EVOLUTION OF MILK RECORDING IN SHEEP OVER THE LAST 25 YEARS USING DATA OF THE BIENNIAL ENQUIRIES

JM. Astruc *

Z. Barać, F. Barillet, A. Carta, E. Gootwine, D. Kompan, FJ. Romberg, A. Tondo, E. Ugarte

* Institut de l'Elevage / French Livestock Institute - Toulouse, France

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Working Group on performance recording of sheep : brief elements of history

1988 : 1st survey presented in Oslo

1988 to 2004 : 7 “manual” surveys

2006 : on-line database.

2008 to 2012 : 3 analysis of the “on-line” surveys

2013 : overview of 25 years of surveys in Århus

1992 : guidelines on milk recording in sheep - Agreed in Austria

2004 : emendations of the guidelines (D & E methods + clarification of terms for MY) - Agreed in Tunisia)

2012 : change of the name of the WG

2014 : emendations of the guidelines (udder morphology + quality assurance for AC & AT)

Topics included in the surveys

Table 1. Basic information on population, recording methods and percentages
Table 2. Milk yield: type of lactation calculation (quantity of milk) + Milk yield: results (quantity of milk)
Table 3. Optional tests for milk composition
Table 4. Recording of non-milking traits
Table 5. Milk recording equipment used in case of machine milking
Table 6. Breeding program using artificial insemination
Table 7. Molecular information

Dairy sheep milk enquiry
On-line
Database

KEY WORDS

Milk recording

Milk recording devices

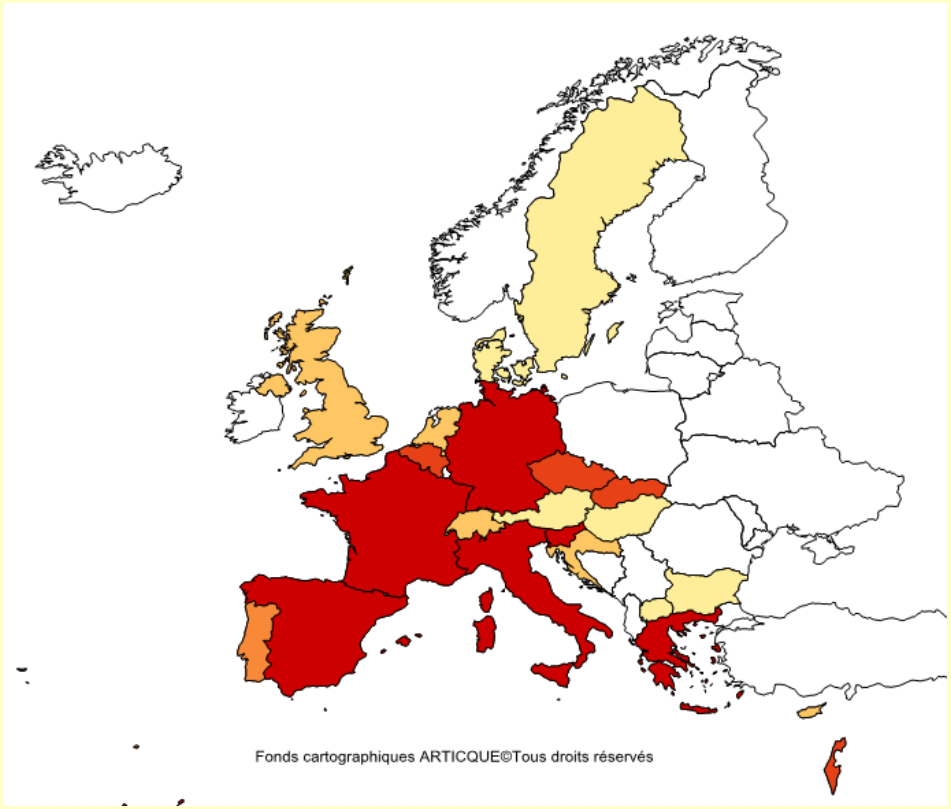
Breeding programs

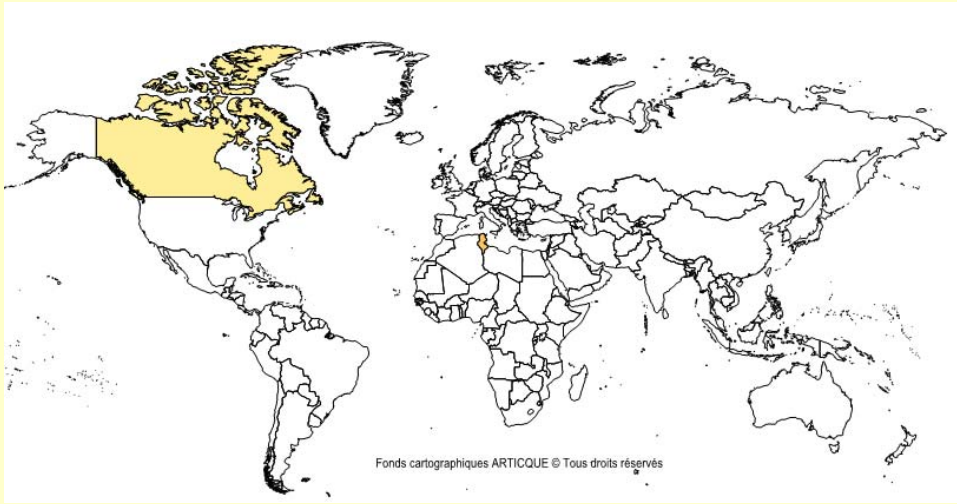
Molecular information

Non milking traits

Yearly enquiry on-line

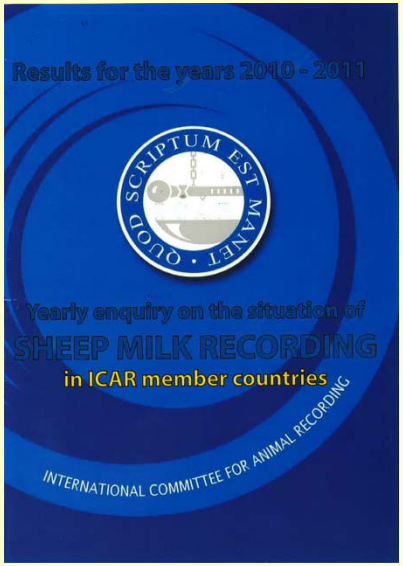
Countries having notified sheep milk recording at least once between 1988 and 2012





- Organised data and biennial report (tables and figures) available on the ICAR site

