Consequences of a simplified milk recording method on estimation of lactation yields and genetic evaluations for dairy traits in goats

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Introduction

- 3 official methods:
  - A: 48 %
  - AZ: 6 %
  - AT: 46 %
- trend to simplify methods

⇒ search for a more simplified method based on spacing records

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Aim of the study

- Simulation of a simplified method called "3 records"

- Evaluation :
  - 1) application on farm
  - 2) consequences on estimated performances
  - 3) consequences on estimated breeding values (EBV)

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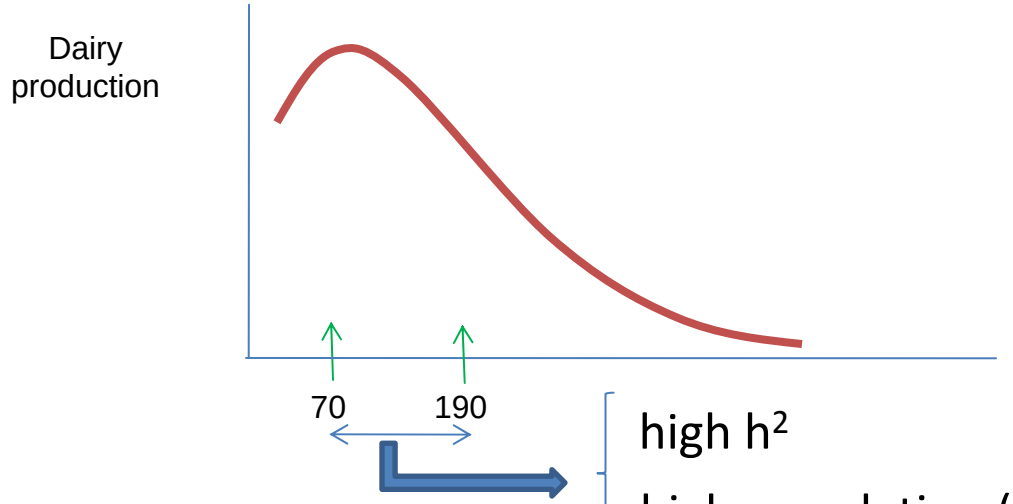
Material and methods



ANIMAL

high h^2

high correlation (test-day, lactation)

Span time = 4 months

HERD

Kidding 1st animal

Kidding last animal

Material and methods

- **French region with only AT method**
  - 30% of herds
  - 90% of herds
- **French region with mainly A method**
  - 30% of herds
  - 90% of herds
- **France (A + AT)**
  - 30% of herds
  - 60% of herds
- **For 1 or 4 years**

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Material and methods

- **Estimation of dairy traits with Fleischmann's method:**
  - milk yield
  - protein yield
  - fat yield
  - protein content
  - fat content
- **Extrapolation for a reference lactation of 250 days**
- **Computing of bias and loss of accuracy ($1 - R^2$)**

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Material and methods

- Genetic evaluation with data from simplified method and official data

- Comparaison of EBVs with official EBVs

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Results and discussion

Variables	Bias (%)		Loss of accuracy (%)	
	France A 30 %	France AT 30 %	France A 30 %	France AT 30 %
Milk	***8,5***	7,5	13	18
Fat yield	3,5	2,6	15	25
Protein yield	4,2	3,1	14	36
Fat content	-4,1	-3,8	25	46
Protein content	-3,8	-3,8	16	25

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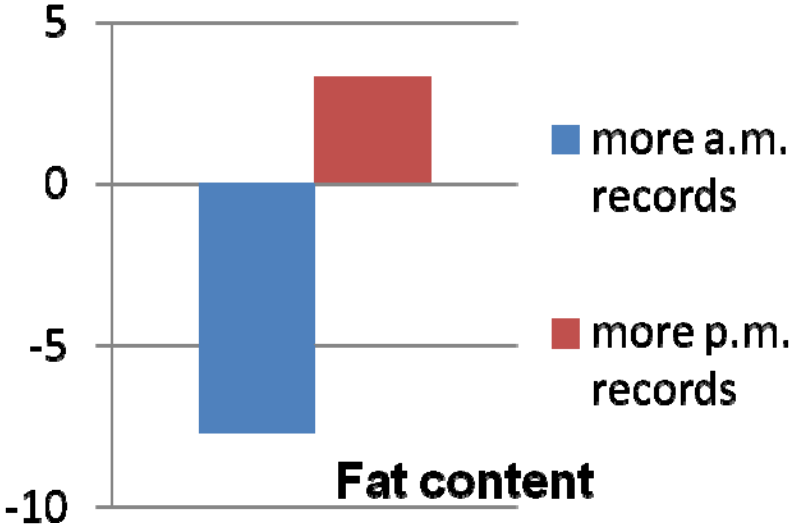
Results and discussion

- **Factors having significant effect on biases :**
  - herd
  - level of production of animals
  - month of kidding
  - number of records of the initial method
  - proportion of a.m. records



Results and discussion

- Correlation EBV with simplified method / official EBV: 0.99
- Correlation by parity:

Parity	Corrélations AT
1	0.93
2	0.98
3 and +	0.99

- Few re-rankings intra-herd

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Results and discussion

Consequences on dams of bucks:

Dams of bucks	1 year			4 years
	AT region (90%)	A region (90%)	France (A + AT) (60%)	France (A + AT) (60%)
% of replaced females	1%	2%	6.6%	16.5%
Variation of total merit index on new females	+ 0.56	+ 0.47	+ 0.49	+ 0.50

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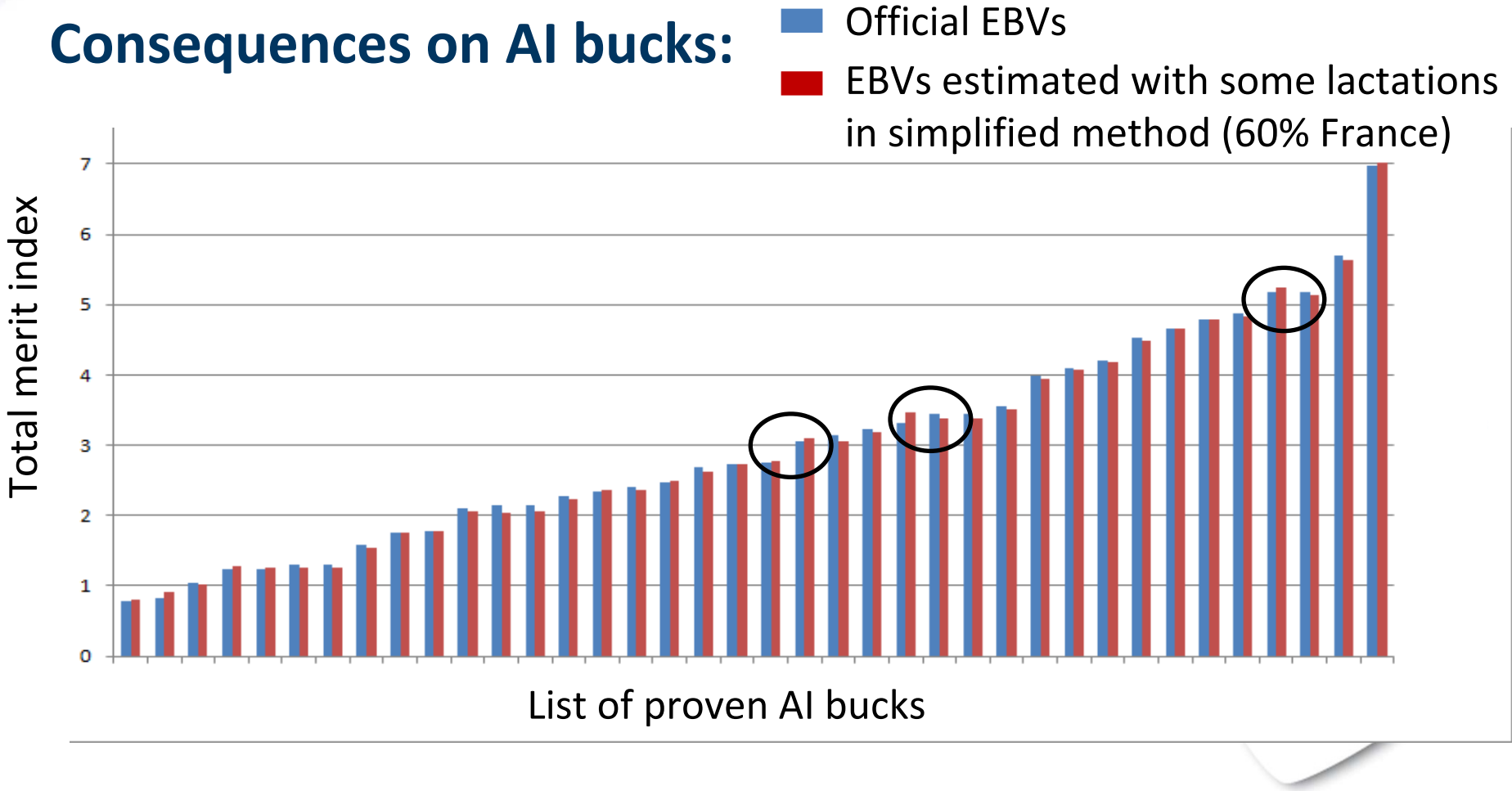
Results and discussion

Consequences on AI bucks:



Conclusions

- **Difficulty to implement the model in practice**
- **Bias especially for milk**
- **Loss of accuracy in particular for fat content and for AT method**
- **To improve performances estimation:**
  - Keeping the same number of a.m. and p.m. records for AT method
  - Revision of extrapolation methods
  - Use of adjustment factors based on milking intervals

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Conclusions

- **impact on selection scheme in re-ranking reproducers**
  - a weight depending on the accuracy of the method to reduce the importance of simplified methods in genetic evaluation
  - implementation of genetic evaluation based on test-day model

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Thank for your attention

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