES	24.680	3.830	3.740
FI	1.830	460	750
FR	25.770	4.020	3.190
HR	-	230	570
HU	9.740	2.970	2.070
IE	1.870	720	680
IT	126.590	3.790	2.700
LT	3.340	570	630
LV	90	100	860
LU	1	780	180
MT	200	40	50
NL	2.450	1.730	350
PL	5.330	2.680	3
PT	16.900	1.750	2
RO	26.810	2.670	2.670
SE	690	670	700
SI	2.350	450	260
SK	370	200	220
UK	2.790	1.370	1.830
Total	318.990	46.780	44.280

Eurostat has no information on the costs of the other surveys, as there are no reporting requirements and no co-funding involved. However, as part of the quality reporting exercise, some countries have given some rough estimates on the costs involved in crop production statistics. The range of costs is very broad in this domain, as costs are directly related to the use of other data sources than statistical surveys, for example administrative data.

The burden on the respondents has been confirmed by National Statistical Institutes as potentially jeopardising data collection and data quality. In several recent exchanges with data providers, ways of reducing it and increasing the cost-benefit ratio have been discussed:

- The topic was discussed in depth at the CPSA November 2013 meeting. Several ways to reduce the burden such as improving the use of administrative data registers (e.g. IACS, FADN or animal registers), reusing data collected once multiple times, and harmonising concepts and definitions across legislation, domains and databases were proposed.[25]
- Eurostat mapped common characteristics and data flows in agricultural statistics for the CPSA November 2014 meeting.[26]
- Eurostat developed a method[27] for assessing the burden of the NSI's carrying out the FSS and the Survey of Agricultural Production Methods in 2010 as part of the preparation for a possible new legislation project that was later put on ice. The results show that the burden is very much depending on the methods used for collecting the data and the availability of other sources of information to replace statistical surveys, which is also visible from tables 6 and 7.

On the other hand, considering the substantial budget of the EU CAP, and its impact on the economic situation in agriculture, including on the individual farms; the need for data to monitor, evaluate and plan the CAP and the potential impact of agriculture on the environment, it can be considered that the burden and costs of the EASS are appropriate.

The views described above show that burden and costs relate to the point of view of the person who is asked to assess them. However, the Secretary General of Copa-Cogeca, the European Farmer's Union, confirmed in the CPSA Seminar in 2010 that farmers obviously feel the burden of increasing needs for data, but also confirmed the need not to reduce agricultural statistics but rather increase it, using modern tools to reduce the burden on respondents, for example by ensuring re-use of data already collected.[28] This statement shows, in Eurostat's opinion, best that the burden is perceived as high by the farmers, rather than objectively being high.

- *To what extent can better statistics be produced without increasing the burden on respondents by exploring alternative data sources and efficiency improvement techniques? Can the collection of data be made more efficient?*

Eurostat has in cooperation with DG AGRI and together with representatives of the national statistical authorities and Payment Agencies carried out work to make the use of administrative data sources increasingly available for agricultural statistics, thus reducing the burden on the respondents. In addition, Eurostat has financed projects in several Member States with the aim of setting up the infrastructure and create the methodology for using administrative data sources in statistics. Both Member States and Eurostat consider this work important for reaching better data with fewer resources and reduced burden to respondents. The results of these projects are not available yet, but first results are planned to be discussed in a seminar in June 2016.

In most of the statistical legislation it is already stipulated that NSIs have free hands to use other data sources, such as administrative registers, as long as these sources give data of the same quality as statistical surveys would.

25 Minutes of the CPSA Meeting November 2013

26 CPSA Meeting November 2014 Point 4.1. Annex II

27 Document presented in the FSS Working Group meeting in September 2012

28 Presentation in CPSA seminar 2010

The EASS legislation at the moment does not allow the use of other data than statistical surveys and administrative data. This potentially excludes the use of sources that would be useful.

The countries are free to set up the actual data collection as they wish, and increasingly electronic data collection methods, for example internet questionnaires, are used. The methods used for collecting the data are thus under the responsibility of national authorities.

The combination of the methods listed above in combination with the fact that the number of farms has been drastically reduced over the last decade will make it possible to reduce the overall burden on national statistical institutes and respondents without risking the quality of the statistics produced.

Section 9 Conclusions

The main conclusions of the evaluation are the following:

- **The current agricultural statistics legislation does not adequately serve new and emerging data needs** because their provision is not included in the legislative acts, and the acts are not flexible and integrated enough to answer to new needs in a timely manner.
- **The quality of the agricultural statistics is "fit for purpose" for most of the requirements of the users,** thanks to the quality management approach put in place overall in the European Statistical System.
- **The EASS is not flexible enough and is not reacting sufficiently quickly to the emerging needs**, partly due to the inherent functioning of statistics, partly due to the way the regulations have been set up but as well because of lack of budget and human resources.
- **The data collections are not harmonised and coherent to a satisfactory degree** because new data needs are emerging, legislation has been developed separately over many years, and there are partly different definitions and concepts in different agricultural areas. Agricultural, forestry, land use and environmental statistics are not sufficiently coherent because it has not been possible to properly integrate agricultural statistics with forestry, land use and environmental statistics, partly due to the different aims of the domains
- **The statistics could be produced more efficiently** if the legislation is adapted so that various sources of information can be used and if Member States adapt to modern technology, but **the burden/cost are appropriate** considering the substantial budget of the EU Common Agricultural Policy, and its impact on the economic situation in agriculture, including on the individual farms; the need for data to monitor, evaluate and plan the CAP and the potential impact of agriculture on the environment.
- **The burden of providing data is perceived high** because data needs are increasing, data collection is not harmonised, and resources continue to shrink at EU and national level.

Annexes to the final report

Annex 1: Procedural information

Basic information

Name of the initiative: A strategy for agricultural statistics towards 2020 and beyond

Lead DG: Eurostat

Agenda Planning number: 2015/ESTAT/035

Organisation and timing

An Interservice Impact Assessment Steering Group (IASG) was set up, to which the following Directorates-General were invited: the Secretariat-General (SG), the Legal Service (SJ), Agriculture and Rural Development (AGRI), Budget (BUDG), Climate Action (CLIMA), Environment (ENV), Joint Research Centre (JRC), Regional Policy (REGIO), and Health and Food Safety (SANTE). The IASG met 3 times:

- On 18 June 2015 with Eurostat, SG, AGRI, BUDG, CLIMA, ENV, JRC and SANTE participating, to discuss the strategy and the open public consultation.
- On 07 December 2015 to discuss the draft impact assessment report and the draft evaluations staff working document, with documents sent on 27/11/15.
- On 21 January 2016 to discuss the final draft impact assessment report and the final draft evaluations staff working document, with documents sent for consultation on 13/01/2016.

In the interim, written exchanges took place on documents for the open public consultation (launched on 18/08/15), a note on evidence and evaluations for agricultural statistics data needs (02/09/15; the note is now part of the impact assessment report and the evaluations staff working document), and the inception impact assessment for the strategy (16/10/15, consultation on revised version following IASG, SG and College feedback 01/12/15; the IIA is now published since 16/12/2015 on http://ec.europa.eu/smart-regulation/roadmaps/index_en.htm). Following the third meeting of the IASG, a revised version of the Impact Assessment Report was submitted to the Regulatory Scrutiny Board on 03/02/2016.

Regulatory Scrutiny Board (RSB)

The RSB examined the Evaluation document for the strategy for agricultural statistics towards 2020 and beyond on 02/03/2016. No changes were recommended.

Evidence and sources

The main sources used in the evaluation are listed in Annex 2 are referenced where appropriate. These sources include both external and internal studies and documents,

minutes and documents from seminars and expert groups, letters, notes and emails from Commission services and other users. Eurostat considers the sources to be quite robust and appropriate to use, as they relate to the issues under scrutiny and give a solid base for the evaluation.

External expertise

This evaluation has been conducted internally within Eurostat. Other sources such as previous internal, Commission or NSI surveys and external studies of relevance to the impact assessment are referenced where appropriate. Expert advice has been sought in the Commission expert groups on various aspects of agricultural statistics. In these meetings statisticians from NSI's discuss the legislative, methodological, resource related and other aspects of agricultural statistics in detail, informing on the situation in the respective countries and giving advice and feedback to the Commission.

Eurostat commissioned three studies on the statistics related to agriculture and environment (described in section 5) which have shown areas where further development is needed.

Annex 2 Stakeholder consultations

1. *UN Global Strategy on Agricultural Statistics 2008*

One of the outcomes of the 2007 International Statistical Institute Conference on Agricultural Statistics was a consensus regarding the challenges of applying statistics to several issues in agricultural development, such as the use of food for biofuels, food security, and environmental impacts of agriculture. At the same time, a general decline in the overall quality and availability of agricultural statistics was observed. These concerns were discussed during the 2008 meeting of the United Nations Statistical Commission (UNSC), leading to the formation of a working group assigned to draft a strategic plan to improve world agricultural statistics. The working group, under the guidance of the United Nations Statistics Division (UNSD), included the World Bank, the United Nations Food and Agriculture Organization (FAO), Eurostat, the United States Department of Agriculture (USDA), and the International Statistical Institute (ISI). Using input from the working group and other stakeholders, the World Bank with the help of heads and representatives of national statistical offices and ministries of agriculture from 27 countries, the FAO, IMF, Eurostat, OECD, and the USDA prepared a paper discussed at the 2009 meeting of the UNSC, which concluded that a global strategy was needed to improve agricultural statistics. The technical content and strategic directions of the Global Strategy were endorsed by the 41st session of the UNSC. The final strategy document[29] contains a minimum list of agricultural statistics which also has validity for EU member states.

