

A computerized consent management tool for breeders: why, how?

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Access to livestock data has become a major issue in recent years, both for the breeders and for the organizations providing them with services. Breeder's control over these accesses requires his prior consent towards the organization wishing to use them.

Professional organization "France Génétique Elevage" (FGE) manages a database gathering zootechnical data collected for the purposes of genetic improvement. In order to perpetuate recording of these data and allow their better valorization, this organization must consolidate breeders' confidence in particular on the respect of their consent.

Regulatory texts concerning access to livestock data are numerous and fall into different legal fields, which makes concrete rules complex to be defined and implemented: whether or not the consent of the farmer is mandatory depends on data type, use made of data and person who wants to use it. They also evolve over time and a new 2015 text on genetic information systems brings new obligations whose impact is yet to be measured.

At the same time, relationships between organizations involved in genetic improvement are evolving in an increasingly competitive context. This is why data are becoming a matter of differentiation and their access an increasingly sensitive issue between organizations but also with breeders.

Since 2009, FGE has been providing a data exchange service between its database and breeders or, more recently, a body designated by them. This service has recently been enriched with a consents management tool with 2 features:

- Registration procedures adapted to various organizations in the field,
- Consultation of all consents granted (in order to be able to terminate them if necessary).

This tool has several innovative features to address consents management needs:

- Choice of web service with a standardized interface that allows a smooth use by all information systems (breeder, company, mutualized ...),

Abstract



- Functional wealth with a detailed description that not only contains the "basic" consent data (holder's exploitation, consent beneficiary) but also clarifies its scope by indicating: the species concerned, Access to data is granted and, where appropriate, the breed and the family of data (eg dairy control, animal insemination ...).

Presentation outlines legal context, challenges and features of this new consent management tool and refers to its possible positioning to address wider use than in the field of genetic data alone.

Keywords: data management, access, consent, livestock

Introduction

In France, genetic improvement of ruminants has involved many (around 200) professional and public organizations for several decades. Professional bodies are organized by activity (Performance recording organizations, Insemination agencies, Identification and pedigree recorders, Breeding societies, Technical institute, Meat interbranch organization, Computer regional centers), and mostly by geographical area. Public stakeholders are in charge of regulation (Ministry of agriculture) and of official genetic evaluation (National Agronomic Research Institute, INRA). Since 2006, most of them are clustered in an interbranch organization: "France Génétique Elevage" (FGE).

To optimize efficiency of the dispositive, organizations have built a collective information system which has been legally entrusted to France Génétique Elevage in October 2016 by extension of an Interbranch agreement "on recording and management of National Genetic Information System data". Organized on regional databases exchanging with a national one, this system manages data about Breeders (holding identification number, name and address) and animals: identity and movements, reproductive events and certified filiations, milk and meat performances, morphological scores and qualifications, genetic values and public insemination males' data.

Initially collected and used on genetic improvement purpose, these data have been more and more used for technical advice and, on this scope, have been completed with numerous technical information.

Consequently, FGE is responsible of a huge database containing many data completely concerned by the access issue which has become very pregnant in last years particularly with the development of concurrency between different organizations sending advice.

Data access is subject to complex and evolving regulations. To fulfill its responsibilities, FGE must analyze its obligations about management of breeders' consent and propose an effective solution for its collection and centralized management.

Regulatory context of breeders' consent

Regulation on data access at the conception of the system

National Genetic Information System (SNIG) was built at the end of the nineties to improve reliability of data used in genetic evaluation. At that time, the issue was technical more than regulatory, the need was to consolidate collection with two types of checking:

- Make sure that organization which collected data on the field is agreed for this kind of data. Indeed, agreement supposes engagement of the organization to respect a national collect protocol.



- Apply consistency computerized management rules at three levels: database integrity, zootechnical likelihood and regulatory conformity.

Consequently, write access to the database has been completely locked by allowing such access exclusively towards collective updating modules guaranteeing the respect of above rules.

Regulation about data was very simple at that period. The main regulatory framework was the 1978 Law on "Informatics and Freedom" (still effective nowadays) but the only concrete interpretation at that time was mandatory declaration of every database constituting the system. These declarations were made conscientiously.

Concerning genetic data, a decree published in 1973 said: "*Have access to all data, for their genetic improvement missions: INRA, Livestock Institute, Breeding Societies, Selection Agencies*". This list covered all national organizations.

But above all, system's stakeholders, both public and professional did not feel particularly concerned. Indeed, their activity was by law (Livestock Act of 1966) organized in functional and geographic monopolistic areas so that there could not be any competition to sell service to breeders. So that data access didn't interest anyone.

On the contrary the collective aim was to facilitate data valorization at the motive that using data is the best way to detect and correct errors.

Consequently, read access to the database has been left completely open from the collective computer tool's point of view: Every computer center had the responsibility of developing data access checking tools to enforce regulation and access rights decided between local organizations.

In 2006, "Agricultural Guidance Act" put an end to the geographical monopoly zones for animal insemination, opening concurrency among artificial insemination centers: recruiting new breeders becomes crucial!

Evolution of regulation in the early 2000

Among the texts implementing this law, a decree on genetic information systems was published on 12 September 2007. This decree contains complex specifications defining several categories of data and, for each, which organizations have access to them and for what uses.

In a context of local organizations restructuration, and as data became a tool for prospecting new clients, the rules specified in the decree were gradually implemented. Interpretation of the specifications proved to be difficult on this occasion, since its redaction was sometimes ambiguous. Another difficulty revealed when it came to implementing the rules directly in computer tools: locking read access a posteriori on an extremely rich application patrimony has proved impossible because requiring to modify all the programs.

