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**TOWARDS FOOD SAFETY STATISTICS AT THE EU LEVEL**

Paper submitted by Eurostat\*

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### Background

The relevance of food safety has increased over time as a demand from society to which public administrations have to respond. The need to measure European food safety has pointed out the necessity to have good quality data, and because of this the food safety statistics project was created.

Eurostat started the project “Food safety statistics” in 2002. The decision to launch the project “food safety statistics” was taken following the conclusions of the CEIES seminar that took place end of 2001 and was formally accepted at the meeting of the Directors responsible for agriculture statistics held in Chania, end 2002. Since then, “Food safety statistics” has been included in every annual work program of Eurostat, that have been adopted by the European Commission, after a wide inter-service consultation.

### From farm to fork

The object of food safety statistics is to provide a framework for the quantitative evaluation of data on the safety of products used for human or animal consumption on the territory of the Member States, irrespective of whether these products are manufactured within the EU or imported.

This definition is in line with Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002<sup>1</sup> that lays down the general principles and requirements of food law, sets up the European Food Safety Authority and sets out the procedures to be followed to ensure that foodstuffs are safe.

This Regulation applies to all stages of production, processing and distribution of food and animal feed (Article 1). The concept of traceability (Article 5) covers management of the

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<sup>1</sup> OJ L 31, 1.2.2002

<sup>2</sup> OJ L 63, 03/03/2001

branch as a whole. The impact of materials and articles in contact with food, animal feed and other agricultural inputs are also covered (recital 11). Imports are subject to the same measures as are applied to food produced within the Community (Article 11).

Article 2 defines food as follows:

*"Food" (or "foodstuff") means any substance or product, whether processed, partially processed or unprocessed, intended to be, or reasonably expected to be ingested by humans. "Food" includes drink, chewing gum and any substance, including water, intentionally incorporated into the food during its manufacture, preparation or treatment. It includes water after the point of compliance as defined in other directives.*

Consequently, food safety statistics covers statistics on the safety of food and animal feed at all stages of the chain, from production, through processing and distribution till the final consumer. This is what has been called "**From farm to fork**". Products that carry a label that indicates a type of soil or cultivation method, where the product was produced, processed and marketed etc. are also included. They are described as "products with distinctive marks" and include organic products, together with Genetically Modified Organisms (GMO) and products with other EU labels (Protected Denomination of Origin, etc.).

The aim is to set up a reliable and regularly updated database to measure chronological and physical changes in food safety in Europe. This database should also make it possible to set up relevant indicators for framing a sustainable consumer food policy.

### **Building from the existent**

In view of the wide scope of the project and the limited resources available in the countries, the Working group on food safety statistics indicated at a very early stage, the need to concentrate on data already available and to analyse their relevance from a food safety perspective, before running new surveys.

The first action taken by Eurostat in the domain of food safety statistics was to make an inventory of data available in Member States and Candidate and EFTA countries. This inventory covered all issues related to food safety, including products with distinctive marks.

Also in 2003 some priority areas and a first timetable to analyse them were defined. These were the *products with distinctive marks*, the *food and feed control and monitoring activities* and *food consumption*. These areas have been analysed in depth by mean of Task forces with participation of experts from countries. The first two areas were analysed in 2004. The analysis of how to gather relevant food consumption data has started this year.

### **A particularity: many actors involved**

The wide scope of food safety implies the intervention of many different actors: farmers, manufacturers of food stuffs, manufacturers of feedingstuffs, transporters, wholesalers and retailers are involved. They should fulfil the requirements specified in the national and EU legislation regarding food safety issues. Also, many different regional and national inspection services are responsible for controlling that the food safety legislation is applied all along the food chain or that products bearing EU labels have been produced following the rules set up in the legislation. These control bodies should report on their activity to different services of

the European Commission. The information and expertise are scattered and difficult to gather. It is consequently important to identify clearly which are the role and responsibilities of each actor in order to co-ordinate the efforts in the most efficient way to set up a sustainable information system that will provide reliable information on the safety of food and feed products comparable cross countries.

### **Food and feed control and monitoring activities**

The food and feed controls and monitoring activities currently undertaken by the Member States are intended to minimise as much as possible the risks that the presence of certain substances can have for the health of their populations. The fields covered by control and monitoring activities, are defined on the basis of scientific knowledge relating to substances that are harmful for human health. These substances are those which can be present in food like certain anabolic substances in products of animal origin, certain pesticides, radioactive contamination, certain bacteria, additives with carcinogenic effects, etc. It is therefore important to be able to measure the development of these monitoring activities and the development of their results.