2. *Study on agri-environmental indicators 2009*

Eurostat commissioned a study on "Direct and indirect data needs linked to the farms for agri-environmental indicators[30]", carried out by Wageningen University, to set up a sustainable system for collecting data from farmers and other sources that would serve European and national statisticians to create agri-environmental indicators. These would in turn serve policy makers, agricultural and environmental researchers, and observers of climate change and other environmental issues linked to agriculture. The different data needs were to be analysed and the best way to collect them identified. The aim was to receive one or several suggestions on a future data collection setup that met as many of the identified information needs as possible, and that was optimally adapted to user needs, available resources and respondent burden.

During the work, all Commission policies relating to the subject were identified and analysed. Several task forces were formed with experts from Member States and user stakeholders, questionnaires were sent to the competent authorities in the countries, and at the end a seminar was organised with more than 60 participants from the research community, policy makers and statisticians from Member States and several DGs represented. The result of the project is a list of all data needed to build up policy-required documentation related to agri-environmental issues, set up in such a way that data can be reused wherever possible and with potential sources identified, with the aim of avoiding

[29] http://www.fao.org/docrep/015/am082e/am082e00.pdf

[30] Documents available at http://ec.europa.eu/eurostat/web/agri-environmental-indicators/overview

double collection. The results of the project have been confirmed by both users and producers of agricultural statistics and are utilised by FAO and OECD.

3. *CPSA/DGAS Seminars 2009 – Present*

Eurostat has organised a series of seminars connected to its regular CPSA/DGAS meetings since 2009, in order to understand where further developments of agricultural statistics are needed. These seminars have been open to interested stakeholders outside the normal CPSA/DGAS meeting participants, including farmers' unions, research institutions and private companies. The titles of the seminars have ranged from "New needs, challenges and the changing role of statisticians" (2009, 54 participants from NSIs and other Member State organisations, as well as DG AGRI, JRC and FAO) to "Agriculture and environment – best practices in farm surveys" (2012, 41 participants from Member States and DG AGRI, DG CLIMA, DG ENV and JRC) and "Appropriate statistics for farming in the EU" (2014, 52 participants from Member States, DG AGRI and FAO)

4. *Commission consultation 2014*

Eurostat asked the main Commission users of agricultural statistics for their most important needs for statistics. A similar request was sent to the European Environment Agency (EEA) in 2015. Most of the statistical data presently collected by Eurostat have been confirmed as still needed, with some very limited exceptions. In addition, several new needs were specified.

5. Strategy development and endorsement 2014-2015

Based on the needs expressed by the stakeholders over the years, Eurostat initiated the planning process for a future system of European agricultural statistics in early 2014, starting with internal meetings, discussions and draft documents. The CPSA/DGAS endorsed Eurostat's approach of preparing a strategy for agricultural statistics towards 2020 and beyond at its meeting in April 2014.[31] The ESSC approved the approach at its meeting in May 2014. Following that, a paper on the strategy was developed by Eurostat and further refined and elaborated by an extended CPSA partnership group consisting of three subgroups on the "what" of data needs, "how" of data collection modes, and implementation specific issues, and by the CPSA itself at its November 2014 meeting. The strategy was endorsed by the DGAS in July 2015[32] and by the ESSC[33] in November 2015.

6. Strategy implementation 2015 -

Intensive consultations with stakeholders on the implementation of the strategy have already taken part in the FSS and Crop Statistics Working Group meetings in October 2015 and are planned in spring 2016 for the FSS, Crop Statistics and Animal Production Statistics WG meetings. Additional written consultations or exchanges of views will be organised as necessary. The DGAS (meeting scheduled for June 2016) will be consulted before the ESSC consultation (foreseen for autumn 2016). It is planned for the Commission to submit a Regulation implementing the strategy to the European Council and the European Parliament by the end of 2016.

7. Open public consultation 2015 and other consultations

An open public consultation in 2015 on the "Your Voice in Europe" platform and distributed widely, received 53 responses, mainly from NGOs and interest groups (20), Member State public authorities (12), researchers (8), businesses (8) and others. Respondents reported

31 Minutes of the CPSA meeting April 2014

32 Minutes of the DGAS meeting June 2015

33 Minutes of the ESSC meeting in November 2015

using most parts of the EASS for their purposes and see the EASS as meeting their data needs moderately well and with an acceptable burden, but see the system as inflexible and partly incoherent. Comments focused on data needs for land use and cover, fertiliser use, production, environmental and climate change data; serving data needs better by integration, harmonisation and a new legal basis for European agricultural statistics, which would also improve consistency and coherence; burden reduction by data integration, information and communication technology; and improving response rates by reminding farmers that CAP funding requires data. Other problems of the EASS were seen in a lack of timeliness and in missing data.

Eurostat organised a CEIES (The European Advisory Committee on Statistical Information in the Economic and Social Spheres) seminar[34] in 2004. Even if this seminar has not been used as source for this evaluation, it must be mentioned, as it was the starting point for the development of the present EASS. In the seminar, a wide range of users expressed their requirements for European agricultural statistics, to which producers responded. Among others, data availability, statistical gaps, limitations of available data, new policy needs, priorities and future strategies were discussed. The results of the seminar have provided an input to legislative and other processes in the evolution of EU agricultural statistics since. This seminar was the starting point for modernising agricultural statistics, and led to a series of new regulations that entered into force in 2008 and 2009. These regulations and other follow-up results shape the initiative that is under evaluation. The results of this seminar have not been used in the evaluation except as background information on the present system and the changes achieved the last decade.

[34] http://ec.europa.eu/eurostat/documents/4187653/5768245/KS-PB-04-002-EN.PDF/0738bd22-93cf-439d-b96f-7601ec93feac?version=1.0

Annex 3. Methods and Analytical models used in preparing the evaluation

The evaluation has been produced internally by the Commission Services. Given that the work on the review of the Agriculture Statistics started already in late 2013, the process did not follow all the steps set out in the new Commission Better Regulation Guidelines adopted in May 2015. The evaluation has been conducted back-to-back to the work on the impact assessment, with one open public consultation covering both retrospective and prospective aspects.

Eurostat launched the work on a strategy for improving agricultural statistics based on internal analyses and assessments of the material at hand and the feedback from both users and producers of agricultural statistics, leading to a considerable investment of time and resources. This would not have been done without a strong conviction that the decision was based on solid evidence.

Due to the time constraints, no new study has been launched to give a holistic approach to the situation as it stands today. Instead already available documents, studies and events have been utilised to the full.

The evaluation concerns a statistical system that describes different aspects of agriculture and describes how it meets certain criteria, formulated as evaluation questions. The answers to these questions are formulated based on the documents and other material at hand, input from users and producers of data and internal materials that originate from the normal quality assurance work that is the essence of statistical work.

Models have been used in the evaluation work for estimating the burden of agricultural statistics on National Statistical Institutes and respondents and for estimating the costs of carrying out the surveys, based on information made available to Eurostat by NSI's as part of the Union financing of the Farm Structure Surveys. The models on the burden assessment have been discussed with Member State experts in Eurostat expert group meetings, whereas the costs are to a very high degree based on actual information provided by the NSI's. Both models can therefore be considered to be robust.

As the evaluation focusses on the present European Agricultural Statistics System, and how well it meets user demands for data, the baseline would be the situation before the changes that were put in place from 2005 to 2009. This was however considered quite impractical, as the changes were introduced to improve a functioning system to reach certain goals. Therefore the evaluation is not referring to a baseline, but merely tries to answer the evaluation questions that refer to a system in place.

Annex 4 Overview of the present European Agricultural Statistics System

Below a factual overview of the implementation of the initiative and the present state of art is developed for each of the agricultural statistics domains. The description is drafted by the Eurostat domain manager based on the legislation, methodological handbooks, expert group documents and discussions, and on the expert knowledge of the respective teams.

Farm structure surveys, including the agricultural census:

The farm structure surveys aim at giving users a picture of the structure of farms related to land use; livestock; age and working time of farm holders and managers, family and non-family labour force; other gainful activities, production methods, the economic size, specialisation. The data are provided to Eurostat at farm level, so it is possible to create very detailed analyses on various issues. Data are collected every 10 years as a census, with interim sample surveys twice in a decade. As the costs for carrying out the surveys are very high, the total costs for EU27 countries for the agricultural census 2010 reported to Eurostat exceeded 180 million €, Regulation 1166/2008 stipulates that up to 75% of the eligible costs can be reimbursed by the EU, up to maximum amounts fixed per country. The total amount reserved for reimbursements was 37,4 million euros for the census. An analyse based on the grant applications for the reimbursement of FSS 2016 costs and additional information provided later, shows that the costs are highly variable, depending on data collection methods and salary levels. Eurostat calculations show that the marginal costs per surveyed holding are forecasted to vary between 3 and 74€, with the highest costs in countries where the data must at least partly be collected through interviewers. No conclusions on how to reduce costs without jeopardising data quality can be drawn based on these figures.

In line with the initiative, a new regulation was drafted and approved in 2008, with a new approach. Instead of requiring all variables to be collected in the agricultural census in 2010, a new part concentrating on agricultural production methods, basically having an impact on the environment, could be collected in a separate survey as a sub-sample of the census holdings. The regulation stipulates that sample surveys have to be carried out in 2013 and 2016. The legislation will expire after the survey data from 2016 have been transmitted to Eurostat and validated.

