ORGANIZING AND CONDUCTING THE THEMATIC SURVEYS AS REGARDS PRODUCTION MEANS (PESTICIDES, FERTILIZERS)

Daniela Pagliuca

- **1. INTRODUCTION**
- **2. The SURVEY ON THE DISTRIBUTION OF FERTILIZERS**
- **3. The STATISTICS ON PESTICIDES**
- **4. The INDICATORS (NAP and AEI)**

1. INTRODUCTION

Agricultural Statistics – Production Means Surveys

DISTRIBUTION OF FERTILIZERS FOR AGRICULTURAL USE (1 survey)

(a) DISTRIBUTION OF PESTICIDES FOR AGRICULTURAL USE (1 survey)

(b) USE OF PESTICIDES (2 surveys)

Agro Environmental Indicators (AEI)

2. DISTRIBUTION OF FERTILIZERS FOR AGRICULTURAL USE

The survey on the distribution of fertilizers - for agricultural use - performed by ISTAT, covers the quantity of fertilizers distributed for agricultural use in Italy: for each fertilizer, the survey collect both the **quantity of fertilizer (mineral, organic….)** and **the contents in nutrients** (nitrogen Phosphoric anhydride ..) declared by the distributors.

The survey on fertilizers is an **annual census**, carried out on all the enterprises that distribute fertilizers within Italy using their own brand or foreign brands .
(the quantities sold under a different brand from that of the distributor must be declared only for imported fertilizers).
The list of enterprises is annually updated.

Enterprises indicate the quantity of both **national production** and **imports** of fertilizers for agricultural use distributed annually in each province (at NUTS3 level) in kilograms (data are published in tons).

The information is collected through self-compiled questionnaires.

The classification used in the survey corresponds with the one specified in the Regulation (EC) No. 2003/2003

DISTRIBUTION OF FERTILIZERS FOR AGRICULTURAL USE

Characteristics of the survey

Reference period	Calendar year
Technique of data collection	Web survey
Survey units	Enterprises distributing fertilizers
Type of Survey	Census

Frequency	Annual
Territorial reference	NUTS 3

Main variables of the survey

QUANTITY expressed in kilograms of fertilizers (produced in Italy or imported) distributed with the own trademark for agricultural use *(tables in tons)* .

Supplementary information

The nutrient elements (for each element) in the fertilizer

3. STATISTICS ON PESTICIDES:

(3a) USE OF PESTICIDES
(3b) DISTRIBUTION OF PESTICIDES

REGULATION (EC) No 1185/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
OF 25 NOVEMBER 2009
CONCERNING STATISTICS ON PESTICIDES

THE COMMISSION RECOGNIZED THE NEED FOR DETAILED, HARMONIZED AND UP-TO-DATE STATISTICS ON SALES AND ON THE USE OF PESTICIDES AT COMMUNITY LEVEL.

This Regulation establishes **a common framework** for the systematic production of Community statistics, in particular it mentions to two statistics:

- STATISTICS ON THE PLACING ON THE MARKET OF PESTICIDES

- STATISTICS ON AGRICULTURAL USE OF PESTICIDES

MANDATORY DATA COLLECTION ARE RECOMMENDED to ensure the development of **accurate** and **reliable** data.

According to the EC Regulation 1185/2009, ISTAT produces two types of statistics **to estimate**

- annual amounts of pesticides **used on specific relevant crops;** Usage statistics, on the use of pesticides by farmers.

- annual amounts of pesticides **placed on the market** ; Sales statistics, on the sales compiled by enterpises.

In Italy:

Survey on DISTRIBUTION OF PESTICIDES:
Complete enumeration survey
Suppliers – enterprises

- **USE OF PESTICIDES:**
Sampling survey
Suppliers – farms

3a. STATISTIC ON AGRICULTURAL USE OF PESTICIDES *(REGULATION)*

The Regulation states :

Each Member State shall establish a **selection of crops** to be covered during a period of **five-years.**
The selection shall be designed to be representative of the crops cultivated in the Member State and of the substances used.

For each period of five-years, Member States shall compile **statistics on the use of pesticides**, concerning each selected crop, within a reference period (a period of a maximum of 12 months).

Statistics shall cover active substances *(listed in Annex III)* contained in pesticides (on each selected crop).

The Regulation also establishes :

Member States shall publish those data, in particular on the Internet - in accordance with the requirements regarding protection of statistical confidentiality (as laid down in Regulation (EC) No 223/2009) - with a view to providing information to the public.

Data shall be transmitted to the Commission (Eurostat) within 12 months of the end of each five-year period

(The first five-years period started the December,30 2009).

Pesticide usage statistics include data on the use of pesticides on specific crops and **on the treated area**.