As already foreseen in various directives, Member States already provide the European Commission with results of food and feed control and monitoring activities. They are based on chemical or microbiological analyses obtained from samples taken from live animals, or from food products chosen on the basis of a methodology of sampling which, in general, is defined in Community legislation. This information is obtained from “administrative sources” which means that is collected by the administration with an aim other than that of making statistics. This information is not collected using methods based on the statistical principles.

Statistics are a scientific tool giving us an insight into the state and the development of our societies. Should we regard the use of data collected for other purposes as misuse? The use of administrative sources for statistical purposes is no panacea either, but merely an alternative. Sometimes, it constitutes a complementary source to the surveys. In all the cases it allows to minimise the costs and the burden of respondents.

Eurostat set up a Task Force in 2004 which objective was to analyse if administrative data obtained from the control and monitoring activities could be used for statistical purposes. Three domains were analysed: the monitoring of pesticide residues, the monitoring of residues in animals and products of animal origin, and the monitoring of zoonoses.

With the data already available, Eurostat identified four types of data that provide information on different aspects of food and feed control activities:

#### 1. Data to build indicators of monitoring intensity

These data are intended to measure the development of the efforts made by the countries to guarantee compliance with food safety legislation. The number of samples taken, the number of samples analysed or the number of controls realised, all currently provided by Member States, belong to this group of data. This information should be related to the relevant statistics already available in Eurostat, such as for example the livestock numbers, the number of establishments, the number of inhabitants, food consumption, etc. in order to build true

indicators that would allow comparisons between countries. They could also be named “indicators of control pressure” or “indicators of control intensity”.

## 2. Data to build indicators of results

These results measure the development of conformity with food safety legislation. The number of complying and the number of non-complying samples and the number of infringements are examples of data already provided by the countries that belong to this category. These results are in some cases obtained from random sampling and in other cases from targeted samples or even from suspect samples. It is therefore important to treat and present both data sets in a separate way.

## 3. Data related to the actions taken as a consequence of the results

This information can be seen as complementary to the data on results of control activities. It seems important to measure how the results have been taken into consideration to prevent public health. Some directives already foresee the provision of this type of information to the European Commission.

## 4. Data to build indicators of costs

Cost/effectiveness analysis is an important element that should be taken into consideration to monitor European policies, particularly for such a sensitive aspect of consumers’ protection policy like food safety. On the other hand, considering the organisational complexity of these control activities at national level, it is certainly difficult to obtain information for each individual area (residues of the pesticides, zoonoses, etc). However, it seems important to have information, at least, on the costs of food and feed control and monitoring activities, as a whole.

Participants to the Task Force emphasised the need for having a common terminology to be used regarding food and feed control and monitoring activities. The proposal for building indicators of monitoring intensity was generally accepted and some warnings were made by participants to the Task Force about the correct interpretation of data on results of control activities. Indicators of actions and costs were not considered as a priority. The work of the Task Force will continue during 2005. It focuses on proposing a common glossary and a classification of control and monitoring activities (see the current draft in Annex) and analysing the internal database that Eurostat is building with data on monitoring intensity and data on results of controls. Its objective is to provide a global overview of control and monitoring activities and their trends.

## **Products with distinctive marks**

The denomination “products with distinctive marks” includes organic products (issued from organic farming); products of Protected Denomination of Origin (PDO), Protected Geographical Indications (PGI) and Traditional Speciality Guaranteed (TSG) and Genetically Modified Organisms (GMO). Eurostat set up a Task Force that met in April 2004 and which objective was to investigate how to improve the quality and availability of this type of products.

## **Organic products**

Member States provide to the European Commission with annual returns on organic farming. The information provided includes the number of registered organic operators, organic area

and production and organic livestock. This information is obtained from administrative sources: the national certification bodies.

It was stressed both the need for linking data coming from surveys and from certification bodies as well as the importance of the correct use of administrative sources. The using of conventional surveys to collect organic farming data has some drawbacks since the size of the organic farming is too small to be representative. Normally, the administrative data collected are only about areas and variables and definitions are not harmonised. The Member States' opinion underlined the importance of working on the definitions of the variables and improving the administrative data in order to integrate organic farming data within the general statistical framework. It was also highlighted the importance to fill in the gaps for organic production by using the Member States' expertise. Two approaches were presented: one concerned with a better use of existing information (using registers, adding specific questions to already existing surveys or combining data from different sources) and, the other involving new surveys to collect the data. Both possibilities should be further analysed.