In order to better serve data needs, the list of variables was changed for the 2016 survey, again with the focus on the environmental aspects. In fact, based on requests from users and its own work, including a literature and expert study[35] on the needs for statistics for agri-environmental indicators and policy reporting requirements, Eurostat realised quite quickly that it would be appropriate to adapt the statistical legislation to better take into account the new and changing data needs. A new regulation was drafted that would have entered into force for the 2016 survey and would have covered also the agricultural census in 2020 and further sample surveys in 2023 and 2026. However, despite quite strong support from Member States and users, the project was abandoned in 2013.

[35] "Farm data needed for agri-environmental reporting" (DireDate study) (http://ec.europa.eu/eurostat/web/products-statistical-working-papers/-/KS-RA-11-005)

Farm structure data are delivered at farm level to Eurostat, and are processed and stored centrally. All disseminated data are thus originating from Eurostat. This gives a huge advantage as users can request tables outside the agreed ones that can be found at the Eurostat.

All Member States, Norway, Iceland and Switzerland are covered by the regulation, and in addition many candidate and potential candidate countries also provide data. There are no problems liked to refusal to send data. The data are to be provided within stipulated deadlines, but due to methodological and resource problems data are transmitted quite late and the validation process in Eurostat tends to be quite long, thus reducing the timeliness of data dissemination. In addition to the data, countries also have to send detailed methodological reports that allow a close monitoring of the methodology used for collecting and processing the data, the source of the data and the quality.

Many countries are using both statistical surveys and administrative registers as sources.

The main shortcomings of regulation 1166/2008 are:

- the inflexibility of the system, it is not possible to make any other changes than to the list of variables if new data are needed. This means that it is not possible to allow sub-samples to be used, or to allow data to be reliable at higher regional breakdown, all measures that would allow a reduction of burden for both respondents and national statistical authorities;

- the agricultural production methods survey was carried out only one time, which meant that no important time-series could be built.

Livestock statistics

The livestock statistics are defined in Regulation (EC) No 1165/2008 which covers also requirements for meat statistics. The data are due once or twice a year for bovine and pig population, depending on whether the national population meets respectively 1.5 million bovine animals or 3 million pigs. For sheep and goats, similarly, the data are due once a year or are not due depending on whether the national population meets respectively.5 million sheep or 0.5 million goats. The regional data are due in cases when the data are due at least once a year.

The data needs refer especially to market monitoring and production forecast, regarding meat and milk (dairy livestock). The regional dimension should make them good candidate as data source for livestock density indicators, but coherent information on the livestock and the UAA makes the LSU/ha more likely to be drawn from FSS.

The three former legislations on livestock and meat for (i) bovine, (ii) pig, and (iii) sheep and goat have been merged into Regulation (EC) No 1165/2008. The statistics on structure of rearing refers now to FSS. A gentlemen's agreement on eggs for consumption (pilot data collection) covers also the number of laying hens in some cases, which should be considered as livestock statistics.

Regarding data validation, more and more files are rejected, reflecting an improvement in quality of the statistics. The rules are stricter and therefore Eurostat can provide earlier feedback to the Member States on their transmitted data. This reflects also using the Eurostat's human resources freed by automation to quality improvement.

The quality reporting exercise for year 2013 led to draft footnotes for some Member States, making explicit when non-comparable statistics are delivered. In a first time, no further pressure was put.

A straightforward management of the data collection has been made possible by (i) using web forms as a collection tool, (ii) clarifying several concepts while considering similar ones used in other statistics (combined nomenclature, FSS, organic farming) and (iii) providing feedback to the Member States on their individual situation as well as making explicit the priority drivers for the domain (especially timeliness and completeness).

In general the concepts for livestock do not create problem, with a few exceptions. The definition of bovine animals was updated. According to this, considering different interpretations in the Member States, and in line with the FSS concept, the buffaloes are accounted together with the relevant categories of bovine animals since 2011 at the latest. For the definition of piglets, no consensus could be found based on the weight (nor the age) and therefore it is expected that the statistics reflect the status quo.

After few years of adaptation to the new legislation, the livestock statistics run well and issues on timeliness refer only to particular cases reflecting the national situation at a given time. Back casting of the regional statistics is regularly an issue (change of NUTS) and the strategic interest of building long regional time series when the regions are changing is questionable in comparison with the costs.

The statistics on structure of rearing foreseen when drafting Regulation (EC) No 1165/2008 is not coordinated and the results provided by FSS and are sometimes of insufficient accuracy and/or reliability.

For bovine and pigs, a single survey in November/December does not necessarily lower the burden when the countries use to conduct a May/June survey, which is relevant for grazing livestock. Belgium, Switzerland, Sweden are for instance in this situation. When implementing Regulation (EC) No 1165/2008, derogations were granted to Germany and Bulgaria for one or two adaptation years, regarding especially sheep and goat statistics and regional statistics (previously non-mandatory). Interpretation of the threshold when some figures are at the limit has been adapted to avoid chaotic effects. The changes in the requirements are considered once the relevant animal population has been confirmed. The Member states had not any issue with this approach as designing their process requires also stable conditions.

The design of the legislation (some surveys being optional under a given livestock population threshold) makes the results unclear for the data users (missing data or optional data?). Most of the Member states deliver the total numbers of sheep and of goats even if non-mandatory, but the May/June surveys on bovine and pig populations are rarely conducted where non-mandatory.

Use of administrative sources does not necessarily refer to farm as the animal remains a relevant unit.

Poultry statistics (particular item under Livestock statistics)

The poultry sector is particular because of a faster production cycle than the other animal production. The related agricultural products are especially poultry meat and eggs for consumption. The trends in the sector are indicated by the placing of chicks, itself assessed as a balance sheet of the chicks produced from eggs for hatching. The statistics on

production achieved are not well-developed as meat production is measured since 2009 only through Regulation (EC) No 1165/2008 as poultry slaughter in slaughterhouses (monthly). Placing of chicks is estimated through the notifications due under Regulation (EC) No 617/2008, which is not a statistical legislation but an agricultural market regulation of DG AGRI. No statistical requirement exists regarding production of eggs for human consumption but a pilot data collection has been set up, which should support setting up a methodology for statistical production of eggs for human consumption. Statistics on the number of laying hens are available only in the FSS.

The statistics under Regulation (EC) No 617/2008 covers monthly data on production of chicks and on foreign trade of chicks, as well as annual data on the structure of hatcheries. The data on chicks produced, as corrected by trade data, enable establishing the number of chicks placed. They prepared by kind of use of the chicken chicks, i.e. for fattening, as laying hen, or as breeder for one of the production sectors. For the other species (ducks, geese, turkeys and Guinea fowls), only use for fattening is considered. From the number of placing, a model based on technical coefficients (average career duration, average age of placing, average daily growth) provides a now-cast of the number of poultry in production. From this, production forecasts for poultry meat and, with productivity model, of eggs for consumption can be established.

The possible added value in Eurostat depends on the availability of technical coefficients for using the data. As this has not been available in Eurostat for decades, only data collection actually carried out. On the request by Germany, Eurostat proposed a shortcut in the external trade data for those countries using the same data source, in order to avoid double reporting of the same figures and to improve coherence (synchronisation) when the data come from the same source. This has been an opportunity to investigate on the data sources and on the methodology.

The data needs refer especially to timely data due to the turn-over in the sector. Chicken (Gallus gallus) is the dominating species with turkey meat is a substitute, whereas geese, duck or Guinea fowls may provide higher added-value and may impact the market for poultry meat seasonally.

Data quality is limited due to (1) insufficient EU requirements and (2) particular quality of the statistics, some being really volatile. This limits possibility for checking the incoming (or already hosted) data.

The need to better monitor the egg market is not as marked as the need for having more accurate figures regarding eggs for consumption. The models are performant but need to be updated for providing plausible results.

Regulation (EC) No 617/2008 was amended as a part of an omnibus revision and Eurostat appeared to become the only data recipient for the data (in the past, Commission was the ambiguous recipient). The recent interest in data on eggs for consumption extends the coverage of animal production statistics. A volunteer pilot data collection has been set up, co-financed under grant agreements. As a domain "in-between" market and statistics, poultry statistics, links with livestock and meat are logical and further integration could be sought there.

Annual crop statistics (including supply balance sheets)

Crop Statistics (ACS) are covered by Regulation 543/2009, the annex was updated in 2015 by Regulation 2015/1557. In addition two Gentlemen's Agreements (voluntary crops and early estimates) from 1990 have been updated and merged into one ESS agreement in 2015. Simultaneously with the regulatory updates the data flow has been renewed with a view of improving the quality of the data (clearer Web-Forms, updated Handbook, more and better validation rules etc.).

Crop statistics cover the whole production cycle of the crops: from early estimates on the sown arable areas sent to Eurostat year of harvest -1 to the final production figures sent harvest year +1. This does not only mean a possibility of fore- and nowcasting production, but also that areas vary over time, due to the natural variability in agriculture, for example due to crops not surviving winter. As it is normal practice in part of Europe to plant arable areas with more than one crop during the year, care has to be taken when comparing ACS data with FSS, as the ACS contains the planted areas and FSS the main crop areas.

Annual crop statistics has suffered from a big number of gaps in the data published, due to the large number of voluntary data in the flows. As an increasing number of Member States are facing resource cuts in agricultural statistics, the willingness of providing these voluntary data has been affected, leading to incoherence in the statistics.

ACS were audited by Eurostat internal audit serviced in 2013. Most of the audit recommendations are targeting issues which have now been covered by the 2015 reform of the ACS.

