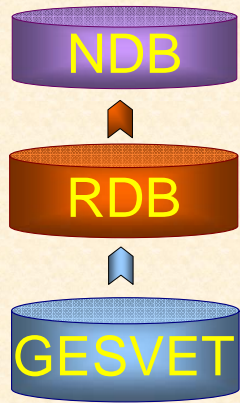




# Practical application of database in veterinary medicine: a tool for the slaughterhouses



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Italian National Data Bank of individual bovine registers, livestock and related industries.

Computerized regional register of animal farms and related industries, the RDB stores data about animals (individual code, sex, age, breed, mother's code, place of origin, etc) and their movements (entry date in a farm, exit date, destination, provenance, etc.), slaughtering data, personal data of the operators involved (animal keepers, owners, slaughterers, transporters, etc.) and information about holdings.

Computerized procedure organized in different modules for the management of the activities of Veterinary Services as proceedings, live animals transport, outbreaks, inspections & surveillance and activity at the slaughterhouse.



## ABSTRACT

Data collection and exchange along all the steps of the food production chain are essential to guarantee the traceability required by European Legislation. In this context the slaughterhouse plays a key role as an epidemiological observatory. The Veneto Region Information System (RIS) is an effective and structured communication network based on a Regional Data Bank (RDB) of livestock and related industries. It integrates different procedures which include GESVET, a computerized program consisting of *modules* to record and manage all the activities performed by the Veterinary Services. In particular one of its utilities is represented by the *Slaughterhouses module* which allows the recording both of all the batches slaughtered, and the lesions detected during the *post mortem* inspection, and the printing of related documents. All the data is then available and useful to fulfil the food chain information debts required by EU Regulations.

Through GESVET's **Slaughterhouses module** the Official Veterinarians at the slaughterhouse can ...



1. Verify the origin of individual bovine animals and access information about the health status of the slaughtered animals' holdings of origin by consulting RDB archives from which these data can be extracted



2. Record data in two different forms:  
 → **Synthetic**: identification of animal batches slaughtered over a period of time  
 → **Analytical**: information on each single animal slaughtered every day



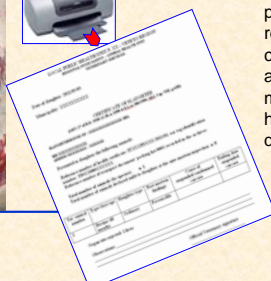
3. Register data of batch documents:  
 → number and date of health certificate  
 → number of transport documents



4. Record results of *ante-mortem* inspection:  
 → n° of animals visited  
 → n° of animals declared unfit for human consumption and reasons



5. Record results of *post-mortem* inspection:  
 → n° of slaughtered animals  
 → slaughtering type (ordinary or emergency)  
 → n° of carcasses and organs declared unfit for human consumption and reasons  
 → lesions detected  
 → n° of samples collected, analysis performed and aetiological agent found



6. Edit and automatically print the documents required by law as the certificate of slaughter and the sampling minutes (if samples have been collected during the slaughtering).

## BACKGROUND & CONTEXT

Within the European Common Market, to ensure free trade of animals and products, each Member State is called to create a computerized database that records all holdings on its territory and the identity and movements of the animals, for the purpose of rapid and accurate tracing of animal trades for health reasons (see Reg. EC 1760/2000). In Italy, in 1994, the Veneto Region (one of the country's main beef-producing regions) started the development of its information system (RIS), with the aim of recording regional cattle production. RDB is the core of the RIS and since 2003 it has been communicating via Web Services technology with NDB, thus ensuring constant exchange of information between the two. The RIS integrates different procedures that include GESVET, a specific program organized in several *modules*, to register and manage all the activities conducted in the field by Official Veterinarians (OV).

## TECHNICAL CHARACTERISTICS

All of the above systems are based on Internet technologies (HTTP, SOAP, XML, Web Services) with a strong logic of integration (common master data). Access is controlled with user authentication. The internet application is implemented in Delphi 2010 (object-oriented language) and, like the RDB, it is hosted in the servers of the Veneto Region. Apache 2.2 (Apache © Software Foundation) is the Web Server used to manage client requests and enables the execution of web services.



Figure 1 - Example of GESVET Slaughterhouse Module's screen shots

## DISCUSSION

Since 2007, the development and modulation of GESVET has allowed the regional OV to record all the lesions detected during inspection activities in the *Slaughterhouses Module*. It is therefore an important tool for the slaughterhouse as it serves as an "epidemiological observatory" (see flowchart). Moreover, through this procedure, all the data loaded are available to the OV competent for the area where the holdings of origin of slaughtered animals are located, contributing in this way to greater food chain information (in particular "inspection reports").

## CONCLUSIONS

In order to guarantee the traceability "from farm to fork" provided by EU Legislation (Reg. EC 178/2002), interoperability and data flow between databases becomes of primary importance. Communications protocols is an example of data integration between RDB and GESVET that store data concerning livestock food chain information. Since all the data loaded are available in real time, the use of these computerized procedures facilitates the exchange of information among Official Veterinarians working both in the field of food safety and animal health. The Veneto RIS is a concrete example of how a network system based on web-oriented procedures could become a basic tool for Official Veterinarians.