

Valorisation of AI data on farm by AI technicians: French experiences

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Outlook

- Introduction
- Valorisation needs equipments
- Towards generalisation
- Anything in AI technician's laptop
- To anticipate recording before AI service
- Collective valorisations
- Conclusions



Introduction

- AI is organised in France as **a service to farmers**
- Collective organisation: co-operatives and unions of co-operatives
- Progeny test programmes for **16 breeds** are carried out by groups of co-operatives (dairy-beef), to provide AI centres with semen doses of proven bulls.
- Relatively small herds (**40 cows**)



Services provided by AI centres

Large range of services according to company's strategy

Semen distribution and sale, prevision of matting

Oestrus synchronisation, pregnancy diagnosis

Infertility monitoring and improving programmes

Reproduction programs

E.T. ...



Decision to equip AI technician with laptops

Technical reasons

- To record accurate AI data
- To reduce processing delay
- To develop services to farmers (fertility)

Management / commercial

- To improve administrative management at client level (billing, booking,...)
- To get a better follow up of clients and to propose services.



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5

Valorisation of AI data implies electronic equipment of AI technicians (1)

- First attempts: mid 80's
- First large developments: beginning 90's with "commercial" laptops
- Remarks on French National data processing systems:
 - Development of the "Minitel" ancestor of the Internet.
 - Implementation of unified databases and data processing systems (SIG +BDNI)



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6

Valorisation of AI data implies electronic equipment of AI technicians (2)

• Two main strategies have been developed according to AI companies:

1. A large database and software to take in charge any potential task (administrative, technique, service) is included in laptops technicians:

Maximum responsibility to AI technician

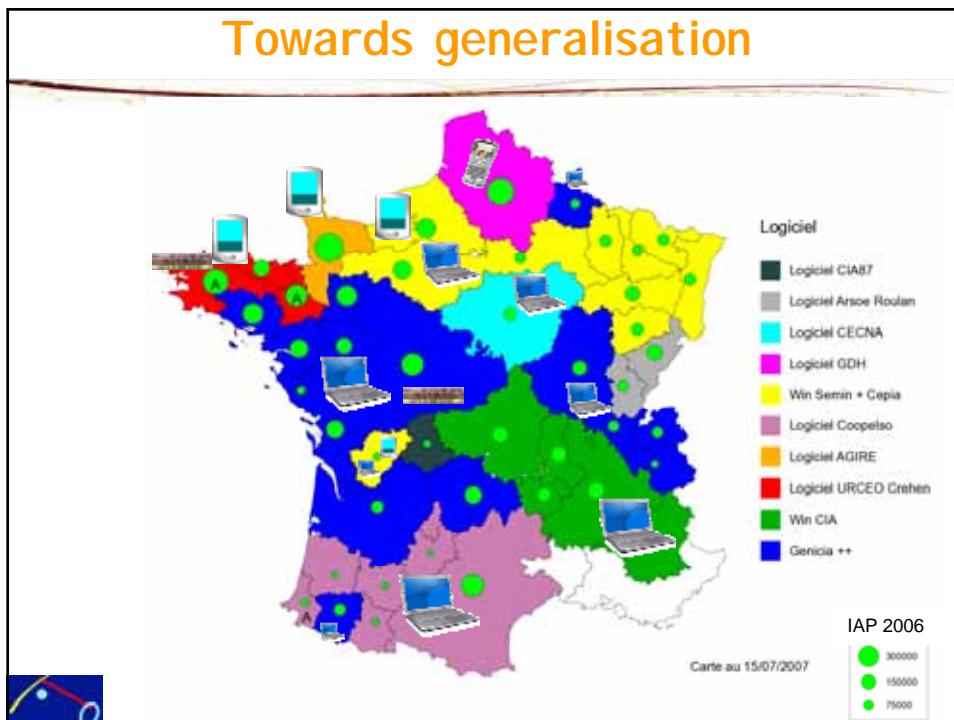
2. The task of recording AI data or billing is prepared at company's level and transmitted to AI technicians that finish recording after service on farm:

To secure AI data recording

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7

Towards generalisation



G++ bottom up (1)

➤ Organisation

Data base of AI technicians **contains all the data:**

Client ID, ID Females bred or not by AI, reproduction history, ID AI bulls+Index, semen stocks, prevision of matings, accounts, other reproduction events

for any herds of clients (incl DIY farmers) on activity area

If technicians are organised by group each of them has the same data set.

Records of an activity period (day) are sent by a special line from technician home to a central data base that process records and then transmit new data to any technician to refresh their database.