On the basis of the Quality Reports (2011 and 2014) the Member States seem to have very different statistical systems in place for fulfilling the needs of crop statistics. Most use a mixture of administrative sources, surveys and expert estimates. Most countries suffer currently from the lack of resources which is forcing them to make the statistical systems more efficient and/or to drop some voluntary statistical activities. Examples of countries which have recently updated or are currently updating their systems are BE and IT. This has caused delays in data transmissions. EL has longstanding quality issues with crop statistics as they are fully based on expert estimates. UK has constant punctuality problems because their statistical processes are not harmonised with the EU requirements. Examples of well working systems are numerous (e.g. PT, ES, FR, DE, NL, Nordic countries, CZ, SI…).

The compliance with the legal acts is monitored constantly and there are 2-3 formal compliance monitoring exercises done every year. In addition Eurostat receives every three years a detailed Quality Report.

In the latest compliance assessment round 2% of the data transmissions were missing and approximately 10% of the transmissions came in late.

Eurostat reminds countries systematically of late and missing data transmissions and sends letters of non-compliance if necessary.

Eurostat has phased out a large number (> 200) Supply Balance Sheets (SBS) between 2003 and 2013 due to lack of resources and data quality problems. Before the decision was taken some Member States proposed to reduce the number of the SBS but to keep the most important ones in production. Unfortunately this was not done.

Immediately after the phase out, DG AGRI expressed a need to re-start the SBS data collection for main cereals, oilseeds and rice. Eurostat has agreed to start the negotiations with the Member States on how to re-start the SBS data collection for main cereals, oilseeds and rice. Taking into account the fairly recent decision to phase out the SBS to restart them is not easy as most MS have difficulties in accepting the quickly changing priorities. The SBS are also a complex statistical domain to be set up and run as it combines data from different sources.

Permanent crop statistics (Statistics on orchards and vineyards)

Statistics on orchards and vineyards are covered by Regulation (EU) No 1337/2011 and two Commission implementing regulations: 592/2013 and 887/2014. Regulation 1337/2011 repealed who old regulations (Council Regulation No 357/79 and Directive 2001/109/EC). It covers both orchards and vineyards.

The Regulation does not work very well, because of several shortcomings. As the breakdowns are too detailed (by size and age classes, varieties, colours, harvest time etc.) the number of confidential data has increased a lot (for both orchard and vineyard data) which reduces the available data, despite the assumption by the users that they would have much data to work with. In addition, the detailed breakdown, in particular in the orchard surveys, requires large samples for guaranteeing good quality results. This also creates a big burden on the farmers, both regarding the risk to be included in the sample and having a heavy questionnaire to fill. Furthermore, the variety groups for several fruits are not representative enough as a large number of fruits are classified in group 'others'.

The forced link between the vineyard register and the vineyard data collection poses problems in several Member States as their registers are not up to date or do not contain all variables listed in the regulation. Pre-defining the statistical source is also problematic from the point of view of statistical law (e.g. Code of practice: 6.2 Choice of statistical sources based on statistical considerations; 12.1 Source data are regularly assessed and validated).

The orchards data is collected from administrative sources and surveys. Most countries collect the data from farmers (except e.g. Spain that uses area frame surveys). Most countries sent the 2012 data to Eurostat in time.

The vineyards data is based on 100% on vineyard register, which is sometimes of sub-optimal quality or not always includes all data asked in Regulation 1337/2011.

The data availability and quality are assessed after the deadlines. The Quality Reports are analysed in a detailed way. In case of non-compliance (e.g. lack of data) non-compliance letters have been sent.

Milk statistics

The production of milk statistics is based on Council Directive 96/16/EC on statistical surveys of milk and milk products which is implemented by Decision 97/80/EC defining the tables and the list of variables. A set of tables is defined, describing the whole dairy sector activities with the exception of stocks. The dairies are described through structural statistics collected every third year (8 small tables) and their activity is reported annually regarding milk collection and use (all milks) and use of cows' milk proteins. In addition there are data on the production and use on the farms (that does not go via the dairies). Further to this, monthly data on cows' milk collection show short term changes, including information on the main products of the concerned dairies.

The set of tables is "self-coherent" or "self-validating" as it produces by itself the figures for checking plausibility of the results. The core table refers to annual activity of dairies and, in order to check the results, it compares milk availabilities and uses by the dairies through two variables representing the milk content, the used skimmed and whole milk.

The needs to be served are especially milk market monitoring by DG AGRI and the related management committee, now the Milk Market Observatory (MMO). The statistics are also used by all the stakeholders dealing with the milk market. The milk market organisation is one of the oldest components of the CAP, if not the oldest one. It plays an important role in the external trade balance and the European market stakeholders have worldwide activities. Therefore the Eurostat figures on milk are re-disseminated by the MMO as well as by the USDA.

The use of these statistics by the dairies themselves is an important strength, as their concentration gives a so high power to them compared to the statistical system. In some countries and under the quota regime, statistics were compiled by a dairy board in order to provide better guarantees to the dairy sector than the NSIs or Ministries.

The concentration in the dairy sector limits the number of statistical units and treatment of confidentiality remains a great challenge. The investigations on confidentiality led to developing a completeness policy regarding the annual data, in order to provide more EU-totals. Treatment of confidentiality is a key issue and promising results have been provided manually for approval of the Member States.

Since 2004 some attempts for adapting the legislation have been carried out, but without success, only marginal adaptations were conducted.

The issues raised by a High Level Group on the milk and dairy sector in 2009/2010 were poorly answered by the statistical system. Nevertheless the Member States did particular efforts in the last years for delivering earlier data, according to a voluntary agreement.

Scope: 28 Member States

Statistical units	Dairies			Farms	
Frequency	Monthly	Annual			
Level	National				Regional
Table	A	B	H	C	I
2010-2014					
Punctuality (days)	-8	-6	+1	-35	-11
% late transmission	10%	17%	22%	11%	13%
Completeness	100.0%	89.9%	99.5%	92.8%	91.8%
2014					
Punctuality (days)	-12	-6	-8	-39	-42
% late transmission	7%	11%	11%	0%	0%
Completeness	100.0%	94.7%	98.9%	91.5%	99.6%

The efforts done for an early delivery of monthly statistics supported the message on priority to timeliness and completeness. Certain difficulties of two Member States to improve timeliness (or even punctuality) remain an issue.

There are interactions between the milk statistics and the market monitoring data collected by DG AGRI which creates a high risk of overlapping, especially regarding monthly statistics. Such a progressive evolution indicates a potential transfer of these statistics to the control of market monitoring in AGRI. A mapping of data flows in the domain that was conducted in 2011 enabled clarifying some shadow data collections that over-burden the Member States. Regulation (EU) No 1097/2014 laying down the data transmission for collection of cows' milk, exactly overlapping with the one from Decision 97/80/EC, reflects such a trend. In addition the statistics on the production of manufactured goods (Prodcom), including foreign trade, are partly concerned with the domain.

Agricultural prices

Agricultural Price statistics are based on gentlemen's agreements.

Information on the prices of products and the means of production are indispensable to allow individual targets in the EU agricultural policy to be determined, the necessary measures to be taken and the effects of the policy to be monitored. Differences between prices in Member States and temporal price trends are of interest here. Basic tools for the measurement of price variations and price trends are absolute agricultural prices, on the one hand, and agricultural price indices, on the other.

The main use for absolute agricultural prices is to compare price levels between Member States and to study sales channels. On the other hand, agricultural price indices are used primarily to analyse price developments and the effect on agricultural income. In some Member States, absolute agricultural prices and agricultural price indices are also used in the Economic Accounts for Agriculture (EAA). But this requires methodological compatibility of all these statistics.

The statistics on “Unit Values of Agricultural Products” form part of Eurostat’s “Economic Accounts for Agriculture (EAA)”. Unit values are not prices in the true sense of the term. They are obtained by dividing a value component by the corresponding quantity component. Apart from the “pure” price variations from one year to the other, changes in unit values reflect changes in other characteristics which determine products and can affect

these prices. This concerns particularly the physical (variety, calibre, quality etc.) and commercial characteristics (sale conditions etc.).

Economic Accounts for Agriculture

The economic accounts for agriculture, abbreviated as EAA statistics are based on Regulation (EC) 138/2004 concerning the economic accounts for agriculture.

The EAA, are a satellite account of the European system of national and regional accounts, adapted to the specific nature of the agricultural sector, providing complementary information and concepts. Although the structure of EAA matches very closely that of national accounts, their compilation requires the formulation of appropriate rules and methods.

The EAA analyse the production processes of the agricultural sector and the primary income generated by these activities. The accounts are therefore based on the industry concept. The agricultural sector, as described in the EAA, corresponds to Division 01 in NACE Rev. 1 "Agriculture, hunting and related service activities".

The EAA measure the total output of the agricultural activity which includes:

- output sold (including trade in agricultural goods and services between agricultural units);
- changes in stocks;
- output for own final consumption and own-account gross-fixed capital formation;
- output produced for further processing by other agricultural producers;
- intra-unit consumption of livestock feed products.

The agricultural industry's output equals the sum of the output of agricultural products plus goods and services produced in non-agricultural secondary activities.

National statistical institutes or ministries of agriculture are responsible for data collection and calculation of national EAA, in accordance with EU Regulations. Eurostat is responsible for the production of aggregated data for the European Union (EU). Regional EAA data are delivered on the basis of Gentlemen's Agreements.