### **PDO/PGI products**

PDO means the name of a region, a specific place or in exceptional cases, a country, used to describe an agricultural product or a foodstuff, originating in that region, specific place or country, and the quality or characteristics of which are essentially or exclusively due to a particular geographical environment with its inherent natural and human factors, and the production, processing and preparation of which take place in the defined geographical area.

PGI means the name of a region, a specific place or in exceptional cases, a country, used to describe an agricultural product or a foodstuff originating in that region, specific place or country, and which possesses a specific quality, reputation or other characteristics attributable to that geographical origin and the production and/or processing and/or preparation of which take place in the defined geographical area.

The importance of these products differs very much from one country to another. Indeed, six out of twenty-five countries cover 90% of the products certified at the European Commission: France, Italy, Portugal, Spain, Greece and Germany. The amount of products registered by the new Member States is still very low, but that could change according to the information provided by some of them. In order to have an overview of the production and trade of these products it has been decided to start collecting data on PDO/PGI products from countries, on a voluntary basis. At the moment, Eurostat has received data from Italy and Portugal.

### **GMO products**

According to the results of the Task Force, priority was given to collect data on international trade of some selected items that constitute the highest level of GMO imports value to EU: Soya, Maize and Oilcake rape. Eurostat has asked for changes into the Combined Nomenclature to differentiate genetically modified Soya, Maize and Oilcake rape. The purpose of this action is to collect external trade data for these products.

### **Facilitate access to available data: the FOOD database**

Till now, Eurostat has information about the needs already expressed by other Directorates General of the European Commission: Imports and exports of meat and meat products, fruit

and vegetables, production and consumption of feedingstuffs, food consumption, enterprises involved in food industry, imports of GMO, production and consumption of products issued from organic farming, production and exports of products of registered denominations of origin and geographical indications (PDO, PGI).

The CEIES seminar “Agricultural statistics and consumer information – Meeting new needs” held in November 2001 aimed at providing information about the needs of all different types of users: consumers, decision-makers, producers, etc. The participants emphasised the importance of having harmonised and comparable quantitative and qualitative data on food safety and suggested that already existing data could be better used and presented to the users avoiding them to be drowned in a deluge of information.

The inventory made by Eurostat in 2003 showed that many statistics relevant to food safety are already available in Eurostat: EU imports of food products, number of establishments involved in the manufacture of food and feeding stuffs, food consumption data, etc. They are scattered in different databases. Also, as already foreseen in various directives, Member States already provide the European Commission with annual returns on their food and feed control activities. This information is scattered in different Commission reports.

The members of the Working Group on food safety statistics welcomed the creation of a database intended to provide a single and unique access to all the information related to food safety, to facilitate the crossed analysis of the data and to allow studying tendencies. Eurostat is building it in two steps with the following objectives:

Step 1. Provide a single and unique access to data already available at Eurostat that is relevant for food safety purposes in order to give visibility to all statistics related to the food chain that are already publicly available from Eurostat’s web site and to facilitate their access by the users. This first step implies to analyse the relevance of data already available, regarding food safety issues, to choose the most appropriate data taking into consideration users’ needs and to present the information in a structured way. The name of the database is **FOOD: From farm to fork statistics**.

Step 2: Relevant data on food and feed controls must be incorporated in the future. The choice of the data will be based on the conclusions of the work currently under way by the Task Force on control and monitoring activities.

At this stage, the database contains only data already available in Eurostat (step 1). The selection of data has been made to facilitate the construction of indicators to monitor food safety:

- ⇒ Data that could be directly used as food safety indicators: Incidence rates of food borne and water borne diseases, deaths due to the new variant of Creutzfeldt-Jakob disease and R&D public expenditure on “Nutrition and food hygiene”, “Agricultural production” and “Food technology” projects, are examples of this type of data.
- ⇒ Data on products with distinctive marks (products with distinctive labels that guarantee their origin or production process): Volume of production and external trade of quality wines, volume of intra-EU and extra-EU trade of wines produced from some selected

regions, number of GMO patents on Micro-organism and genetic engineering, volume of production of organic food products: milk, eggs, honey, etc.

In the future, Eurostat would like to incorporate production figures of PDO/PGI products and imports of GMO.

⇒ Data providing information that could be used to evaluate possible risks: Food consumption, volume of extra-EU imports of food products, live animals and feedingstuffs, main extra-EU countries, from which the EU imports food products, live animals and feedingstuffs, fish catches of main species used for human consumption in Europe, by fishing region. These figures could be used to evaluate a possible risk due to contamination in the Atlantic or the Mediterranean Sea; regional distribution of agricultural holdings that combined with geographical information could contribute to evaluate possible environmental contamination; consumption of pesticides in agriculture, as an increase of certain pesticides in agriculture could provide an indication of possible risks entering the food chain.