➤ On farm

Procedures to chose females to inseminate and bulls by scrolling

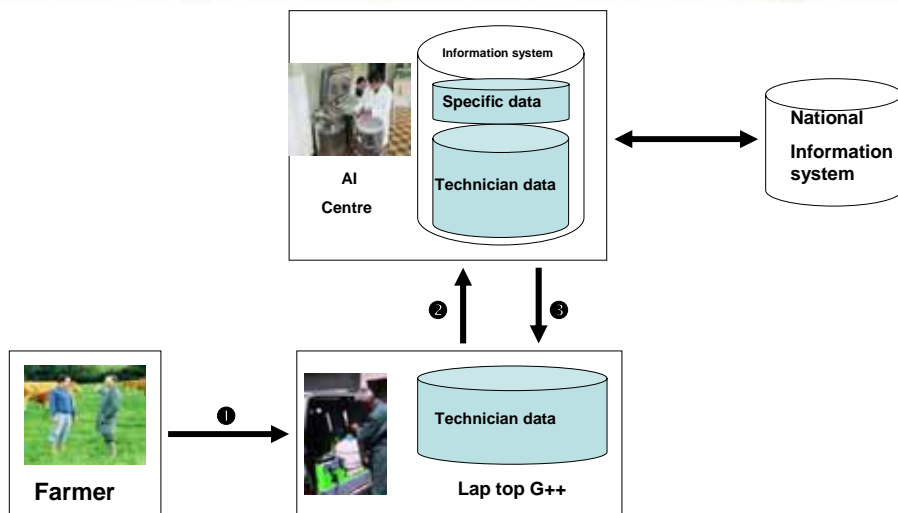
AI data recording by validation on items

Billing and booking

Printing technical forms and invoices



G++ bottom up scheme



G++ bottom up (2)

➤ Functions:

AI records are validated against technician database and central data base
Printing technical documents for fertility issues: alerts, (abnormal C- AI intervals,% cow with 3 AI and more), analysing reproduction records,reports and propositions.

Semen storage movements for traceability

➤ OTHER

Reproduction recorded data available for farmers

Records on Oestrus synchronisation pregnancy diagnoses proceeded like AI

Sales of semen units, feed stuffs etc possible



G++ bottom up (3)

➤ INTEGRATION in data processing systems

AI company :

Company has a central database

get any records mostly overnight

easy process of technical and booking data

transfer to database's technicians specific company's data:
prices, bulls & semen stocks, accounting situation...

NATIONAL DATA PROCESSING SYSTEM

Transmit to AI centres ID, female movements, calving +other
performance data, GE Bulls+Cows

Get AI records that then will validated

Remark :new rules for data access since 1rst of January 2008



URCEO bottom down

➤ Organisation

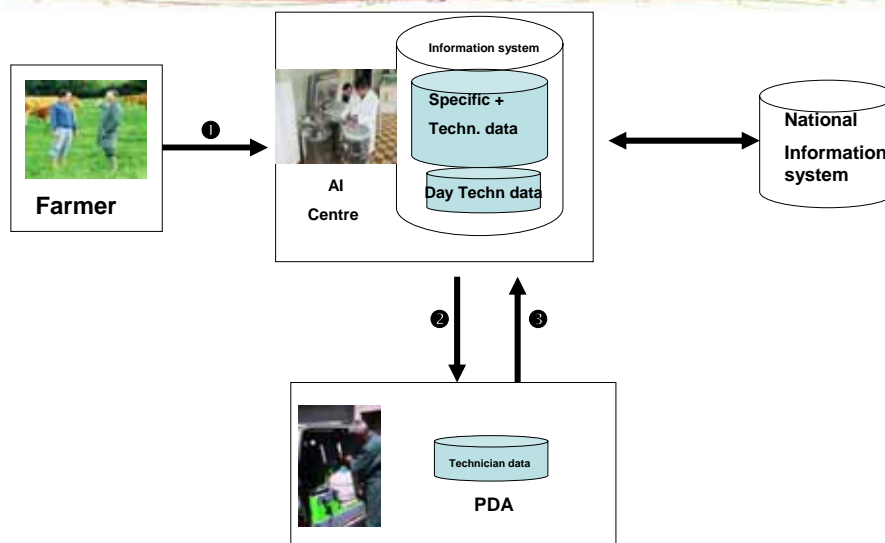
Demands for services managed by AI company (minitel internet)
Connection with database for downloading data necessary for technician's round on PDA (females, semen allocated to farmer)
PDA database technicians contains data common to any farmer: bulls, price list, etc