For each selected crop the following variables shall be compiled:

- **the quantity of each substance** *(listed in Annex III)* **contained in pesticides used on this crop**

and

- **the area treated with each substance.**

(quantities of substances used shall be expressed in kilograms. Areas treated shall be expressed in hectares)

IN ITALY:

- Usage statistics, are collected through samples
- Estimates are at a national level.
- We select two crops per year.
- The method of data collection is the telephone interview and the call is preceded by an information letter; telephone interview is performed by trained personnel.
- In Italy released data are grouped , thereby masking the use of specific active substances.

3b. STATISTIC ON THE PLACING ON THE MARKET OF PESTICIDES *(REGULATION)*

The Regulation states :

The statistics shall cover active substances *(listed in Annex III)* contained in pesticides, placed on the market in each Member State.

The quantity of each substance, contained in pesticides placed on the market, shall be compiled in each Member State

(data shall be expressed in kilograms of substances)

Member States shall supply data for every calendar year.

Istat

The Regulation also establishes :

Member States shall publish those data, in particular on the Internet - in accordance with the requirements regarding protection of statistical confidentiality (as laid down in Regulation (EC) No 223/2009) - with a view to providing information to the public.

Data shall be transmitted to the Commission (Eurostat) within 12 months of the end of the reference year

IN ITALY

Istat calculates the quantity of both **products** and **active substances** distributed in Italy for agricultural use (including fungicides, insecticides and acaricides, herbicides, various, biological pesticides and traps).

The survey involves all the companies that distribute pesticide products for agricultural use under its own brand or with foreign brands.

Data are collected through self-compilation of web questionnaires by companies.

Annually, enterprises **indicate the amount in kilograms of pesticides products** distributed in each area (at NUT3 level) for agricultural use, both national production and imports and the **amount in kilograms of the active substances contained**.

The list of enterprises is annually updated.

DISTRIBUTION OF PESTICIDES FOR AGRICULTURAL USE

Characteristics of the survey

Reference period	Calendar year
Technique of data collection	Web survey
Survey units	Enterprises distributing pesticides
Type of Survey	Census

Frequency	Annual
Territorial reference	NUTS 3

Main variables of the survey

QUANTITY expressed in kilograms of pesticides (produced in Italy or imported) distributed with own trademark for only agricultural use (referred to **products** and **active substances**)

SALES Proxy USE

Some useful information can be obtained from the collection of **sales statistics** which can be used as a substitute for a survey of usage data

Sales figures do not accurately represent usage but statistics on sold quantities **may be used to adjust and improve surveys on the use of pesticides.**

Features

- are much **cheaper** to collect as they are compiled directly by companies (not farmers)
- are generally **accurate**, as chemical companies normally know the amount of each product placed on the market and are able to provide annual figures
- can give rise to **confidentiality issues** and restrictions on the release and use of data
  - ↳ due to commercial reasons when published, **data are grouped**, masking the use of specific active substances.