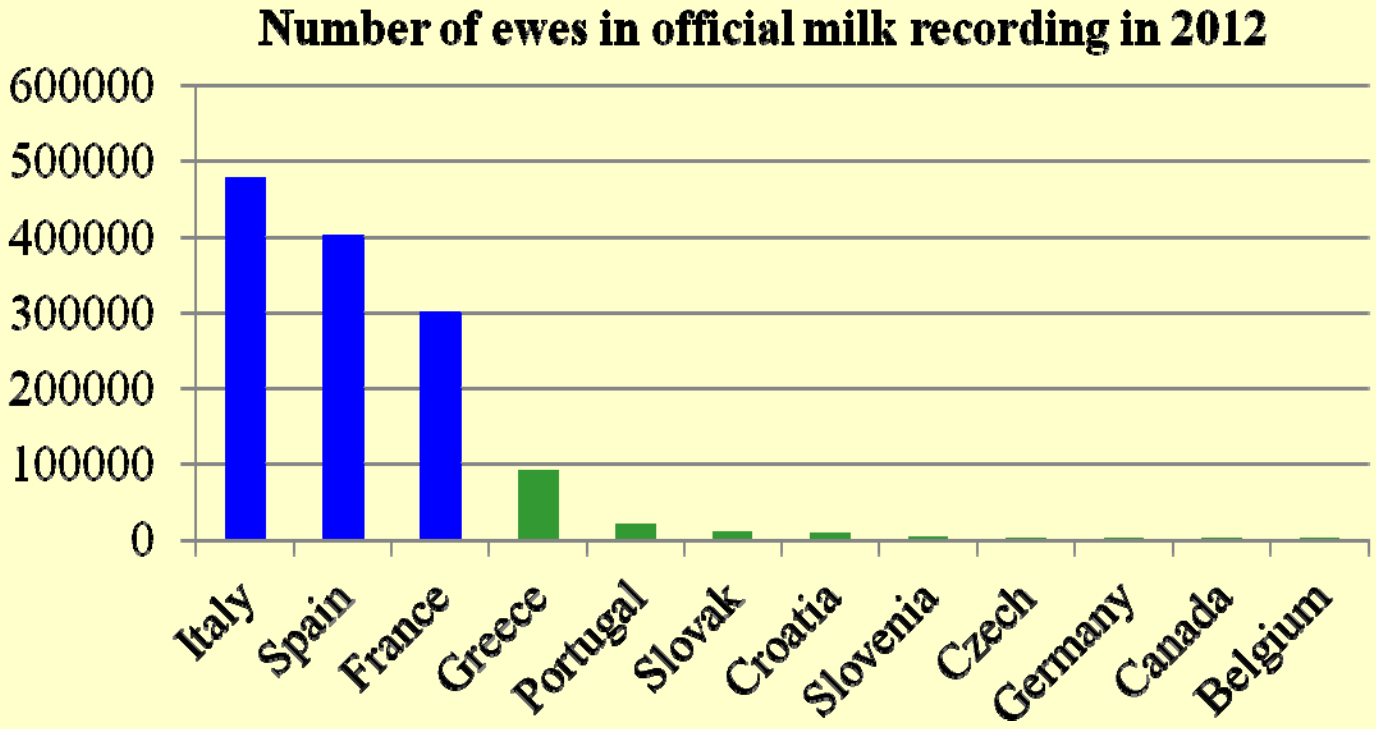
- Booklet with raw data distributed at the biennial session



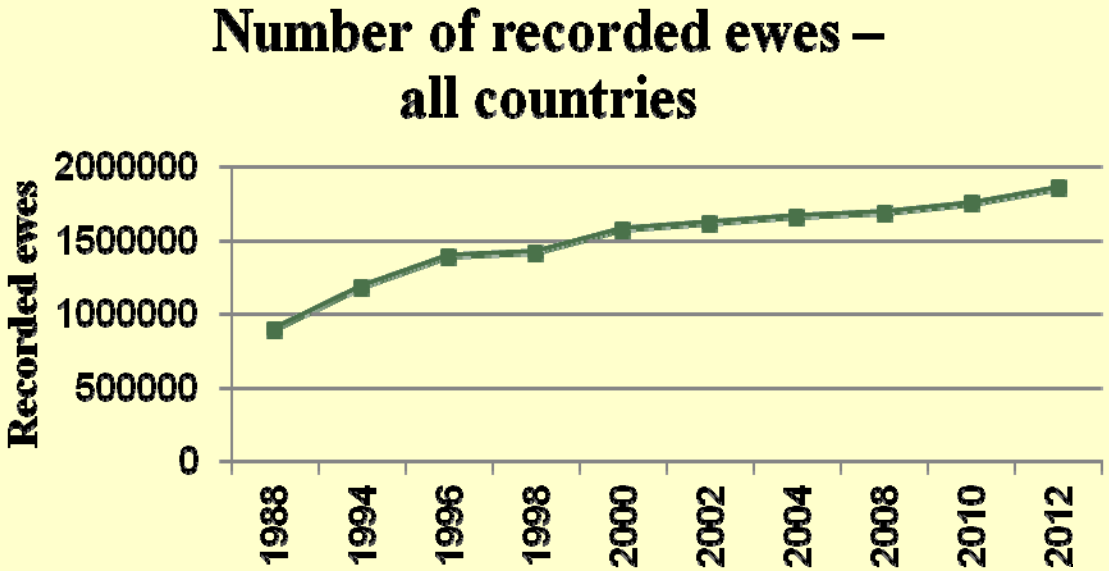
What does milk recording in sheep represent in 2012 ?

- 1,319,000 ewes in official milk recording
  + 545,000 in D recording (France only)

- Italy, France, Spain : 89%

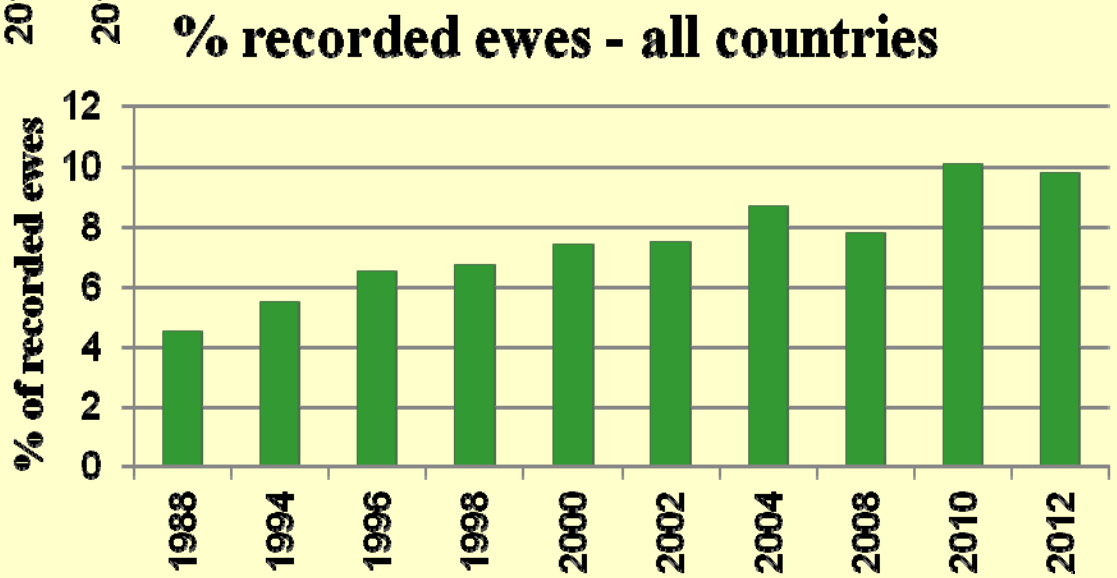


The number of recorded ewes per year has doubled in ICAR member countries in the last 25 years