➤ On farm

AI data recording by validation
AIT establish invoice. Billing and booking mostly by company
Printing technician forms and invoices



Bottom down scheme



URCEO bottom down

➤ Functions:

AI records are pre-validated on PDA and against company's database

Semen storage movements for traceability

➤ Other:

AIT may sale services and semen thanks to PDA functionalities

Reproduction issues are tackled by other technicians thanks to AI data processing;



URCEO bottom down (3)

➤ INTEGRATION in data processing systems

AI company :

Company has a central database

get any records mostly overnight

easy process of technical and booking data

transfer to database's technicians specific company's data:

Process data to propose services

NATIONAL DATA PROCESSING SYSTEM

Exchanges between company's database and national data bases

ND Transmit to AI centres ID, female movements, calving

+other performance data, GE B+C

Get AI records that will then validated



Recording AI



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17



Technician's equipment



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19

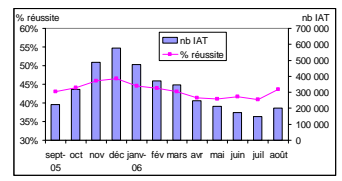
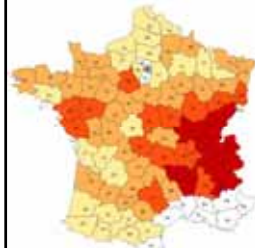
Collective Valorisations

To provide extension services
To improve parentage recording
National studies on fertility
Genetic evaluation on fertility

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Non return rates : why they differ?



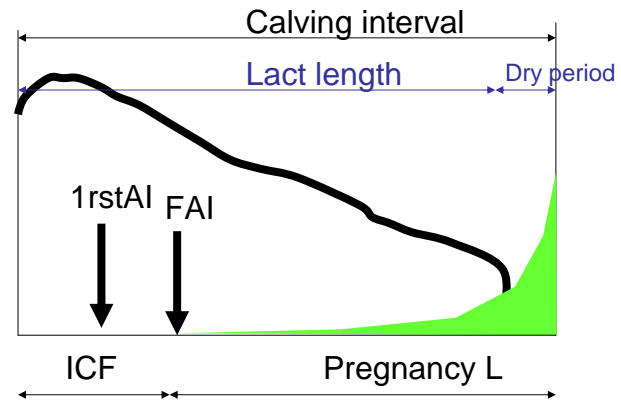
Existing differences: breed, production systems, climate reproduction management, (season linked or not), average age of herds, yield performance...

Conditions +	Conditions -
<p>Montbéliarde</p> <p>High % AI in winter</p> <p>High % AI on heifers</p> <p>Average yield level</p> <p>Few AI with Holstein bulls</p>	<p>Holstein breed</p> <p>Distributed AI over year (many AI in spring)</p> <p>Low replacement rate</p> <p>High yield level</p> <p>AI with Holstein bulls</p>
<p>Genetic make-up?</p> <p>Feeding systems ?</p>	



Genetic evaluation of fertility

Trait: AI was –wasn't successful: AI + calving data on heifers and cows.



DATA SET

40 millions AI

ID+movement+pedigree : 90 millions

Lactations : 90 millions, 350 millions records

Breed	Total animals	AI on heifers	AI on heifers
Prim'Holstein	11 128 315	9 308 126	21 189 286
Montbéliarde	1 883 919	1 602 059	3 182 955
Normande	1 729 154	1 405 035	2 925 477
Abondance	76 300	55 016	131 355
Pie Rouge	52 591	36 382	88 754
Brune	83 625	61 996	134 492
Tarentaise	32 595	21 934	48 504
Simmental	80 641	57 495	118 630

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23

Calculation GE index on fertility 2007

Animal model

Bi-variate evaluation cows / heifers fertility

Other traits taken into account

Effects taken into account:

Genetic effect +unknown parents

Permanent environment

Year x herd effect

Month day of week of AI

Year x technician

Heifer age

Interval AI - calving intra x calving rank (cows)

Calving rank before AI

Bulls breed bull x year

Inbreeding % cow and calf to be born

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Final remarks

Feb 2008 : **99 %** of AI records were registered in the national data base **7 days after the day of AI**

Generalisation of equipment due to:

- consolidation of the industry**
- traceability of semen doses**
- tool to provide better services**

Valorisation of AI data is a continuous process and a challenge in a more competitive organisation



**Thank you for your
attention...**

