

Exchange of environmental information: the next challenge?

ACTA

Informatique

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GI-E-EA: a project supported by the French ministry of Agriculture

- Co-ordination: ACTA Informatique
- Agricultural Technical Institutes: ACTA - Institut de l'Élevage – CTIFL – ARVALIS-Institut du Végétal
- Normalisation body : Agro EDI Europe (AEE)
- Research organisation: CEMAGREF
- Association of ag. software editors: ANELA

Results

- Inventory of most relevant and shared "environment" information that enable the environmental "traceability"
- Creation of data models in three areas: inputs, water and energy
- Development of prototypes showing the interest of "environment" data exchange
- Demonstration of the interest of "environment" information and of electronic exchange of "environment" information between farmers and their partners
- Estimation of volume of exchanges of these "environment" information

Methods

- Compilation and review of current regulations on cross compliance and description of information required by these regulations
- Compilation of information used / produced by tools dedicated to traceability, decision support, simulation and diagnosis, etc. and identification of "environment" information used by these tools
- Working groups successfully organised by AEE

Definitions

- **"Environment" information**

all information describing how the environment impacts the agricultural productions and / or describing how farming operations impacts the environment

- **"Agri-environmental traceability"**

all "environment" information (plants; animals; equipments; etc.) to evaluate and / or pilot production systems taking into account their environmental impacts

"Environment" information already in or not in the FMIS

- Pb: "Environment" information is rarely input by farmers when the FMIS software allows capturing it, and, even worse, the FMIS software available on the market does not yet take into account all this information
- Examples:
 - crop protection models (fruits and vegetables)
 - irrigation (sugarbeet)
- Solutions: use of e-Daplos* & AgroOBS* messages developed by AEE

** e-DAPLOS & AgroObs are UN/CEFACT messages*

Examples (1)

- **Fruits and vegetables (CTIFL)**

- Interface between Inoki, a set of models and DAPLOS* & AgroOBS*

** e-DAPLOS & AgroObs are UN/CEFACT messages*

- **Large scale crops (ARVALIS-Institut du végétal)**

- Observation of cultural practices
- Crop Health observatory

- **Cattle breeding (Institut de l'Élevage)**

Dexel is a software program that has been widely used to assess the quantities of effluents for French farms and to build a diagnosis

- Interface Dexel / FMIS -> Impossible
- Interface Dexel / fertilisation software tools

Examples (2)

- **"too complex" software programs**
 - Dia'terre (ADEME) to compute an energy balance and to evaluate the production of greenhouse gases at farm level
 - Diaphyt (ACTA) to evaluate practices of farmers in crop protection

-> *No interface possible with FMIS*
- **Solutions?**
 - trying to raise awareness of designers of such programs about FMIS, so they use as much as possible data that may have already been input in the FMIS
 - and inversely, to share with developers and distributors of FMIS, the information needs of software such as Diaphyt or Dia'terre

Need for reference tables: accepted by all stakeholders

- AEE and its partners have done a great job to prepare lists of crops, insects, diseases, weeds, active ingredient, chemicals as well as to compile lists of soil types...
- Still to be done (e.g.)
 - nomenclature of manure types, with all effluent mixtures
 - list of equipment

Need for management tools and reference data models

- APCA, Cemagref and AEE are using different software engineering workshop (SEW) to manage their data models
 - > *Cemagref is working on interoperability between SEW*

What traffic for the exchanges of "environment" information?

- In 2006, within the Resagri project, AEE has obtained very interesting results:
 - mapping information exchanges "around farms" in conformity with UN/CEFACT rules, and
 - testing an eb-XML platform that is now used by a number of agricultural co-operatives.
- Farmers exchange information with technical and economical partners-stakeholders when it is mandatory
- Traceability is seen as a cost... but exchanging "environment" information may be profitable e.g. because of less chemicals / irrigation water used

Need for normalisation / local standards

- Local standards
 - meet our needs
 - cost less working time and less meetings than the development of an internationally recognized norms
- But the development of international norms has real advantages
 - methodology perfectly developed
 - discussion at international level for further work
 - security of investments made

Conclusion (1)

Exchanges of "environment" information do not exist today but can quickly become significant but this requires a lot of co-operation between stakeholders

- the development of interfaces and therefore communication messages by teams like AEE (FR) or Agroconnect (NL) between FMIS and all the tools for modeling, simulation, decision support that have been developed over the years 1980
- taking into account information required to run these tools for modeling, simulation, decision support in the FMIS
- taking into account information already present in the FMIS in models, simulation and decision support tools... before asking users to enter new information, any additional input being an additional obstacle in the use of this kind of tools

Conclusion (2)

We see that the development of necessary exchange of "environment" information requires a lot of cooperation and consultation, but the way to an Agriculture that has to become both more productive and more environmentally friendly, using more efficiently inputs (including water), definitely requires progresses in this domain of exchange of "environment" information...
...The AgriXchange platform is necessary!