Pesticide statistics

Pesticide statistics are based on Regulation (EC) 1185/2009 concerning statistics on pesticides. The statistics are aimed at improving the knowledge on the impact of pesticides on human health and the environment, in particular from pesticides used in agriculture. It is necessary to achieve more sustainable use of pesticides and an overall reduction of risks with the use of pesticides. In its Communication 'Towards a Thematic Strategy on the Sustainable Use of Pesticides[36]', the Commission recognised the need for detailed, harmonised and up-to-date statistics on sales and use of pesticides at Community level. Such statistics are necessary for assessing policies of the European Union on sustainable development and for calculating relevant indicators on the risks for health and the environment related to pesticide use.

[36] http://ec.europa.eu/environment/archives/ppps/pdf/com_2006_0372.pdf

The regulation foresees annual statistics on the sales of pesticides and statistics on the use in agriculture every 5 years. The statistics refer to all active substances that are identified to be pesticides, which means plant protection products as defined Regulation (EC) No 1107/2009 or a biocidal product as defined in Directive 98/8/EC.

The regulation is very restrictive to what data Eurostat can disseminate, and this creates problems. First of all, Eurostat is not allowed to publish data on active substance level, only at aggregated level. Secondly, Eurostat has to use the groupings foreseen in the classification annex, and is not allowed to do any other aggregations even if these would better serve the needs of the users.

The pesticide sales statistics are quite straightforward; countries have to provide the sales of active substances during the calendar year. The data can be collected from various sources, from retail sales points, wholesalers, and others, but in most countries the data come from the authorisation holders of the pesticides. This causes problems, as it means almost automatically that the data are confidential, which causes problems also when aggregating the data at a higher level.

The statistics on pesticide use in agriculture should refer to 12 month periods during the 5 years, but not necessarily the same period for all the crops and/or active substances even in the same country, even less the EU. As the deadline for the first data delivery (for the period 2010 – 2014) is at the end of 2015, it is not yet fully clear, but the various deadlines will probably create problems for dissemination and use of the data. In addition, despite the availability of a methodological handbook, Member States have chosen very different approaches in the number of crops and active substances to be surveyed, as it would be virtually impossible to cover all. This means that the survey years, the crops and the active substances covered will most likely be so variable that it will be very difficult to produce analyses that will be of any real use, especially as Eurostat is neither in this part allowed to publish data on active substance level, even though the confidentiality issues will not be pressing.

Agri-environmental statistics

In its Communication entitled 'Development of agri-environmental indicators for monitoring the integration of environmental concerns into the common agricultural policy'[37], the European Commission proposed a set of 28 agri-environmental indicators (AEI). The work was based on a European Council request to report on the integration of environmental dimensions into Community sectoral policies. The approach outlined in this Communication was endorsed by the Council.

In the context of the EU Sustainable Development Strategy, these indicators serve to:

i. provide information on the farmed environment;
ii. track the impact of agriculture on the environment;
iii. assess the impact of agricultural and environmental policies on environmental management of farms;
iv. inform agricultural and environmental policy decisions;
v. illustrate agri-environmental relationships to the broader public.

[37] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2006:0508:FIN:EN:PDF

DG AGRI, DG ENV, Eurostat, JRC and the EEA have agreed to develop and maintain this system of agri-environmental indicators and laid down the basis for cooperation in a Memorandum of Understanding. According to the understanding, each partner takes the lead for certain indicators, while Eurostat has the overall coordination and dissemination role. Fact sheets are available on most of the indicators at Eurostat's website (http://ec.europa.eu/eurostat/statistics-explained/index.php/Agri-environmental_indicators). As can be seen from the table below, DG SANTE is also actively taking part in the work, after the move of responsibility on pesticide related policies from DG ENV to DG SANTE, even if DG SANTE is not actually signatory to the MoU.

Table X: the agri-environmental indicators and the lead institution within the partners to the MoU

No	Title	Leader
1	Agri-environmental commitments	AGRI
2	Agricultural areas under Natura 2000	EEA
3	Farmers' training levels and use of environmental advisory services	AGRI and Eurostat
4	Area under organic farming	Eurostat
5	Mineral fertiliser consumption	Eurostat
6	Consumption of pesticides	Eurostat
7	Irrigation	Eurostat
8	Energy use	Eurostat
9	Land use change	Eurostat/EEA
10.1	Cropping patterns	Eurostat
10.2	Livestock patterns	Eurostat
11.1	Soil cover	Eurostat
11.2	Tillage practices	Eurostat
11.3	Manure storage	Eurostat
12	Intensification/ extensification	AGRI
13	Specialisation	Eurostat
14	Risk of land abandonment	AGRI
15	Gross nitrogen balance	Eurostat
16	Risk of pollution by phosphorus	Eurostat
17	Pesticide risk	SANTE
18	Ammonia emissions	EEA
19	Greenhouse gas emissions	EEA
20	Water abstraction	EEA
21	Soil erosion	JRC
22	Genetic diversity	EEA
23	High nature value farmland	AGRI
24	Production of renewable energy	AGRI/ Eurostat
25	Population trends of farmland birds	EEA
26	Soil quality	JRC
27.1	Water quality – Nitrate pollution	EEA
27.2	Water quality – Pesticide pollution	EEA
28	Landscape – State and diversity	JRC

The Communication and subsequently the Council identified the consolidation of the selected set of indicators, the extension of the coverage to the new Member States and correcting existing weaknesses; and setting up a permanent and stable arrangement needed for the long-term functioning of the indicator system as the main tasks for the work on the indicator set. The work on these issues has progressed well, in cooperation with OECD and FAO on the international arena, but is not yet fully finalised.

One of the most important issues is the data that is required for calculating the indicators. Even if many of the indicators are based on already existing reporting requirements, such

as administrative reports included in policy implementation, monitoring and evaluation, or other reporting requirements such as greenhouse gas and ammonia emission to the UNFCCC and the UNECE, both part also of EU requirements, much of the information required for calculating and compiling the data are collected from farms. Eurostat, on collaboration with partners, therefore launched a study to look into the information needed to be collected from farms to feed the AEI. The project, named DireDate resulted in several reports, available from the Eurostat website (http://ec.europa.eu/eurostat/web/agri-environmental-indicators/overview).

The recommendations from the DireDate project on data collection were:

The current fragmented, complex and non-transparent farm data collection – processing – reporting chains in Member States are the results of diverse cultural and historical developments and insufficient support, embedding, and institutional structure, at both the level of the European Commission and Member States. A framework for a sustainable system for farm data collection – processing – reporting chain requires a proper embedding in policy and proper institutional and organizational structures, with appropriate support. The EU policy reporting requirements demand a huge amount of data and information about agri-environmental interactions, which have to be reported more than once, for different policies, often in slightly different formats, units, and spatial and temporal scales.

Moreover, the agri-environmental data and information requirements for policy reporting are similar to those required for reporting the 28 agreed AEIs. These observations lead to several recommendations to policy:

- Scrutinize (prioritize), and harmonize the agri-environmental data and information requirements of the EU agri-environmental policies;
- Use the AEIs and underlying data and information in a uniform way as ‘building blocks’ for policy reporting; and
- Streamline the flows of agri-environmental data and information between Member States and European Commission further.
- Scrutinize (prioritize) the list of 28 AEIs, delete less essential AEIs and categorize the remaining AEIs in a first set and second set of indicators. The differentiation that has been done in the DireDate project could be used as basis for further prioritisation and categorization;
- Address upcoming societal concerns in a timely and appropriate manner, and (re)define AEIs that address desertification and efficiency of food production.

The rate of change of agri-environmental data ideally warrants a categorization into three groups (i) annual observations (e.g. registers), (ii) three-yearly observations and (iii) 5-10 yearly observations.

The project identified in total 97 different types of data, of which 25 are related to area, 27 to amounts, content or numbers, and 45 are miscellaneous. Twenty of the pieces of data can be obtained from the Farm Structure Survey (FSS) and 12 from the Survey on Agricultural Production Methods (SAPM) that was carried out as a one-off survey in 2010. The relatively high number of data available from SAPM indicates that the AEI data collection system could be improved considerably if SAPM were carried out at regular