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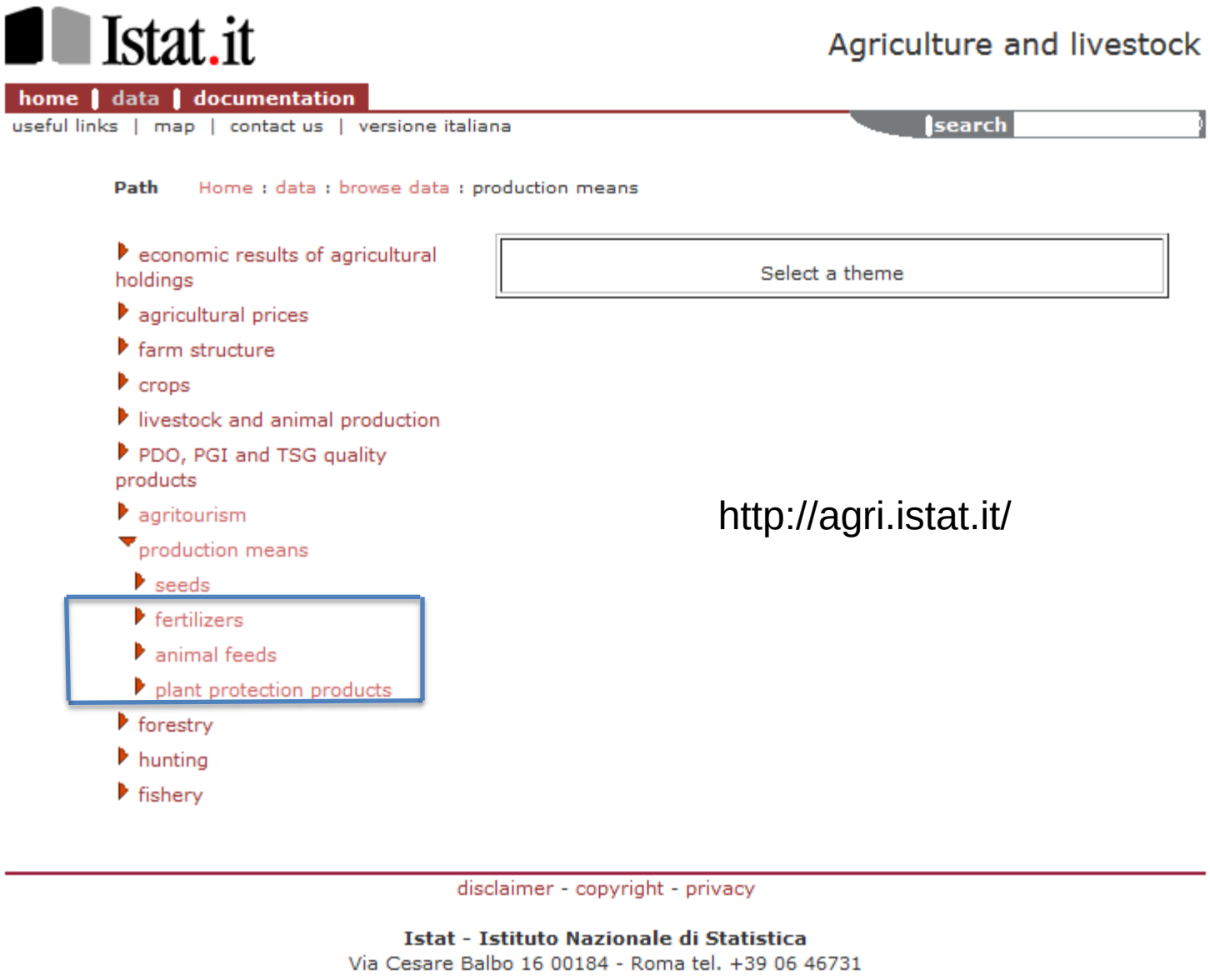
Survey dissemination

Istat publications
and
Internet

WEBSITE
http://agri.istat.it/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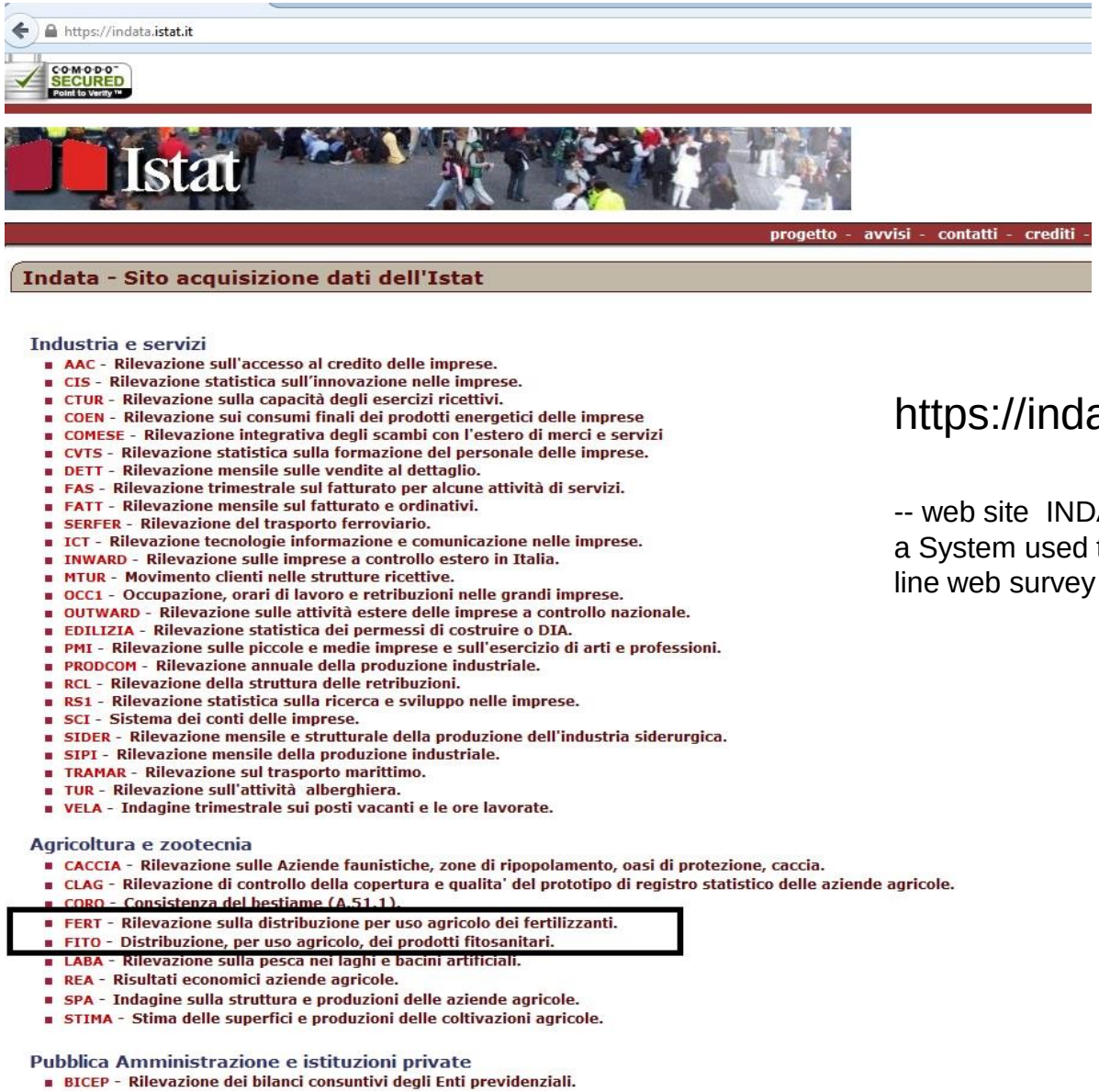