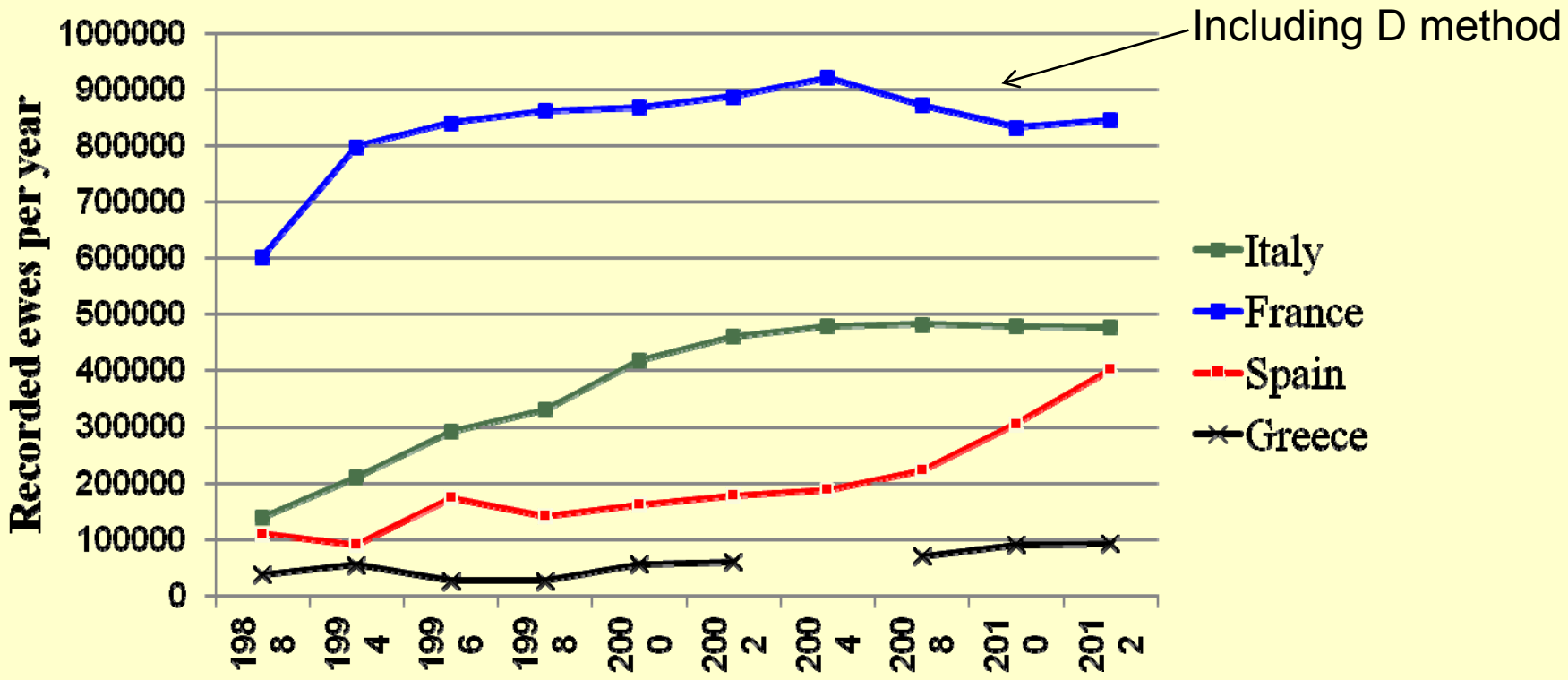


⇦ Increase of recorded ewes : from 900,000 to 1,864,000

Increase in proportion of recorded ewes : from 4.5 to 9.7% ⇨

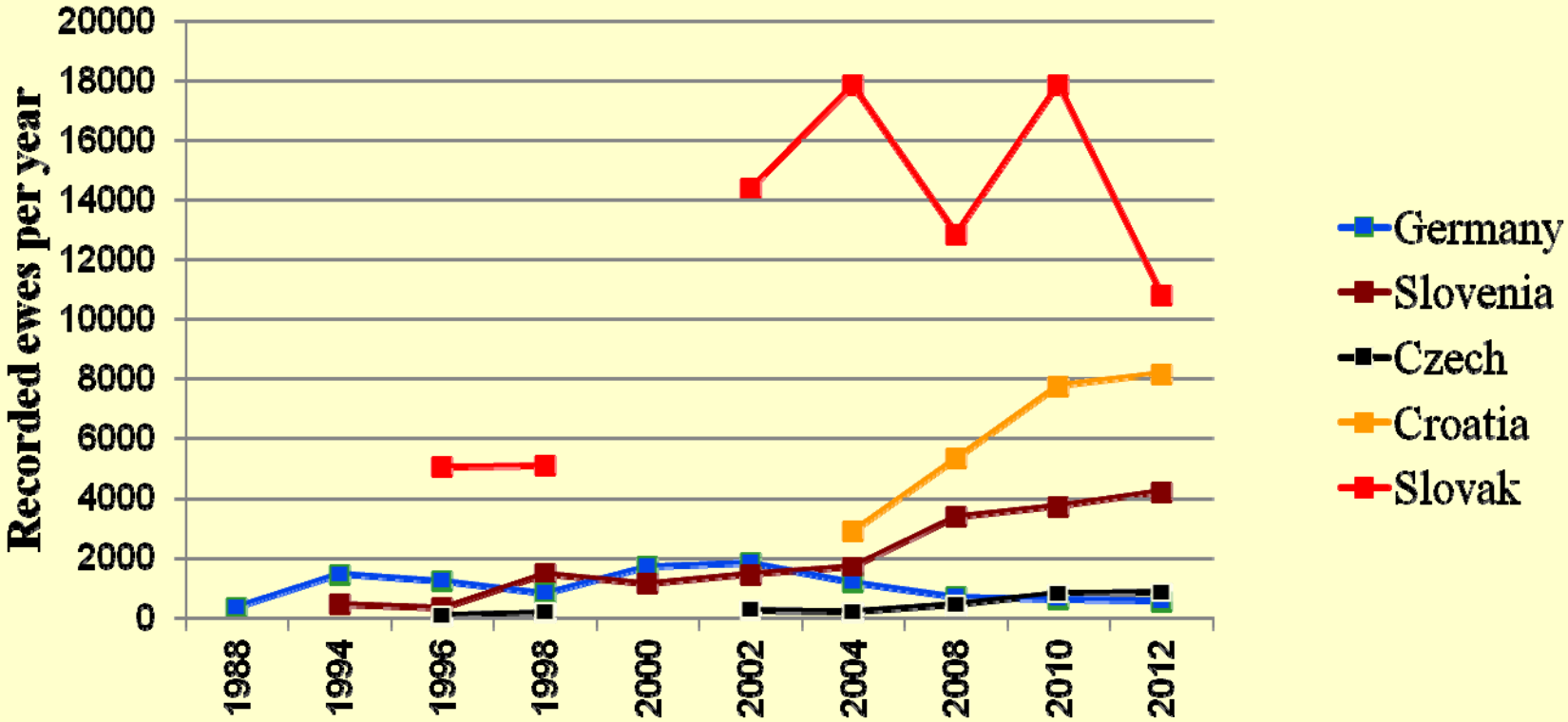


Evolution of number of recorded ewes per year in ICAR member countries with large populations