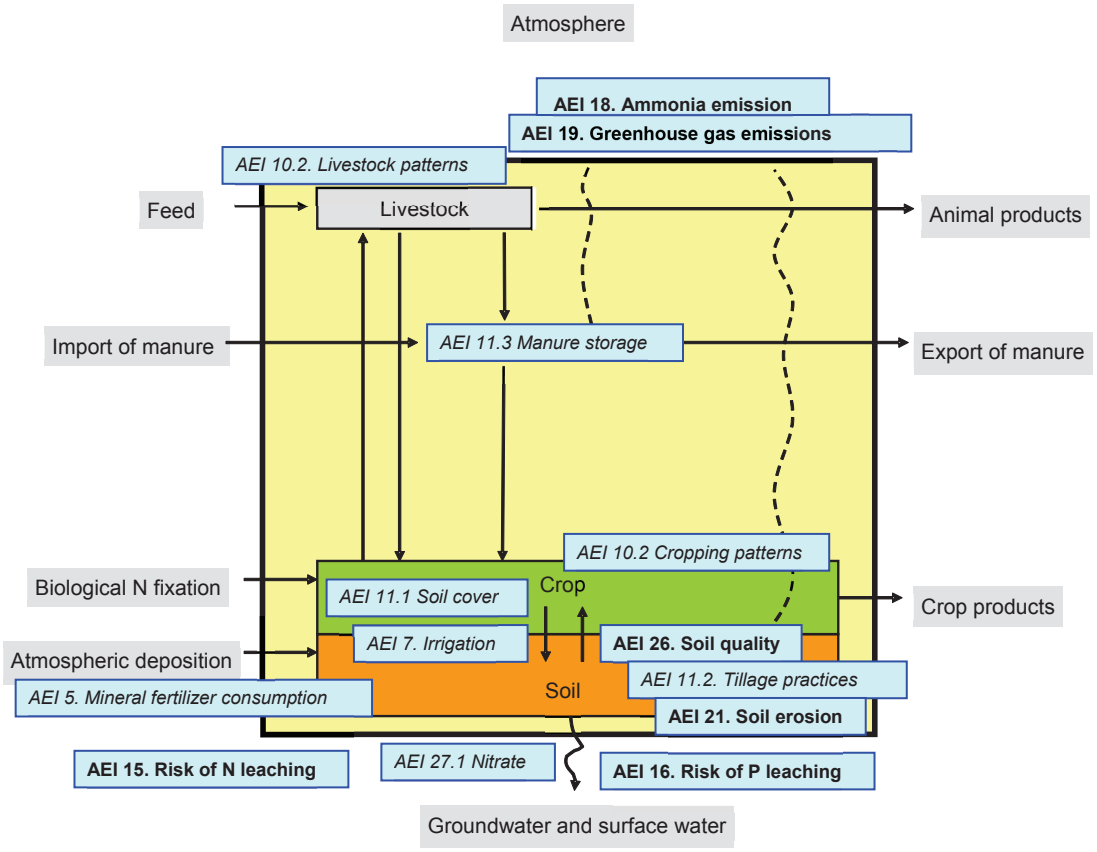
intervals rather than as a one-off survey. Generally, the type of data that are required for most AEIs are related to area, i.e. utilised agricultural area (UAA), and to fertiliser application and number of animals.

The project clearly showed that there are big data gaps concerning AEI. Even though countries are obliged to provide data on greenhouse gas and ammonia emissions where the data analysed are required, the project showed that many either use default values or expert estimates. Those with data available all use their own methods for doing the calculations, within the boundaries of the international guidelines, but not coherent between countries, which means that there is no coherence and coordination, also leading to the same situation in the final data. In addition, a second project on livestock excretion factors, very important for estimating nutrient flows that cause pollution, shows that methods for calculating these factors that are crucial to the final results vary too much between countries, giving food to suspicions that final estimations might in some countries be quite misleading.

A third Eurostat project was aimed at highlighting the lack of data on grassland areas and production. The results show that the present classification of grasslands in agricultural statistics does not meet the requirements for assessing the benefits of grasslands on biodiversity and CO2 sinks. The project therefore suggested to prepare a new classification for future data collections.

Most of the indicators are based on reporting requirements in legislation or on already available statistics, for example the farm structure surveys are providing the basic data for a large number of the indicators. Still, there are many data gaps, especially linked to nutrient flows.

Figure 1. Scheme of the AEIs related to emissions of N and P balances and emissions of ammonia and greenhouse gases.



Eurostat included a specific survey on agricultural production methods in Regulation 1166/2008 on the farm structure surveys to be carried out in 2010. The aim was to produce statistics that would at least some of the data gaps listed above, allow making analyses on the impact of agriculture on the environment and identify potential hot-spots. Unfortunately, this survey was carried out only once, which means that no trends could so far be found. In order to remedy this drawback, the list of variables for the FSS 2016 was adapted to produce at least some of the variables a second time.

The overall situation concerning the AEI is acceptable, the partners have managed to create a system where fact sheets (see link above) on almost all indicators are available and the development work on most have come to an end. The data situation is not yet satisfactory. Some of the data sets are available only in the lead institutions or in Eurostat but not at the coordinated site on Eurostat's website. Partly this is due to the need for further coordinated actions and further developments, partly to missing data. Member States have no legal obligations to provide statistics for many of the items, only certain reporting requirements, to which a certain amount of underlying data must be made available. This is for example the situation on GHG and NH3 emissions, with very detailed requirements on various data but where the source of the data is not necessarily statistics and where data across countries are not harmonised and comparable. The same kind of data are also required for the Gross Nutrient Balances, but despite all Member States having a voluntary request for providing the data to Eurostat, and that this indicator is part of the monitoring requirements for the CAP, only 14 Member States transmitted the data to Eurostat for the 2011-2012 data reference years. In addition, only 13 countries sent fertiliser statistics, quite indispensable for nutrient flow analyses. This is not acceptable, but several

Member States have indicated in the Working Group meetings that they will not receive resources to carry out the work in case it is not in the legislation.

Annex 5. Answers to the evaluation questions by domain of the European Agricultural Statistics System

The evaluation questions have been answered for each of the agricultural statistics domains by the domain managers in Eurostat unit E1. They are the officials that know best the reactions from users and producers of statistics from hearings and Working Groups, who validate and process the statistical data, use them for preparing various analyses and publications. They are therefore best placed to assess the situation in their domains.

Farm Structure Surveys (FSS)

The main users of agricultural statistics have repeatedly stated that the FSS are their most important source of information for various analyses. The data are of high quality, the time-series are long, and, thanks to the micro-data, users can request ad-hoc tables (in addition to the ones published on the Eurostat website) where very detailed information on specific items of special interest can be provided.

- *To what extent are data needs adequately served?*

  The FSS regulation is rigid, as it is only possible to adapt the list of characteristics and the related definitions through comitology. All other changes require that the basic legislation is adapted. Due to the very cumbersome and lengthy processes involved, this in practice closes out such adaptations, which was proven in 2010 and 2011 when the Commission suggested some changes. As Member States considered that these changes would have caused a non-acceptable increase in burden that would have been possible to mitigate only by also changing the precision requirements, the proposal was dropped as there was not enough time and the risk too high to amend the basic regulation.

  This causes frictions between the data needs and the possibility to serve them.

- *To what extent is the FSS producing high-quality data?*

  Users would like to see data delivered earlier, but are satisfied with the quality. The possibility to get ad-hoc tables is appreciated, and is very much used.

- *How flexible is the FSS and how quickly is it reacting to the emerging needs of the agricultural statistics system?*

  Users are complaining that it takes too long time to adapt the statistics and to introduce new needs.

- *To what extent are data collections harmonised and coherent among different areas?*

  After the introduction of new legislation in 2008 and 2009, the items and definitions in FSS, animal and crop statistics were harmonised better than before, but not completely, due to historical and methodological aspects. However, due to the various aims of the data collection, it is not always possible to harmonise the actual data collection. The decision on these issues is completely in the hands of the national statistical authorities.

- *How coherent are agricultural, forestry, land use and environmental statistics?*

  Despite much effort, it has not been possible to properly integrate FSS with forestry, land use and environmental statistics, partly due to the different aims of the domains.

- *To what extent are the data produced efficiently? Is the burden/cost appropriate for the purpose?*

  Considering intense use of FSS data for monitoring, evaluating and planning the CAP and the substantial budget of the EU involved, it can be considered that the burden and costs of the FSS are appropriate.

- *To what extent can better statistics be produced without increasing the burden on respondents by exploring alternative data sources and efficiency improvement techniques? Can the collection of data be made more efficient?*

  The FSS legislation identifies several administrative registers under EU legislation that are considered automatically of good enough quality to be used as sources, while for others countries have to prove the quality is good enough to be used. At the moment it is not possible to use other data sources for the FSS.

  The FSS legislation at the moment does not allow the use of other data than statistical surveys and administrative data.

  The countries are free to set up the actual data collection as they wish.

Livestock statistics

Data on livestock are used in many different policy areas, as they at the same time reflect the trends in meat production and use, farmer reactions to policy measures and markets, the potential trends in emissions to the air and water pollution.

- *To what extent are data needs adequately served?*

  When considering the combination of data from the FSS and livestock statistics, most data needs are adequately served. However, the emerging new needs related to environmental issues would require more data on animal production systems, for example grazing, feeding systems, intensity of the production, etc. These data are not at the moment properly served.

  An efficient mix of data sources enables profiting from a dedicated survey design (simple design, early results) and of administrative data sources (cheap information, well representative of the overall changes). The use of the livestock registers for both veterinary and statistical purposes makes the response time shorter if the surveyed items do not change.

  On the other hand, the data providers have complained about the costs of the regional statistics compared with the benefits (earlier data than in FSS, a few further livestock categories of interest – dairy ewes, buffaloes). The impact of such specific requirements should be assessed separately and analysed for impacts on the design of the national statistical systems. This issue is less relevant when the regional data are drawn from registers.

  The detailed variables feed the needs of GIP forecasting, which is one of the main indicators in the legislation. An accurate reference date is the condition for accurate results and this is not always appropriate when simply using registers.

The needs in the poultry sector are poorly served based on the current legal architecture where a DG AGRI market regulation is implemented by Eurostat for the data collection. The follow-up of data collection reported by Eurostat to DG AGRI rarely leads to proper data delivery. Regarding the methodology itself, Eurostat can hardly check data that is based on vague requirements. At national level, the data providers are often in non-statistical services; this limits the possibility of direct contacts with them. The complex sharing of responsibility between EC and MS services downgrades the efficiency of statistical production, limiting meeting user needs. On paper, the needs could be better satisfied by covering statistics on the poultry population and on production of eggs for human consumption. In practice, avoiding market legislation covering statistical requirements would improve efficiency.

- *To what extent is the livestock statistics producing high-quality data?*

  The surveys provide accurate numbers of animals based on appropriate survey design and especially calibration, which the sample FSS cannot provide. These numbers are especially useful for Economic Accounts for Agriculture, not directly at EU level, but at national level.