https://indata.istat.it/

-- web site INDATA --
a System used to manage the on line web survey (or web data)

4. INDICATORS

Two areas of collaborative efforts

(Istat with other Organizations)

National Action Plan (NAP)

Agri-Environmental Indicators (AEI)

National Action Plan **(NAP)**

- Harmonised and comparable Community statistics on pesticides are essential for the development and monitoring of Community legislation and policies in the context of the strategy on the **Sustainable Use of Pesticides** and for **calculating relevant indicators on the risks related to the pesticide use**.

- The Regulation (EC) No. 1185/2009 points out that the statistics shall serve to monitor actions, implemented through the application of a **National Action Plan (NAP) on the sustainable use of pesticide products**, adopted by each Member States
- *(Directive 2009/128/EC establishes a framework for Community action to achieve the sustainable use of pesticides)*

Crops were selected taking into account the NAP

➢ Crops currently surveyed in Italy are **grapevine**, **maize**, **durum wheat**, **tomato**, **potato**

The National Action Plan was adopted by Interministerial **decree** of 22 January **2014**

Within the framework of the NAP :

- a **set of 15 indicators were selected** in Italy and the indicators cover as much as possible the NAP objectives and actions and reflect policy priorities

(and formally assumed by the Interministerial decree of 15 July 2015)

In Italy Several **institutions** provide the data and the information and share the responsibility for the processing of the indicators

MATTM	*Ministry of the Environment and Protection of Land and Sea*
MINSAL	*Ministry of Health*
MiPAAF	*Ministry of Agriculture Food and Forestry Policy*
ARPA	*Regional Agency for Environmental Protection*
APPA	*Provincial Agency for Environmental Protection*
ENAMA	*Italian Agricultural Mechanization Body*
CREA	*Council for Agricultural Research and Economics*
ISPRA	*Institute for Environmental Protection and Research*
ISS	*Italian National Institute of Health*
ISTAT	***Italian National Institute of Statistics***
IZS LT	*Institute of Animal Health and Food Safety for Latium and Tuscany Regions*
MITO 2000	*Italian Ornithological Monitoring*
S.S. S. Anna	*Sant'Anna School of Advanced Studies*

Legislative **decree** no. 150 of 14 August 2012 **states** that Istat statistics on pesticide contribute:

- to the compilation of two key indicators of the NAP
- in detecting "trends in the use of certain active substances with particular reference to the type of crop, treated areas and pest management practices."

The regular collection of the usage statistics allows :

- to estimate **Active Sustances** contained in pesticides used on each **selected crop**

but also

- to monitor **changes** over time in the use of the substances on **crops**

(the **key indicators** concerning statistics on pesticide represent "active" **indicators**

*Some indicators are "active", others needs improvement, data are **potentially available**, but they need more time and resources or the availability requires specific programs implementation and adequate financial support*)

NAP Indicators

The first Indicator –: products and traps, and active substances, distributed for agricultural use, for category (in Kg) - Year 2014