⇒ Data to put into perspective, results of food and feed controls and data on products with distinctive marks:

A significant amount of statistics has been selected to monitor the results of food and feed controls:

- Volume of production of different elements involved in the food chain: for example, volume of production of processed foodstuffs, livestock numbers, slaughtering statistics, primary crop production, landings of fish species used for human consumption, food consumption, volume of production of feedingstuffs, volume of production of food packaging material, volume of production of seeds, etc.
- All different “actors” involved in the food chain: number of agricultural holdings, number of enterprises and number of local units manufacturing food and beverages, producing composite feedingstuffs or manufacturing pesticides and fertilisers, the number of dairies, the number of fishing vessels

These figures could be used to assess the relative impact of food controls regarding both the establishments involved in the food chain and the production of foodstuffs. They could also be used to measure the relative importance of the organic operators involved in the food chain or the relative importance of organic production to total production.

⇒ Data on access to food, intended to provide an indication of the consumer’s accessibility to food across the EU countries. Examples of some selected variables are the indices of relative price levels of food and beverages (allow comparisons across countries of consumer price levels), the consumer price indices of food and beverages (measure price developments across time) or the degree of self-sufficiency of selected foodstuffs.

⇒ Economical aspects of the agri-food sector: expenditure on veterinary drugs in agriculture, expenditure of fertilisers in agriculture, put in relation to the value of agricultural production, sales of pesticides and turnover and employment of enterprises manufacturing food and beverages, feedingstuffs, pesticides and fertilisers.

### **Food consumption: necessary for risk assessment**

The Task Force on Food consumption statistics is the third Task Force set up by Eurostat in the field of Food safety statistics. The overall aim of the Task Force on Food Consumption is to advise Eurostat and the members of the Working Group Food safety statistics on the further development of activities in the area of ‘food consumption statistics’. The Mandate of the

Task Force is to analyse all the needs for food consumption statistics from the widest point of view and to analyse the possibilities to arrange for the establishment of a regular statistical data collection on food consumption within the European Statistical System (ESS). The needs were to be analysed and, subsequently, the statistical sources were to be studied to see their potentiality to meet the users' requirements. In particular, the Task Force has examined the needs for data and examined the various statistical sources and possibilities to establish a regular statistical data collection on food consumption within the European Statistical System.

The members of the Task Force agreed that the individual food intake is the main variable to monitor Community and national policies on Food Safety, Health and Nutrition and Diet Related Diseases. Purchases and general food availability are essential to assess Market Management policies.

Members of the Task Force agreed that the consumption determinants are very important to explain (at least part of) the food consumption choices. The main ones were geographical situation and type of settlement of the household, number and age of members in the household, income level of the household, socio-economic level (such as education) of the head of the household. At the individual level, age and education were considered the most important ones.

It was recognised that the dietary surveys are the only ones that can provide information on individual real intake. However, these surveys are difficult to carry out and very expensive. Other sources of data can be useful as proxy variables to assess trends on food consumption.

Subsequently, the Task Force agreed on the following stepwise proposal as proposed by Eurostat:

- First keep the current data coming from the Supply Balance Sheet. That means that at least there will be data on food availability annually.
- Second, gather –as far as possible and feasible - data on food purchases by household with the main consumption determinants, that is, geographical localisation, type of settlement, number of members in the households by age, and education of the reference person. Further analysis about how to proceed further in this area should be made.
- The final step would be to have data from dietary surveys in a harmonised way. This could follow the method used by EPIC<sup>2</sup> initiative. This implies that every country would continue using their methodology. A common EU level method should be agreed to be applied in a sub-sample in each country to calibrate the results and harmonise them.