- *How flexible is the livestock statistics and how quickly is it reacting to the emerging needs of the agricultural statistics system?*

  The various management committees dealing with animal products use the livestock statistics and the derived GIP forecasts (see meat production). In some cases they establish their own forecasts based on the livestock numbers. In any case they are really sensitive to the timeliness of the figures. The rigidity of the system does not allow for reacting rapidly to new needs, even in the case that Member States would agree to voluntary data collection.

- *To what extent are data collections harmonised and coherent among different areas?*

  Some countries synchronise the FSS and the livestock surveys. For those who do not, some are switching to a synchronised system whereas others refer to a different survey frame, the farms left out of one or the other survey being the smallest either regarding their livestock or the whole economic size. The use of registers can also refer to different reference dates in FSS and livestock statistics, a date closest from the one for other characteristics being considered as a better option for fulfilling the objective of the survey than a synchronised date.

  The concepts and definitions for livestock in FSS and livestock statistics should be almost the same, but those implemented when the national institutions in charge of those statistics are not the same can be quite dissimilar. A small incoherence at Eurostat level remains regarding the youngest cows, which could be solved without damaging one or the other series.

  Animal production statistics require more detailed data on the animal categories than the FSS. Distinguishing between laying hens producing eggs for hatching or for consumption is a core issue for poultry statistics. The impact of poultry farming on environment and relationship with animal welfare requires integration between the two domains. Data for animal welfare (number of poultry by caging) and Eurostat data collection would require improvements in the system.

- *How coherent are agricultural, forestry, land use and environmental statistics?*

This question is not applicable for livestock statistics.

- *To what extent are the data produced efficiently? Is the burden/cost appropriate for the purpose?*

  Thanks to the recent review of the legislation, the livestock statistics are collected in an optimised way limiting burden of the respondents. The particular design reported above guarantees the lower cost/benefit, with the possible question regarding the regional statistics where the justification for annual data instead of using the 3-yearly FSS data could be further analysed. A sound calibration of the livestock farm strata remains an essential element for the quality of the livestock statistics.

- *To what extent can better statistics be produced without increasing the burden on respondents by exploring alternative data sources and efficiency improvement techniques? Can the collection of data be made more efficient?*

  Quality improvement for the livestock statistics without increasing burden could potentially be gained refers from an improved use of administrative registers where relevant (bovine animals). Eurostat could assess the possibility of giving added value to available information, especially in providing EU totals where the data are optional.

  A better legal architecture might improve the situation in poultry statistics.

  As described above, an efficient use of administrative registers might be more efficient than carrying out statistical surveys. This, however, depends on the administrative structure of the respective Member States, their national legislation, and the readiness to cooperate between national administrations. The EU legislation is not presently the main obstacle.

Annual crop statistics (including Supply Balance Sheets)

- *To what extent are data needs adequately served?*

  The data needs on crops are well served, but due to the gaps in the data sets, it is difficult to get a good overall picture from the voluntary data. Rather than extending these detailed data requirements, it is considered that higher overall user satisfaction can be achieved by reducing the level of detail and instead ensuring a more complete data delivery for the remaining crops.

  More information would be needed on overall biomass production in agriculture, where presently production from grassland is either missing or the quality cannot be assured. It is especially the amount of biomass consumed by livestock during grazing that is missing. In addition, a Eurostat-commissioned study has shown that by adapting the classification of grasslands in agricultural statistics, the usefulness of data for biodiversity analyses could be greatly increased.

- *To what extent are the crop statistics producing high-quality data?*

  The situation in annual crop statistics (ACS) will improve a lot with the 2015 legislative and data-flow related improvements. The needs of DG AGRI seem to be covered in a satisfactory way. However, not all countries participate in the ESS agreement (7 Member States are not participating), which is problematic for the coverage of the voluntary crops and early estimates. There are some individual countries which have quality problems (data availability, punctuality and quality problems).

DG AGRI needs urgently Supply Balance Sheet (SBS) data on main cereals, oilseeds and rice. Eurostat is currently making preparations to re-launch a simplified collection. The methodological guidelines will be updated by summer 2016 and the re-launch is planned starting from crop year 2017/2018.

- *How flexible are the crop statistics and how quickly is it reacting to the emerging needs of the agricultural statistics system?*

  It is quite difficult and time-consuming to meet to the new needs in crop statistics. In case of ACS the old Gentlemen's Agreements needed to be updated and formalised as European Statistical System agreement. This took 18 months but in the end was successful

  For the SBS time span from the expressed need to the expected launch of the new SBS data collection will be quite long (approximately 3 years). The available tools (e.g. the direct temporary statistical act) receive a lot of resistance from Member States.

- *To what extent are data collections harmonised and coherent among different areas?*

  Eurostat has in cooperation with user DG's and NSI's reformed data collection (Regulation- ESS agreement). This has greatly improved the internal coherence, but there remain cross-domain incoherencies (e.g. towards FSS, prices, EAA, permanent crop statistics).

  The planned new supply balance sheet collections are coherent with the ACS.

- *How coherent are agricultural, forestry, land use and environmental statistics?*

  They are not properly integrated at the moment. The ACS and Land Cover/Use Statistics (LUCAS)[38] should be reviewed in parallel to harmonise the concepts and/or to reduce the overlaps.

- *To what extent are the data produced efficiently? Is the burden/cost appropriate for the purpose?*

  Thanks to the recent review of the legislation, the crop statistics are collected in a more optimised manner than before, limiting burden of the respondents.

- *To what extent can better statistics be produced without increasing the burden on respondents by exploring alternative data sources and efficiency improvement techniques? Can the collection of data be made more efficient?*

  In several countries this is possible e.g.by taking the administrative data sources into a more wide-spread use. The statistical definitions and the definitions used in the administrative registers (mainly in IACS) should be harmonised as much as possible. As ACS is a collection with frequent deadlines from early estimate to final data it is important to find the most cost-efficient way of collection and updating the data (right sources at right time). In this respect the MS should learn much more form each other (good practices).

  The 2015 review will improve significantly the internal efficiency of the data validation and publication. The legislation gives Member States rather free hands on the way they are collecting the data.

[38] http://ec.europa.eu/eurostat/web/lucas/overview

Milk statistics

- *To what extent are data needs adequately served?*

  The data needs are well served, but they do not cover the newest phenomena like (1) spot market (large farm selling important volumes depending on the offered prices) and (2) stock of raw products (powders, butter oil) indicating trends on the market. These are at least two of the needs expressed by the high level group on milk in 2009-2010.

- *To what extent is the milk statistics producing high-quality statistics that meet users' needs efficiently and effectively?*

  Decision 97/80/EC has been recently amended for changing the classes for the tables on the structure of dairies. This cheap change enabled to reinforce the consensus on the remaining parts. In 20 years and despite the technological changes, almost no new product appears which would not be covered by the legislation. The change intended to describe the dairy sector better but dissemination of the results is conditioned to efficient treatment of confidentiality.

  Milk statistics constitute a rich source of information and provides concepts for data analyse (USM, UWM). Despite the apparent complexity for newcomers, the most important problems refer to national exceptions or specificity in the methods, while other ones are due to a pragmatic approach when drafting on what can be measured and what cannot.

- *How flexible is the milk statistics and how quickly is it reacting to the emerging needs of the agricultural statistics system?*

  There is consensus that the list of milk products is outdated but all the stakeholders fear re-opening such a discussion, as the legal design limits adaptability of the legislation. Introducing and dropping variables is therefore too ambitious on a regular basis. More flexible legal tools would avoid the need for gentlemen's agreement (additional variables) while allowing balancing an increase in burden by a decrease.

- *To what extent are data collections harmonised and coherent?*

  Milk statistics connects especially with the livestock statistics, individual milk production being initiated by a female mammal. The number of dairy animals is thus an important external variable in connexion with the domain.

  Regional location of the dairy herd is important in big countries with a variety of natural conditions. For instance, location of the dairy buffaloes in IT, of the dairy ewes in FR or ES, and of dairy cows in DE or UK is important as it shows economic contrast and potentialities.

  Dairy products constitute a long and complex nomenclature. There has been much work in the middle of years 2000's for improving complementarity with the Combined Nomenclature and Prodcom.

  The list of dairies is drawn from the business register and the Table B, displaying a kind of balance sheet, requires statistics on import and export of raw and dairy products. At national level there is thus a connection between external trade and agricultural statistics in this domain.

- *How coherent are agricultural, forestry, land use and environmental statistics?*

Not applicable in the domain.

- *To what extent are the data produced efficiently? Is the burden/cost appropriate for the purpose?*

  The burden on the dairy enterprises is appropriate when taking into account the Eurostat recommendations. Not all the variables have to be covered by the questionnaires to the dairies. Here a clearer distinction in the legislation could help to guarantee a limited burden.

  The Member States introduce electronic collection of statistics, which works well with the stakeholders used to modern tools. The difficulties are met when few dairies represent an important share of production (small countries or large firms) and are reluctant in providing statistics.

- *To what extent can better statistics be produced without increasing the burden on respondents by exploring alternative data sources and efficiency improvement techniques? Can the collection of data be made more efficient?*

  The scope of monthly statistics could be adapted in order to cover only the significant EU contributors. On the other hand, in such a case, more frequent updates (e.g. twice a month) could be required as certainty of the short term statistics evolve quite fast.

  Supporting calculation of the control variables and improving treatment of confidentiality are key elements for improving efficiency of the system.