Geografical areas	Fungicides	Insetticides and acaricides	Herbicides	Various	Biologicals	Total	Traps (number)
Plant protection products and traps							
North	32.311.368	13.113.263	14.877.177	5.975.714	-	66.277.522	192.974
Center	8.719.766	1.890.090	2.856.572	2.928.784	-	16.395.212	109.236
South	24.283.832	7.280.423	6.474.763	9.265.091	-	47.304.109	172.250
ITALY	**65.314.966**	**22.283.776**	**24.208.512**	**18.169.589**	-	**129.976.843**	**474.460**
Active substances in plant protection products							
North	17.553.146	2.962.111	4.846.597	2.971.451	168.019	28.501.324	-
Center	4.513.302	338.963	902.276	1.390.162	43.963	7.188.666	-
South	14.857.090	2.290.614	2.049.887	4.433.030	101.440	23.732.061	-
ITALY	**36.923.538**	**5.591.688**	**7.798.760**	**8.794.643**	**313.422**	**59.422.051**	-

Source: ISTAT, Survey on the distribution of pesticides for agricultural use

Istat

AEI

Agri-Environmental Indicators

Pesticides and fertilizers are strictly related to agri-environmental indicators which are useful for analyzing the relationship between agriculture and environment and evaluate the trends of this interaction, which is constantly changing.

Agriculture can be considered as a primary activity that can modify the natural ecosystem, but farming can also be positive, depending on how it is conducted.

agroecosystem → more productivity compared to a natural ecosystem but less stability and self-sufficiency

... .the Agroecosystems require energy, materials and technology, which generates disturbance to the natural environment.

An agro-environmental indicator should:

- identify both positive and negative effects of the agriculture on the environment
- be sufficiently differentiated to be able to capture regional differences in environmental conditions and to facilitate the understanding of the relationship between agriculture and environment
- show the evolution over time.

Complex context:

- large areas to be considered
- long-term effects
- the evaluation of the policy must consider the integration between subjects at various levels, both central and local

To improve, develop and compile the agri-environment indicators the IRENA (Indicator Reporting on the integration of Environmental concerns into Agricultural policy) project was launched in September 2002 in Europe.

IRENA (Indicator Reporting on the Integration of Environmental Concerns into Agriculture Policy) started in September 2002:

IRENA was established with a precise reference to the agricultural context and is part of a wider framework of collaboration between the General Directorates Agriculture and Environment, Eurostat, the Commission's Joint Research Centre (JRC) and the European Environment Agency (AEE).

The aim of the project was to develop – for 15 MS – agro-environmentals indicators

- This project was completed at the end of 2005 with 40 indicators, with definitions, descriptions and information.

- After that the Commission has proposed to maintain **a core set of 28** indicators, which includes 26 IRENA indicators and two new indicators (2006).

- The Commission is currently working on the development and improvement of the agri-environmental indicators.

- The 28 indicators are under development, in close cooperation with the Member States.

28 areas - for each of them it is possible to identify different sources of data, parameters and coefficients useful to calculate more indicators

Domain	Sub-domain	Nr	Title
Responses	Public policy	1	Agri-environmental commitments
		2	Agricultural areas under Natura 2000
	Technology and skills	3	Farmers' training level and use of environmental farm advisory services
	Market signals and attitudes	4	Area under organic farming
Driving forces	Input use	5	Mineral fertiliser consumption
		6	Consumption of pesticides
		7	Irrigation
		8	Energy use
	Land use	9	Land use change
		10.1	Cropping patterns
		10.2	Livestock patterns
	Farm management	11.1	Soil cover
		11.2	Tillage practices
		11.3	Manure storage
	Trends	12	Intensification/extensification
		13	Specialisation
		14	Risk of land abandonment
Pressures and risks	Pollution	15	Gross nitrogen balance
		16	Risk of pollution by phosphorus
		17	Pesticide risk
		18	Ammonia emissions
		19	Greenhouse gas emissions
	Resource depletion	20	Water abstraction
		21	Soil erosion
		22	Genetic diversity
	Benefits	23	High Nature Value farmland
		24	Renewable energy production
State/Impact	Biodiversity and habitats	25	Population trends of farmland birds
	Natural resources	26	Soil quality
		27.1	Water quality - Nitrate pollution
		27.2	Water quality - Pesticide pollution
	Landscape	28	Landscape - state and diversity

An important ‘institution’ of cooperation in Europe is the *Working Group* ***Agriculture and Environment***

Last meeting in Luxembourg

November , 30 – December, 1 2016

ITALY: one delegate attends the meeting - among the members a person who is representative of Istat, Mipaaf, Ispra, Crea is included

MiPAAF	*Ministry of Agriculture Food and Forestry Policy*
CREA	*Council for Agricultural Research and Economics*
ISPRA	*Institute for Environmental Protection and Research*
ISTAT	*Italian National Institute of Statistics*