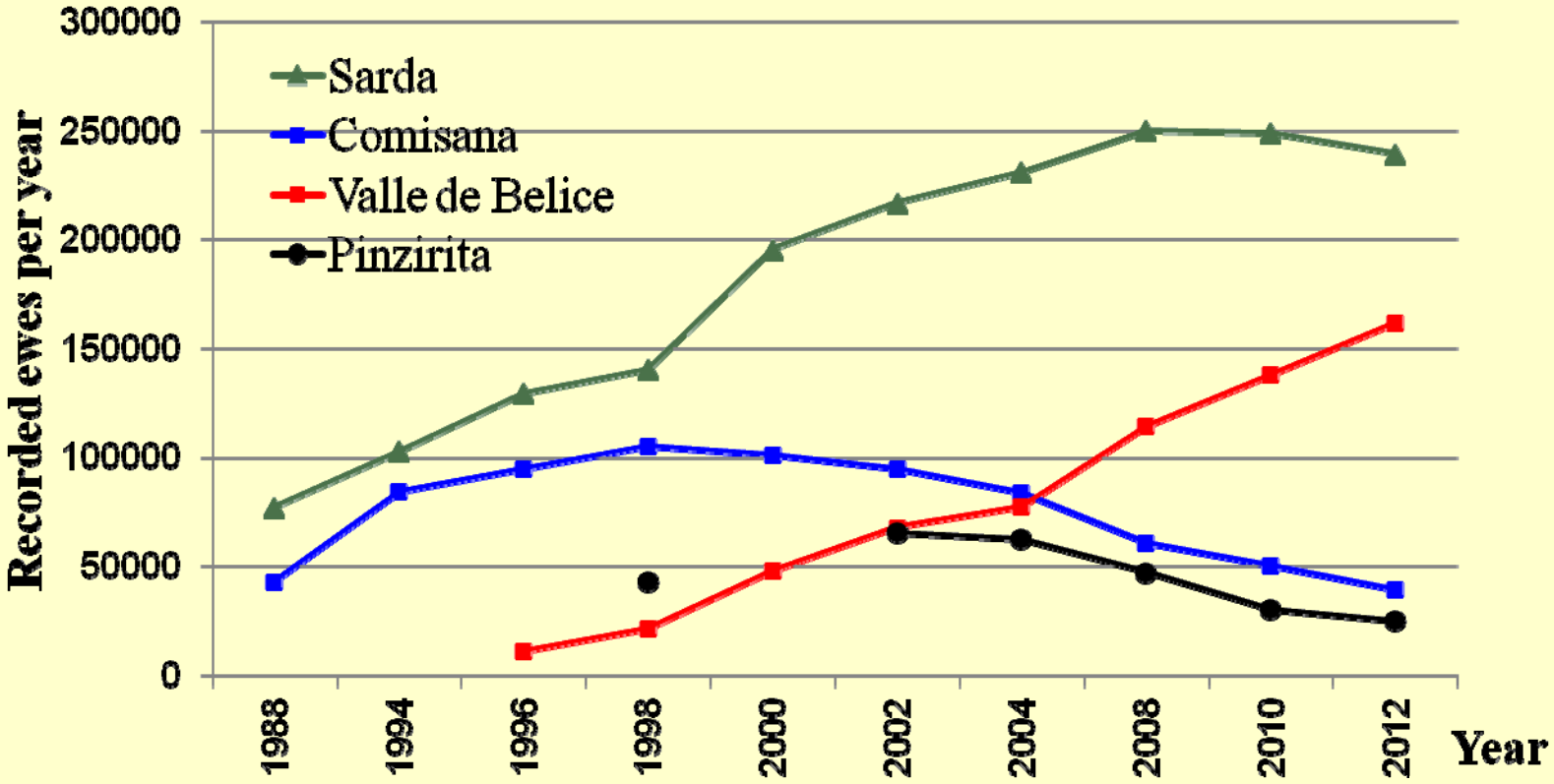
Countries with large dairy sheep populations (Mediterranean countries)

Evolution of number of recorded ewes per year in ICAR member countries with smaller populations



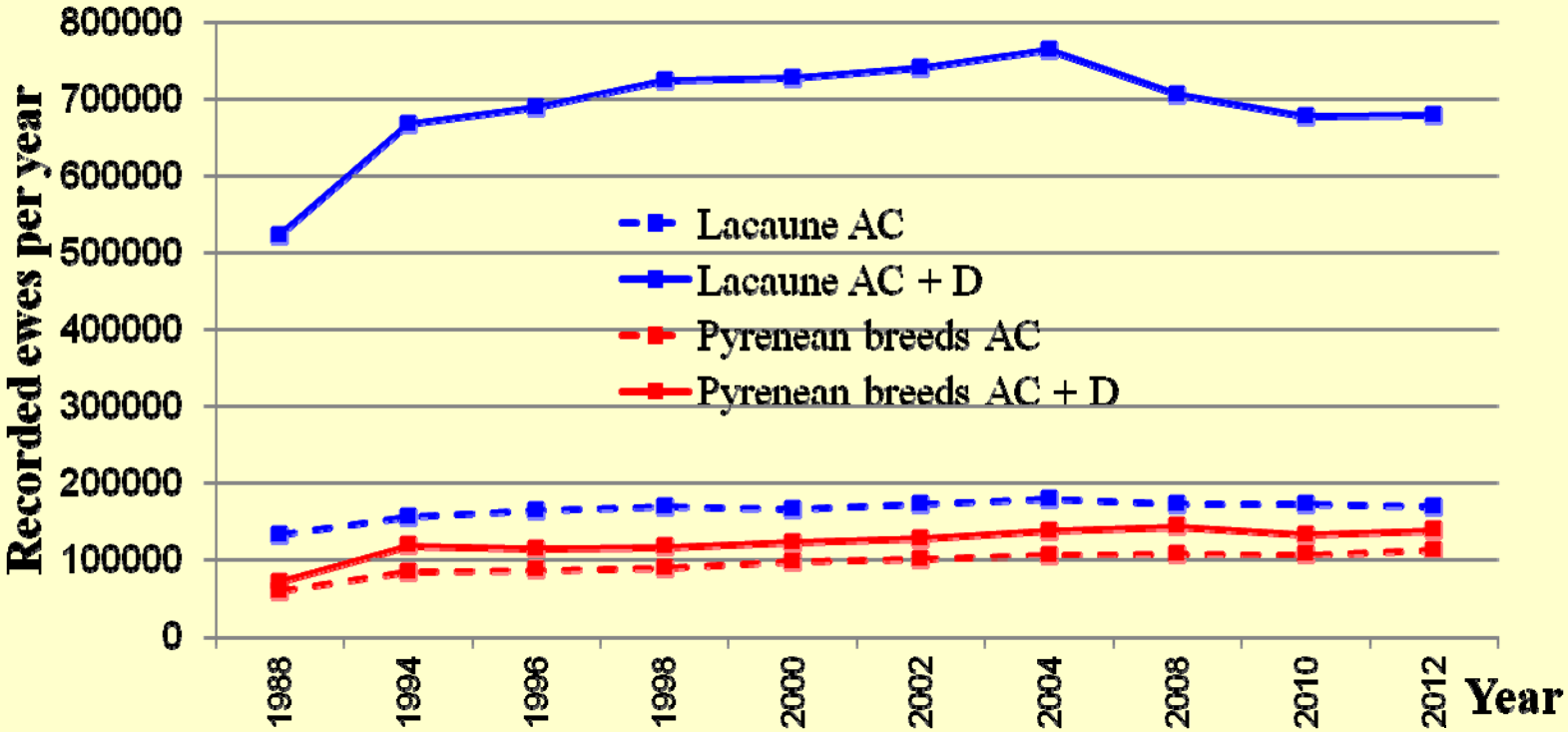
Countries with smaller dairy sheep populations (Northern & Central Europe)