### **Reflection group: priorities for the future**

Since the first meeting of the Working group that took place in Luxembourg in April 2003, a long path has been made. Up to now this project has concentrated most efforts to organise the data already available in a more useful way for that purpose. The decisions and orientations taken by the Working Group in 2003 have orientated the work done up to now and the work

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<sup>2</sup> European Prospective Investigation into Cancer and Nutrition

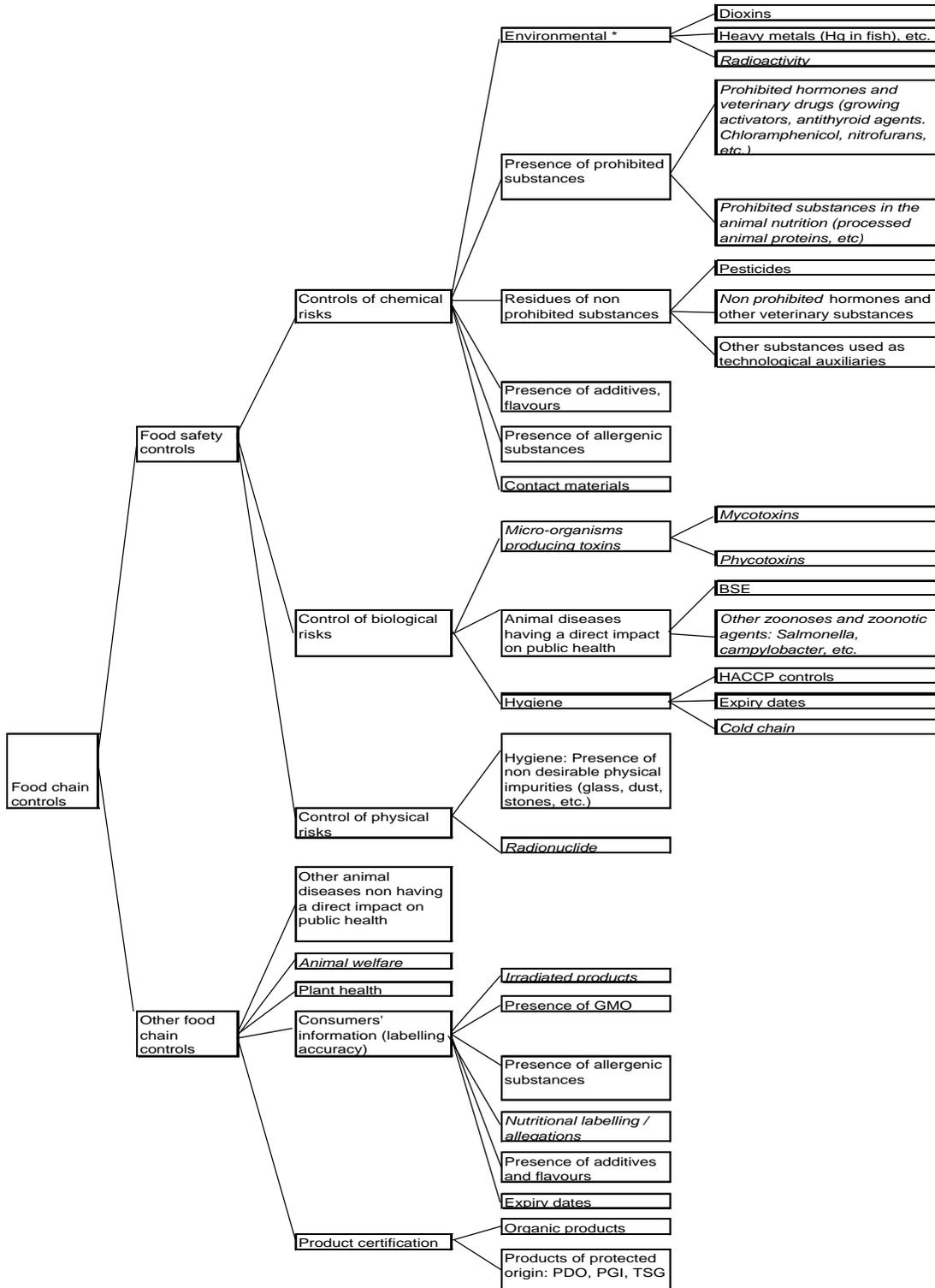
to be done in the near future, therefore it is very important to have a global reflection about Food safety statistics. This would mean to reflect on what has been done and to make decisions about on which areas the efforts must be focused and which ones should be the priorities, taking in to consideration the resources available.

Taking all this into account and given the relevance of the topic, the Working Group agreed to create a reflection group on Food safety statistics. The main objectives of this reflection group would be, first, to reflect about the work done analysing its completeness compared to the agreed framework at the first meeting of the working group (April 2003) pointing out the main lacks. It should also propose relevant indicators of food safety, their priorities and a timetable to build them.

**Annex:**

**Classification of control and monitoring activities, by hazard**

*(Version 2, April 2005, to be further discussed by the Task Force of control and monitoring activities)*



\* contaminants out of direct control of the operators involved in the food chain