Gross Nutrient Balance GNB

Eurostat has difficulty in collecting data for several countries.
the GNB is a complex calculation, In Italy connected to **Istat data on fertilizers** and there is no regulation-

Pesticides

For distribution data: “progress” in publishing data by Eurostat and in the definition of a new procedure for the confidentiality
For data on use: first Eurostat collection (December 2016 - collected 5 years). Necessary reflection on the methodology to standardize the collection in different countries

Eurostat requirements and charge

- Eurostat will prepare a detailed report describing the pesticides use data collected during the first 5-year survey period.
- Eurostat will provide a draft Confidentiality Charter to the Working Group by end of June 2017.
- Eurostat will continue work on releasing less aggregated national data (at the level of categories of products) as well as EU aggregates (at the level of major groups and categories of products). In both cases, confidentiality rules applied at national level will be respected.
- Countries should provide their links to where pesticide data are released to the public to Eurostat.

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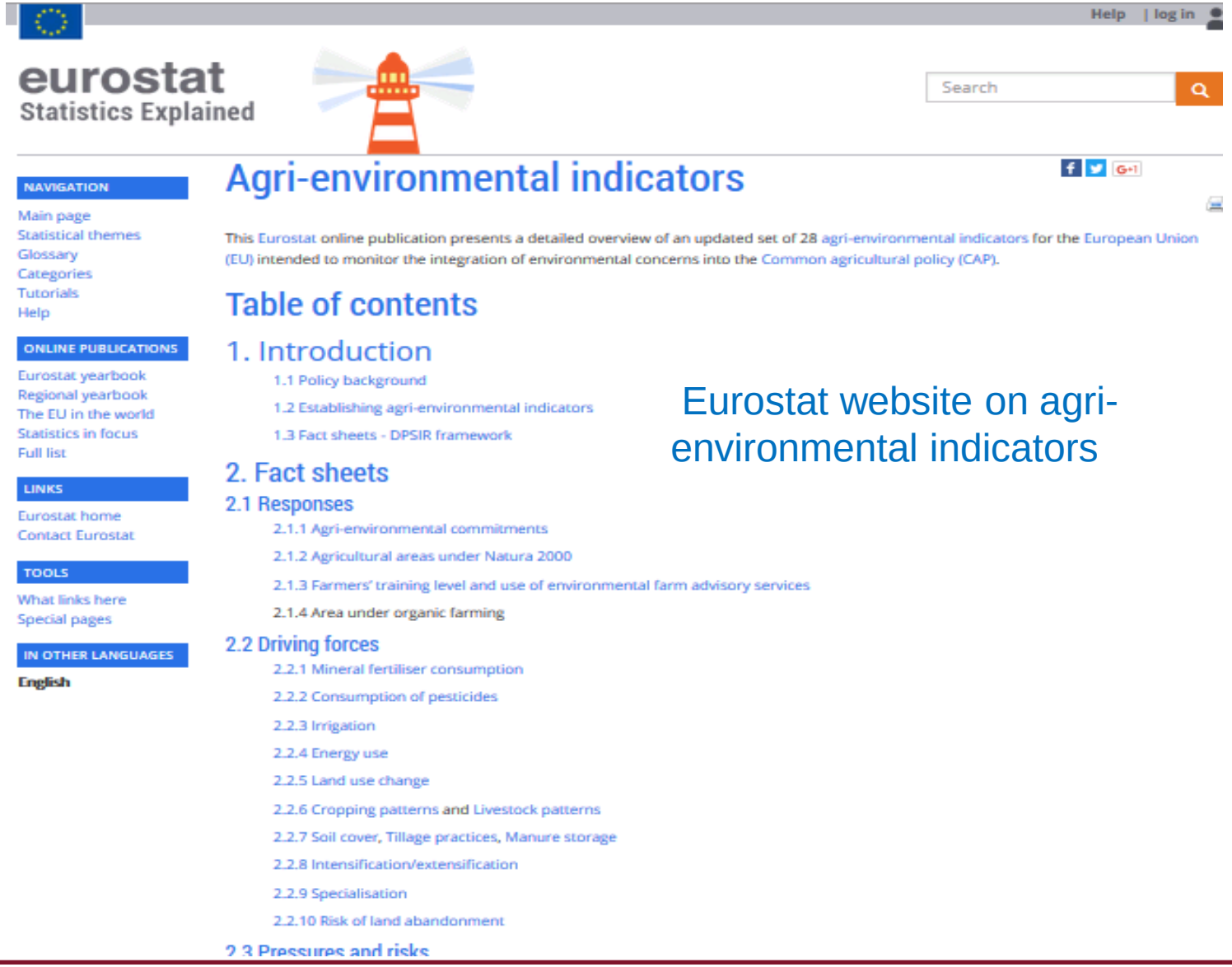
NEXT STEP on Agri-Environmental indicators

- **Eurostat requires the confirmation of all 28 indicators and their actual need.**
- Availability and priorities of agri-environmental indicators must be clearly identified in each country.
- Some agri-environmental indicators could be rethought.
- There is a need to focus on improvements of methodologies, important for further development of several indicators.
- Eurostat said that Member States will be consulted on the development of possible new regulations (… **on fertilizers**, GNB) to define a new legal basis in the coming years.
- About the frequency of data collection and the level of territorial data there will be attention.