Evolution of number of recorded ewes per year in major Italian breeds



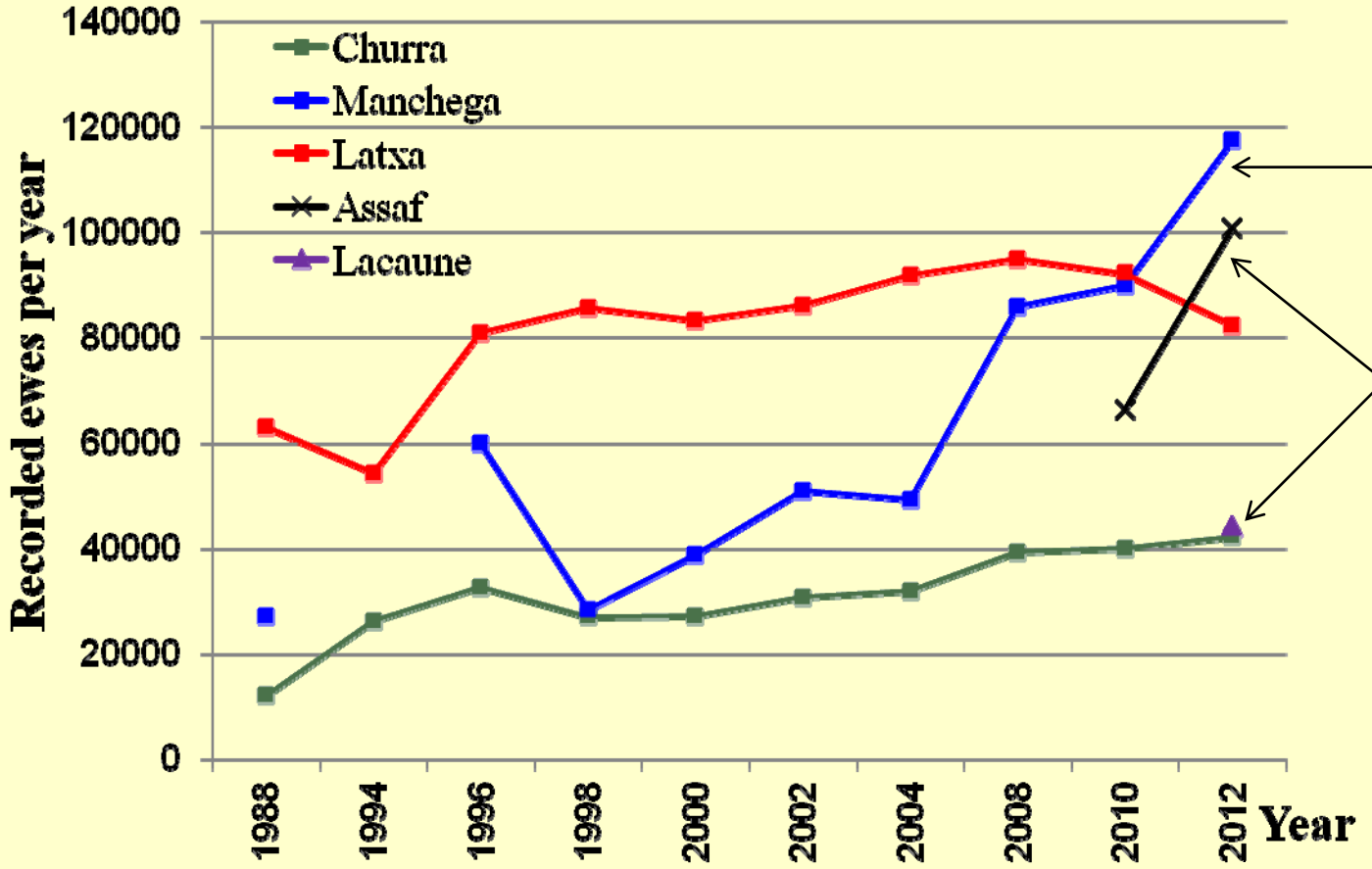
Different trends according to the breed

Evolution of number of recorded ewes per year in major French breeds



Importance of D method in Lacaune breed

Evolution of number of recorded ewes per year in major Spanish breeds

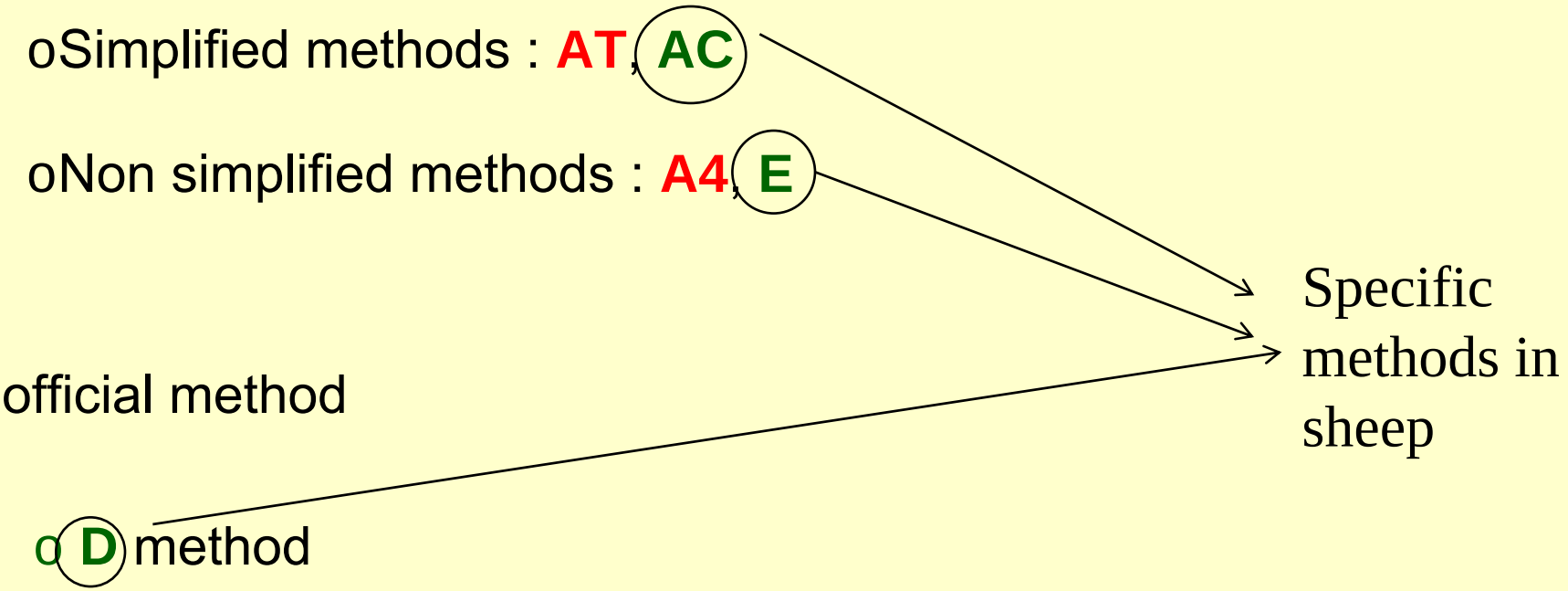


Important increase in Manchega breed

Foreign breeds emerging (Assaf, Lacaune)