These difficulties have had consequences on the perception of the system, by the stakeholders first and then by the breeders. Data security in the collective system has been questioned, leading to a centrifugal movement of privatization of data in business systems or complementary databases.

In 2014, a new decree opened also animal performance recording to competition: new organizations, which had not participated to collective information system building, arrived on the market. At the same time, breeders are massively equipping themselves



Actual regulation: obligation of breeders' consent management

with new equipment collecting data (milking robots, sensors, etc.) and also providing technical consulting tools: manufacturers of such equipment become competitors for MRO.

Sensitized to the question of data access by the evolution of general environment (development of digital economy, prospect of a new European regulation on processing of personal data...) and by those of agricultural development dispositive (see above), Ministry of Agriculture issued a new decree on genetic information systems in April 2015.

Indeed, they made the analysis that zootechnical data, although characterizing animals, meet the definition of a personal data since they can be attached to a holding and its holder. This same analysis leads the organizations involved in animal data's management to check impact on the collective scheme of the European Regulation 2016-079, which will apply in May 2018.

In consequence, the decree which defines the data to be managed in the collective information system mostly refers to the Computer and Freedom Act of 1978 and requires breeder's consent for almost all access and use of data collected on their animals. Local organizations most of the time anticipated this obligation by collecting these consents in their membership contracts but without recording them in the collective information system.

Latest regulatory development, following the decree, is the extension of the interbranch agreement on recording and management of SNIG data (October 2016), giving it a legal scope. Through this agreement, France Génétique Elevage takes responsibility for the management of the collective system and undertakes to ensure compliance with the decree, in particular obligation to collect and respect breeders' consent.

This commitment assumes the visibility of actually received consents by national team of interbranch: recording into the system becomes mandatory.

French collective computerized consent management tool

Generalization of consent's collect and recording into collective system represents a new and heavy task for system's stakeholders. They consider it a new constraint that should not entail investment on their part nor complicate their profession. Interbranch France Génétique Elevage had therefore obligation to provide a tool adapted to the different field operating procedures or computer organizations (private or shared systems).

Terms of reference for the collective consent management tool

To provide this flexibility, the tool must allow organizations to register their own consents. But this possibility makes possible drift by the improper recording of consents that have not actually been collected from the breeder. To guard against this, breeders must be given permanent visibility on consents that have been registered on their behalf.

Thus, the tool must offer both functions of recording and consultation.

Consents are defined with numerous parameters allowing breeders to specify finely the scope of the authorization they grant. These parameters are: data type (see figure), breed of the animals concerned, duration of consent (start and end dates) and use that can be made of the data.

Consent recording operation is accessible to all organizations already providing data to the system (empowered organizations) and also breeders. It allows organizations to record consents they're granted and consent to a third-party organization, to breeders to record consents they grant and to both of them, to close consents.

Consents and regulatory access rights consultation allows organizations to list farms from which they can access data and breeders to list organizations having access to their data.

Functional characteristics

The tool must allow automatic recording of consents that can be deducted from contracts: it must be possible to add corresponding step the overall processing of contracts recording. For this purpose, the tool contains batch database updating module.

It must also facilitate recording by all external information systems (breeder software, enterprise system ...). This is why the module has been encapsulated in a web service easily integrated into a client application.

Technical characteristics

Consultation of my access consents

Holding number : FR XXXXXXXX					Close
Beneficiary Organization	Start Date	Data Type	Breeds	For which use	<input checked="" type="checkbox"/>
Fournisseur	05/01/16	Milk Perf.	All	Advice service	<input type="checkbox"/> <input type="checkbox"/>
Sté Truc	03/02/16	All	Holstein	Service Truc	<input type="checkbox"/>
My MRO	12/04/96	All	All	Règl.taire + Conseil	<input type="checkbox"/>

Recording an access consent

Holding number : FR XXXXXXXX	
Beneficiary Organization *	Data Type *
<input type="text"/>	<input type="text"/>
Breeds	Use *
<input type="text"/>	<input type="checkbox"/> All <input type="checkbox"/> Insemination <input type="checkbox"/> Pedigree <input type="checkbox"/> Milk Performance <input type="checkbox"/> Meat Performance <input type="checkbox"/> Embryo Transfer <input type="checkbox"/> Morphology
Consent Date End	<input type="text"/>
Confirm consent	

* : données obligatoires

Figure 1. Mock-up of screen using « Consent management » Web Service



Conclusions

With the adoption of new European zootechnical regulation, interbranch wondered about durability of the consents' management tool in the new dispositive that will be built. The main change is the assignment of genetic improvement responsibility to breeding societies but the regulation does not deal with information systems. Without prejudging reorganizations, it can be affirmed that data recording and management will remain necessary. And since the analysis leading to the personal status of animal data will not be called into question, obligation to consents' collect can only be strengthened in the future.

Thus, the need for a recording modern, adaptive and efficient tool will remain.

List of references

Balvay B., 2016 Echanges de Données avec les Eleveurs (EDEL Bovin);
http://idele.fr/no_cache/recherche/publication/idelesolr/recommends/guide-utilisateurs-web-service-edel-bovin-v5-2.html

EU Parliament and Council. 2016. Regulation 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC. Official Journal of the European Union 4.5.2016 L 119/1

France Génétique Elevage. 2016. Interbranch agreement on modalities of recording and management data in the National Genetic Information Systems

French Ministry of Agriculture. 2007. Decree relative to National Genetic Information System. French Republic Official Journal 21.9.2007 Text 19/109

French Ministry of Agriculture. 2015. Decree relative to National Genetic Information System. French Republic Official Journal 9.4.2015 Text 39/112

French Ministry of Agriculture. 2016. Decree extending the Interbranch agreement on modalities of recording and management data in the National Genetic Information Systems. French Republic Official Journal 5.11.2016 Text 34/127