  The recent phasing out of the milk quotas and of the quota registers has impacted the whole statistical system for dairy statistics. There might be room for gains of efficiency but the challenge is currently supporting those who did not take Eurostat's warnings seriously. It is therefore too early for reflexion on a future legal text.

  In this context of change, clearer intentions of DG AGRI regarding the needs for monthly statistics are required as they have launched an earlier collection on cows' milk collection from farms. The impact of removing the monthly statistics from the statistical requirements should be analysed as well.

  The existence of a dairy board facilitates the data collection but the legal base and mandate of such entities should clearly cover statistical obligations.

Agricultural prices

- *To what extent are data needs adequately served?*

  Agricultural price statistics (price indices, absolute prices; land prices and rents) are based on a gentlemen's agreement and thus tend to lose out in the constant competition for resources. A legal base for price indices and land prices and rents, is needed.

- *To what extent is the agricultural price statistics producing high-quality statistics that meet users' needs efficiently and effectively?*

  Agricultural price statistics are gathered in any case as they are an essential component of the economic accounts for agriculture. Eurostat's role in agricultural price statistics per se is to ensure a common methodology so that the statistics are directly comparable. The fulfilling of this role is thus highly efficient and effective.

- *How flexible is the agricultural price statistics and how quickly is it reacting to the emerging needs of the agricultural statistics system?*

  An emerging need for improved statistics on agricultural land prices and rents has been recognised. The need has been addressed by defining a common methodology, acceptable to all Member States, and Community aid for pilot projects. However, progress has been slow because of the limited resources in Member States and the competition of other priorities.

- *To what extent are data collections harmonised and coherent?*

  The coherence of the statistics is assured by the definition of common methodologies, the application of which is constantly reviewed by Eurostat. Feedback to Member States takes place on a case-by-case basis, reviewed in the Working Group on Agricultural Accounts and Prices which meets annually.

- *How integrated are agricultural, forestry, land use and environmental statistics?*

  Price statistics in these domains adhere to the commonly accepted principles of such statistics in general, which ensures a certain integration.

- *To what extent is the burden/cost appropriate for the purpose?*

  The underlying data come from surveys or administrative sources. There is always a trade-off between fitness for purpose on the one hand, and burden and cost on the other.

- *To what extent can better statistics be produced without increasing the burden on respondents by exploring alternative data sources and efficiency improvement techniques? Can the collection of data be made more efficient?*

  Eurostat and the Member States are constantly exploring alternative data sources and efficiency improvement techniques, so that good statistics are produced within the limit of the acceptable burden on correspondents. Possibilities for improvement which are identified are implemented to the extent possible.

Economic Accounts for Agriculture

- *To what extent are data needs adequately served?*

  The European Court of Auditors (ECA) is conducting an audit on the adequacy of the EAA (and other statistics) to assess the effectiveness of Community policy on the support of the incomes of the agricultural community. It is expected that the audit report will be published in early 2016. A similar report, published in 2003, contained an assessment of the extent that data needs were adequately served, the extent that data collections were harmonised and coherent, and the extent that the burden/cost were appropriate for the purpose.

- *To what extent are the economic accounts for agriculture producing high-quality statistics that meet users' needs efficiently and effectively?*

  Economic accounts are synthetic in nature. The use many statistics gathered for other purposes and new surveys are only undertaken to fill gaps. Thus user needs are met in a highly efficient and effective manner

- *How flexible is the milk statistics and how quickly do they react to the emerging needs of the agricultural statistics system?*

  The EAA Regulation ensures a stable base to allow comparability of data over time and across Member States. A consequence of this stability is that adaptations require much effort.

- *To what extent are data collections harmonised and coherent?*

  A particular feature of the EAA Regulation is that it incorporates a detained methodological annex. Eurostat checks that the methodology is indeed applied by Member States.

- *How integrated are agricultural, forestry, land use and environmental statistics?*

  Economic accounts for agriculture, forestry and the environment are all satellite accounts within the framework of the European System of Accounts (ESA). This common framework assures certain integration.

- *To what extent is the burden/cost appropriate for the purpose?*

  The underlying data come from surveys or administrative sources. There is always a trade-off between fitness for purpose on the one hand, and burden and cost on the other.

- *To what extent can better statistics be produced without increasing the burden on respondents by exploring alternative data sources and efficiency improvement techniques? Can the collection of data be made more efficient?*

  Eurostat and the Member States are constantly exploring alternative data sources and efficiency improvement techniques, so that good statistics are produced within the limit of the acceptable burden on correspondents and available resources. Possibilities for improvement which are identified are implemented.

Pesticide statistics

- *To what extent are data needs adequately served?*

  As is described above, there are several issues in the legislation that severely hamper the usefulness of the data. These include the limits on dissemination of the data at active substance level, the various timetables allowed for collecting data, and the limited possibility of influencing the crops surveyed. In addition, for data on pressures of agriculture on the environment, data should be made available at regional level, and ideally, for pesticides, how and when they are sprayed.

- *To what extent is the pesticide statistics producing high-quality statistics that meet users' needs efficiently and effectively?*

  The data on the sales of pesticides are of good quality and detail, so they meet the user needs. As no data are yet available on the use of pesticides, it is yet too early to get a picture on the actual quality and usefulness of the data.

- *How flexible is the pesticide statistics and how quickly is it reacting to the emerging needs of the agricultural statistics system?*

Considering that putting in place pesticide statistics took many years, and went to the second reading in the negotiations with EP and Council, it is safe to say that it is not flexible at all.

- *To what extent are data collections harmonised and coherent?*

  The crop list used in the pesticide use statistics is the same that is used in FSS and crop statistics.

- *How coherent are agricultural, forestry, land use and environmental statistics?*

  Not applicable in this domain.

- *To what extent are the data produced efficiently? Is the burden/cost appropriate for the purpose?*

  The burden of the pesticide sales data is reasonable, as the enterprises from which the data are collected are obliged to keep records on the sales in any case. Article 67 of Regulation (EC) 1107/2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC states that "Producers, suppliers, distributors, importers, and exporters of plant protection products shall keep records of the plant protection products they produce, import, export, store or place on the market for at least 5 years. Professional users of plant protection products shall, for at least 3 years, keep records of the plant protection products they use, containing the name of the plant protection product, the time and the dose of application, the area and the crop where the plant protection product was used. This means that the added burden of providing the statistical authorities the required information is not excessive. In addition, considering the potential impact of pesticides on the environment, the potential gains from the reduction of the risks involved balance up the costs.

- *To what extent can better statistics be produced without increasing the burden on respondents by exploring alternative data sources and efficiency improvement techniques? Can the collection of data be made more efficient?*

  The sources used are already required by other legislation, albeit not necessarily in electronic and thus easily accessible form. This is, however, not an issue that the statistical authorities can influence.

  The Member States have in most cases chosen the least burdensome way of collecting pesticide sales data; that is by requiring the information from the authorisation holders. As the quality reports are not yet available for pesticide use statistics, it is not possible to assess the methods used at this stage.

Agri-environmental indicators

- *To what extent are data needs adequately served?*

  Despite a relatively satisfactory situation concerning the fact sheets on the indicators, the needs for data on the impact on agriculture on the environment are not fulfilled. Data users need more details, both regional and on types of farms and farmers. Most of the requests for more information than before are linked to environment.

- *To what extent is the AEI producing high-quality statistics that meet users' needs efficiently and effectively?*

The system produces at the moment quite well meet the demands as described in the Commission Communication on the AEI, but this is not enough. The agricultural statistics system is not feeding enough data on nutrient flows and farm management. In addition, some areas where data are quite difficult to collect in the framework of a traditional statistical system, such as biodiversity indicators are at the moment not included properly.

- *How flexible is the AEI and how quickly is it reacting to the emerging needs of the agricultural statistics system?*

  Despite the identification of the need of setting up a system for collecting the data necessary to feed the AEI in 2006, this system is still under construction. The reason is that any system designed for providing the data needed would be expensive to set up and to maintain, and collecting statistics of enough quality would also require a rather big sample size and the data should ideally be collected several times a year from the same farms, thus creating a heavy burden on those involved. This has led to the development of models and proxies instead, which are not appropriate to following short term trends.

- *To what extent are data collections harmonised and coherent?*

  As described above, AEI are based to a great degree on existing reporting requirements in various policies. The focus for such reporting is often not on coherence and comparability across borders, more on the situation in the respective countries and possibly over time. The lack of exact definitions, precision requirements, agreed methodological handbooks, etc., leads to a situation where it is very difficult to ensure that information can be compared between countries.

- *How coherent are agricultural, forestry, land use and environmental statistics?*

  The AEI would benefit from more integration, as the impact of agriculture on the environment is mainly linked to the area utilised for agriculture. The potential benefits from integration are well-known in Eurostat and by the partners, but this work has been more difficult than expected.

- *To what extent are the data produced efficiently? Is the burden/cost appropriate for the purpose?*

  Most of the data required by agricultural statistics are part of existing data requirements by various policies. Taking this into consideration, the extra burden of providing the information to Eurostat is not disproportional. Improving the availability and quality of the agri-environmental statistics could lead to high costs and burden if the balance is not struck.

- *To what extent can better statistics be produced without increasing the burden on respondents by exploring alternative data sources and efficiency improvement techniques? Can the collection of data be made more efficient?*

  The AEI has expressly been set up with the costs and response burden in mind, as already identified in the Commission Communication, and new data collection can be used only if data are not already available or not of good enough quality for the purpose. The conclusion drawn from the efforts made to create a good enough statistical system is that new data collection is needed, with a certain increased burden on respondents.