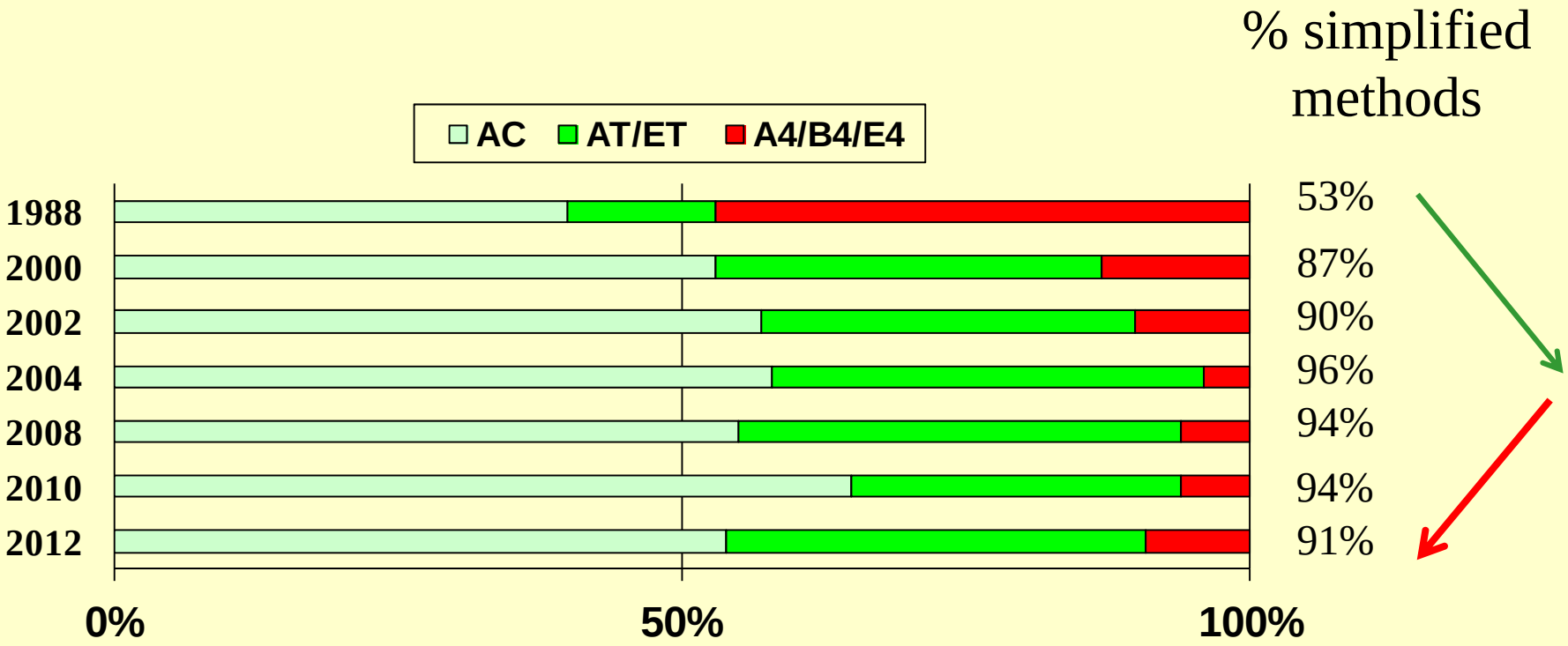
Recording methods in dairy sheep

- Official methods
  - Simplified methods : **AT**, **AC**
  - Non simplified methods : **A4**, **E**
- Non official method
  - **D** method



Simplified methods more and more used

➢Milk yield : increasing use of simplified (AT or AC) methods.
But stagnation in the last 6 years



Objective has been reached … but could be better

Simplified methods more and more used

	1988	1994	1996	1998	2000	2002	2004	2008	2010	2012
Belgium			AT	AT	AT			AT	AT	AT
France	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC
Spain	A4-AT	A4-AT	A4-AC-AT	AT	AT	A4-AC-AT	AT-AC	AT-AC	AC-AT	AC-AT
Italy	A4	A4	A4	A4	A4-AC-AT	AT-AC	AT-AC	AT-AC	AT-AC	AT-AC
Slovak			A4-AC-AT	A4-AC-AT	A4-AC-AT	AC	AC	AC	AC	AC
Slovenia		A4	A4	A4	A4	A4	AT	AT	AT	AT
Israel			B4	B4-AC	B4-AC	B4-AC	B4-AC	On-farm	On-farm	
Czech			AT	AT		AT	AT-A4	AT-E	AT-E	AT-E
Germany	A4	A4-B4	A4-B4	A4-B4	A4-B4-AT-E	A4-B4-AT-E	A4-B4-AT-E	A4-AT-E	A4-AT-E	A4-AT-E
Portugal	A4	A4	A4-AT				A4-AT			A4
Greece	A4	A4	A4-B4		A4	A4	A4	A4	A4	A4

Non simplified **Simplified** **Mixed** **On-farm** **No data**

Type of lactation calculation

Different ways for exploiting the lactation of the ewes (suckling period more or less long *vs* no suckling period)

Guidelines :

- Ewes milked from lambing → Total milk yield (**TMY**)
- Ewes milked after a suckling period
  - → Calculation of milk during the milking period only → Total milked milk (**TMM**)
  - → Calculation of milk during the suckling + milking period → Total suckled + milked milk (**TSMM**)

Different computations + confusion between breed and environment

➔Comparisons of yield from different countries / breeds very difficult

Large variety of type of lactation calculation (between & within countries)

… despite guidelines recommendations.

Countries	Lactation calculation	Production of reference (reference length)
Italy	**TSMM**,**TMM**	**TMM**
Germany	**TMY**	**TMY** (150)
Slovak Rep.	**TMM**	**TMM** (150)
France	**TMM**	
Greece	**TMM**	**TMM**
Portugal	**TSMM**	**TSMM** (150)
Slovenia	**TSMM**,**TMM**,**TMY**	
Croatia	**TSMM**,**TMM**	
Spain	**TSMM**,**TMM**,**TMY**	**TSMM** (120), **TMM** (120), **TMY** (120)

Qualitative recording : a real challenge in sheep

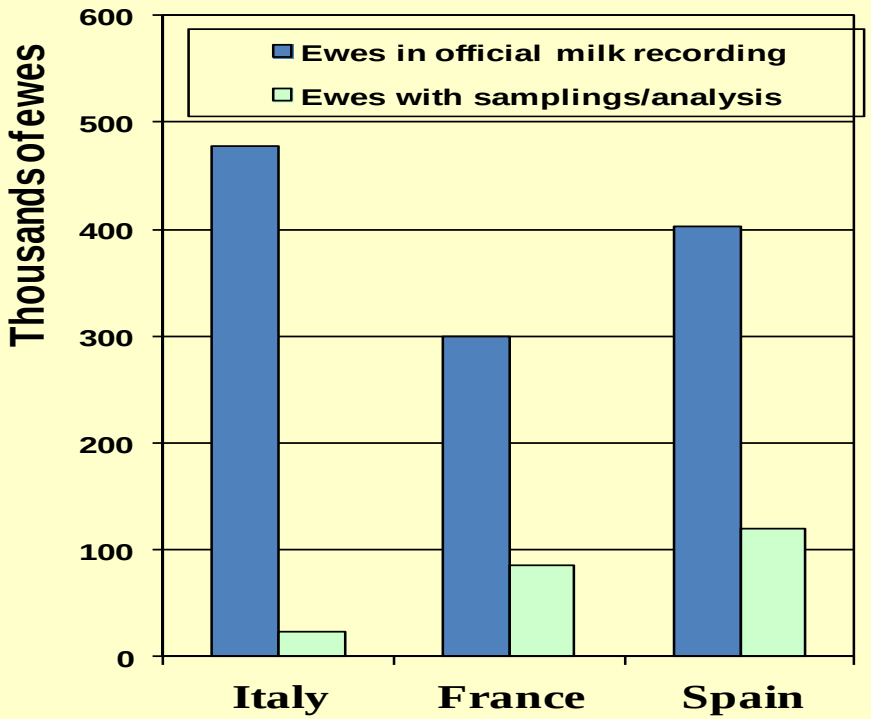
- Optional in sheep (high costs) → **One fifth** of all recorded ewes are sampled.