Eurostat website on agri-environmental indicators

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2013 Edition of the OECD Environmental Database : *Data for Italy*

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Country	Italy															
Time	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2
Environmental indicator																
agricultural land																
Pesticides	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Pesticide sales in agriculture [TOTAL], Tonnes of active ingredients	78 267	76 467	84 796	84 526	82 048	79 831	76 346	94 711	86 705	84 292	85 073	81 450	80 959	80 663	74 172	
Insecticide sales, Tonnes of active ingredients	10 707	10 271	11 934	11 985	12 066	12 135	11 941	11 898	12 814	11 750	11 407	10 947	10 562	8 491	7 885	
Fungicide sales, Tonnes of active ingredients	46 163	43 465	52 637	53 605	52 865	52 377	48 523	63 196	54 427	52 894	53 804	50 749	50 037	51 111	46 810	
Herbicide sales, Tonnes of active ingredients	9 551	10 393	10 536	10 665	9 741	9 506	10 063	11 827	11 587	8 947	9 206	8 924	9 172	8 423	7 966	
Other pesticides sales, Tonnes of active ingredients	11 846	12 338	9 691	8 271	7 376	5 812	5 819	7 788	7 877	10 700	10 656	10 831	11 187	12 637	11 510	
Energy consumption	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Direct on-farm energy consumption, 000 tonnes oil equivalent	3 022	3 048	2 960	2 961	2 896	3 014	3 100	3 066	3 111	3 077	3 128	3 154	3 025	2 939	3 061	

Si può accedere al data-base completo ma l'accesso è anche organizzato per temi:
Agricultural production, Pesticides, Water quality, Agricultural land use, Energy consumption, Ammonia, Organic farming, Biofuels, Greenhouse gas ,Transgenic crops ,Soil erosion, Methyl Bromide, Nutrients, Water resources, Biodiversity