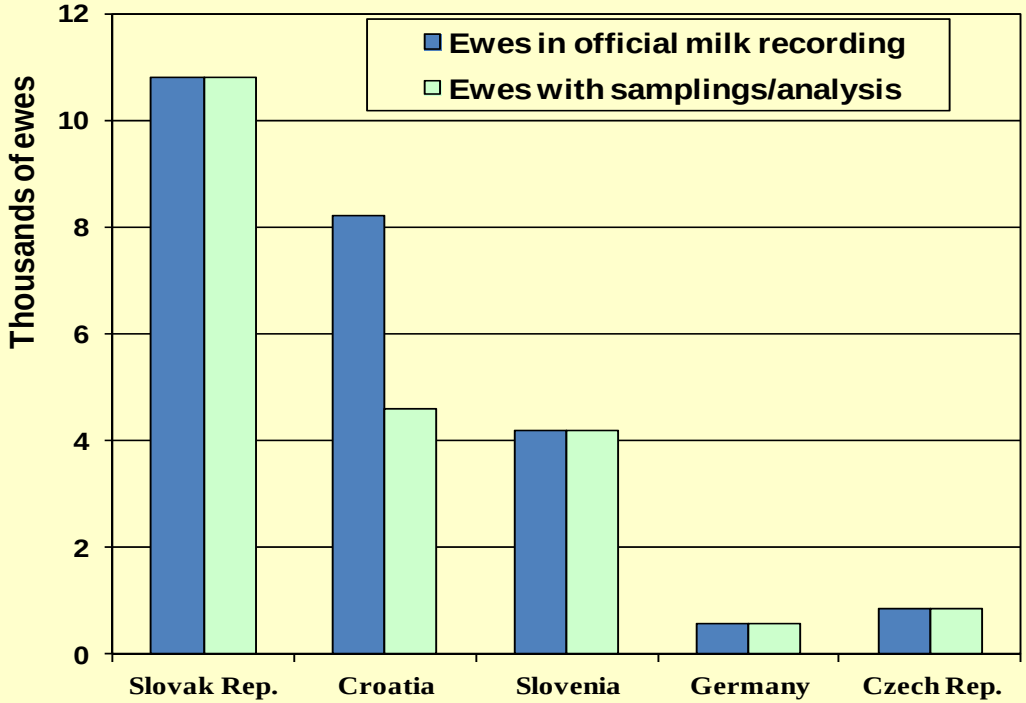
- Simplified design promoted : **relevant for genetic purpose** if **accurate individual measures**.
  - oPart-Lactation Sampling
  - oAT, AC

- Countries with large recorded population : just a part of the ewes are recorded (L1 or L1+L2). And/or just a part of the flocks are recorded.

- Type of analysis : fat + protein (+ lactose) (+urea). SCC in almost all countries since 1998-2002.

Importance of qualitative recording in 2012



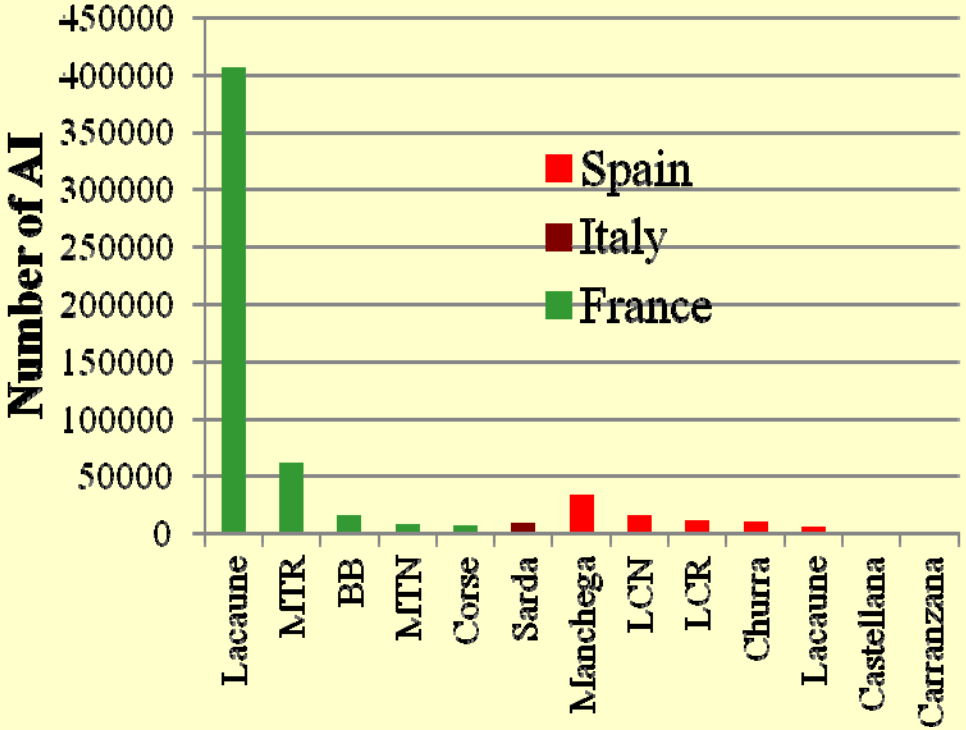


Low proportion of sampled ewes in Mediterranean countries with large recorded populations

Large proportion of sampled ewes in other countries with smaller recorded populations