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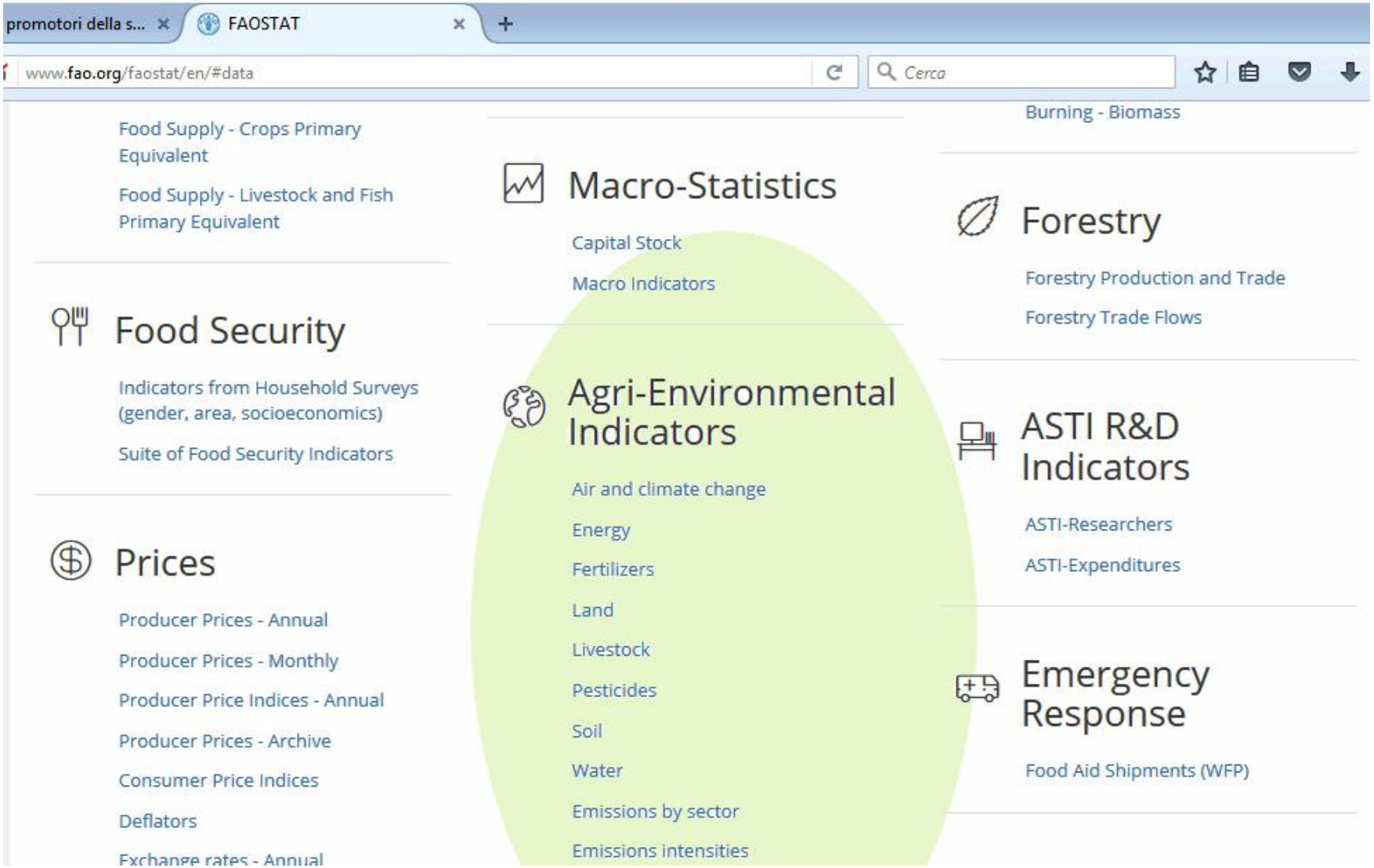
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www.fao.org/faostat/en/#data
Cerca
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Food Supply - Livestock and Fish Primary Equivalent
Food Security
Indicators from Household Surveys (gender, area, socioeconomics)
Suite of Food Security Indicators
Prices
Producer Prices - Annual
Producer Prices - Monthly
Producer Price Indices - Annual
Producer Prices - Archive
Consumer Price Indices
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Macro Indicators
Agri-Environmental Indicators
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Fertilizers
Land
Livestock
Pesticides
Soil
Water
Emissions by sector
Emissions intensities
Burning - Biomass
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Forestry Production and Trade
Forestry Trade Flows
ASTI R&D Indicators
ASTI-Researchers
ASTI-Expenditures
Emergency Response
Food Aid Shipments (WFP)

ITALIAN CONTEXT

- In Italy, the current objective is to have a good knowledge about the implementation of the indicators.

The 28 indicators are the **starting point** of the work in Istat.

ISTAT - DCAT
Directorate for environmental and territorial statistics

Project on environmental indicators

Necessary step:

we must identify the 28 indicators, pointing out the limitations in Italy

- The current state of the art in Italy

Final Goal

- Creation of a System

The state of arts

In Italy at least four principal Institutions provide data and information for the processing Agro-Environmental indicators

- MiPAAF *Ministry of Agriculture Food and Forestry Policy*
- CREA *Council for Agricultural Research and Economics*
- ISPRA *Institute for Environmental Protection and Research*
- **ISTAT** ***Italian National Institute of Statistics***

Agro-Environmental indicators require a collaboration among different actors and

Istat has the responsibility of the coordination and organization.

Workshop
February 13th, *2017*

Istat

Final Goal: a System

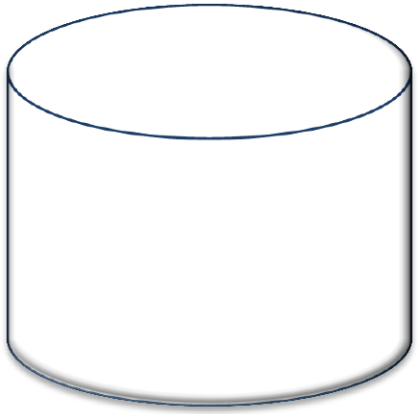
Why?

An informative system is useful to facilitate the collections and the management of the indicators and information.

It facilitates to share the work:

We wish to project and realize a multi-source system for multi-user access, where each user (different organizations) is responsible for the updating of some indicators.

First step: To Create a DB with available data



Three main situations on data

a) data are available and indicators are immediately usable;

b) the information ate potentially available, but they are not immediately accessible;
c) the availability of data depends on new investment of resources.

- Pesticides (NAP) and Fertilizers

- Fss - Farm structure survey
- Fadn - Farm Accountancy Data Network (incomes and expenditures of farms)

THANK YOU
FOR YOUR ATTENTION