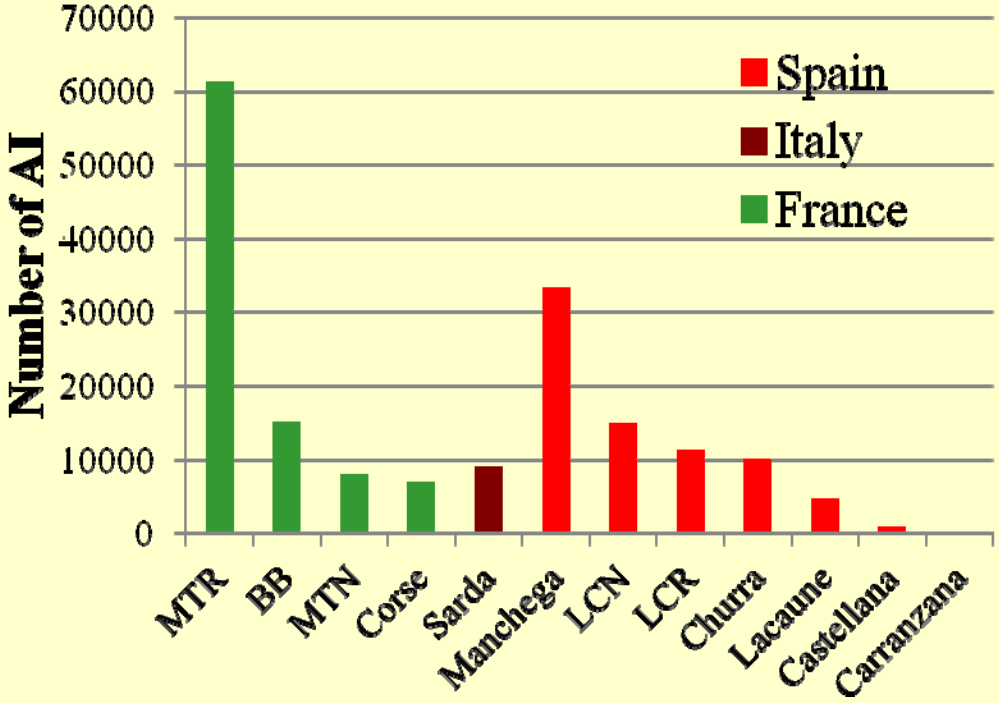
Breeding programs : situation in 2012

588,000 AI on the whole in 2012



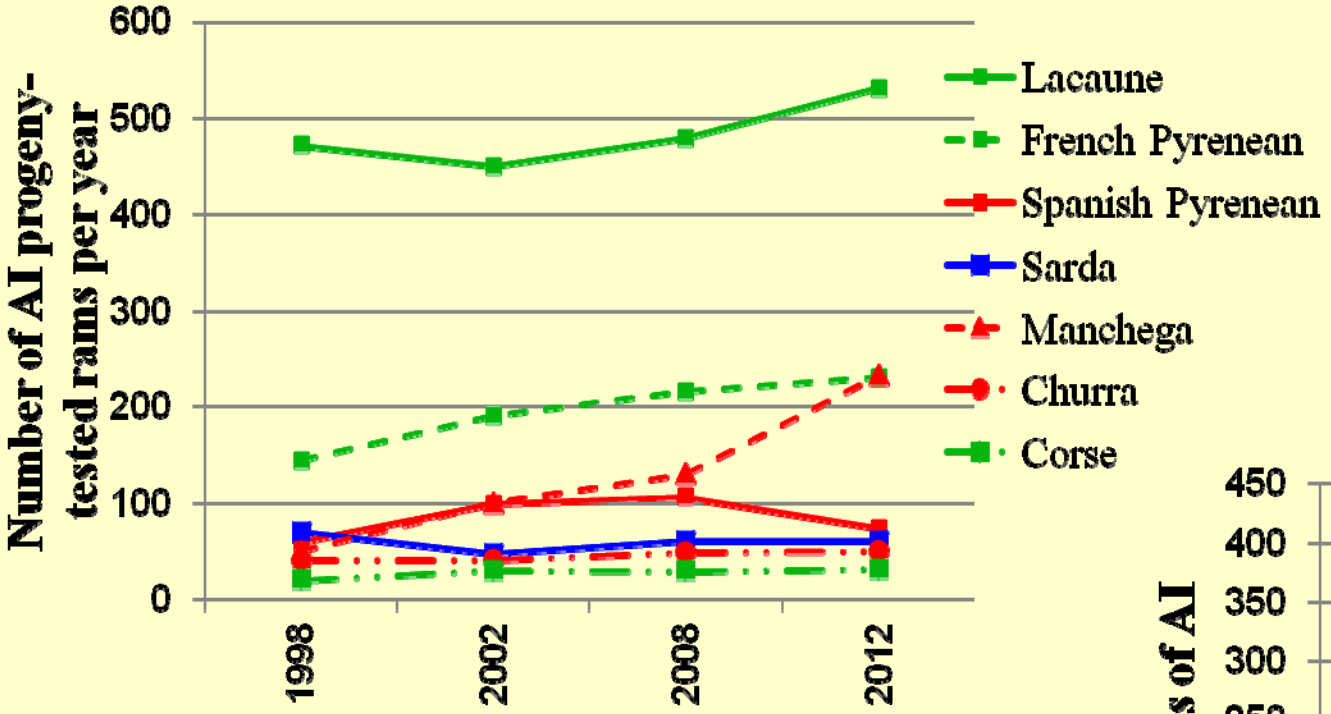
With Lacaune breed

Only 3 countries with organized breeding schemes

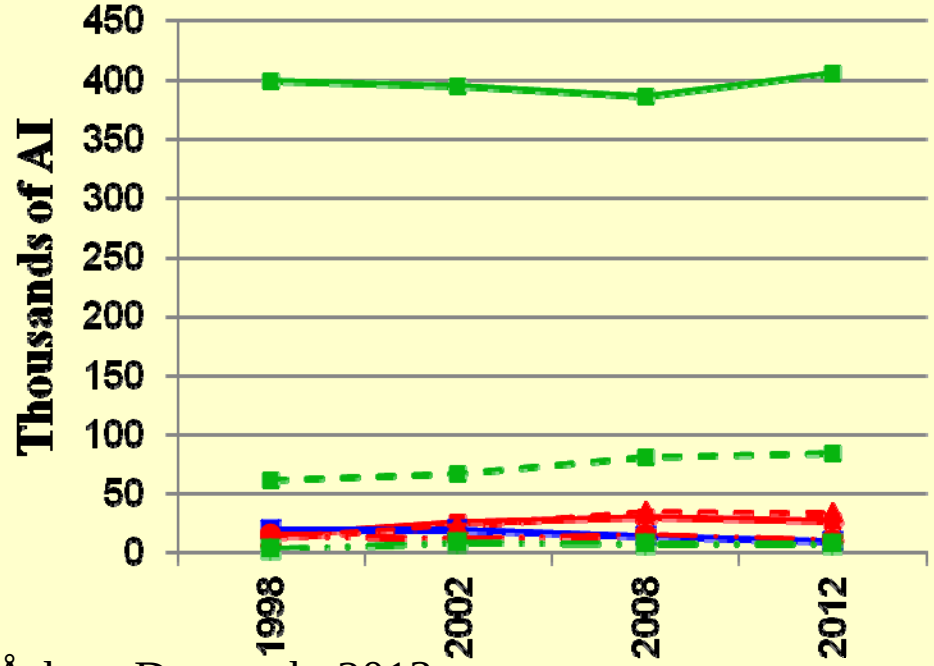


Without Lacaune breed

Breeding programs : evolution over the last 25 years



Breeding programs of local breeds in their production area



+ Emerging programs with foreign breeds in Spain in the past years : Assaf & Lacaune

Milk recording devices

- Since 1996, questionnaire about jars and meters used for sheep : manufacturer, presence of sampler (Y/N), expression of measurement (volume/weight)

- Main features :

  - Large variety of devices and manufacturers. Diversity within and between countries. Many local manufacturers.

  - Jars commonly used.

  - Volume widely used as expression of measurement

  - Devices basically approved for the use in each country because they were used in sheep official milk recording before the 1st of January 1995 (cf. ICAR Guidelines).

Milk recording devices : large variety of devices / manufacturers

Countries	Used devices (name of the device or manufacturer)
Croatia	Cartel Germany
France	Gély
Germany	Tru-Test
Greece	Hector, Flaco, Valko, Nicolini, Fullwood, Franco, OMC, Albino, Strangko, Westfalia, Milk Line, Milkplan, Interplus, DeLaval, Manovak
Slovak Rep.	Fisher Slovakia, Berango, Milkovis
Slovenia	Tru-Test, Girotech
Italy	Mibo, Royal, Westfalia Separator, Misurator e Italiana, DeLaval, Tru-Test
Spain	Berango, Philips, Tru-Test, Afikim, Westfalia, DeLaval, Westfalia, Mibo

On-farm electronic meters, recently approved by ICAR (DeLaval MM25SG and Afikim Afifree), reported to be used (Israel, Spain, Italy). But still in a small proportion. Will be an issue to be tackled by the WG.

Conclusion

- **ICAR survey** : an **efficient tool** to follow (i) the state of the art in dairy sheep milk recording and related topics, (ii) the application of the recommendations of the working group.

- **Proposition of evolution** : fat and protein data from milk recording to be notified ; on-farm electronic devices to be considered.

- **Milk recording** still represents a small proportion of the population : **about 10%.**

- **Cost of milk recording is high in sheep**

(consider the cost of analysis : same price in sheep and cattle BUT animal value much lower and number of animals per flock much higher).