SMAll RuminanTs breeding for Efficiency and Resilience

SMARTER Survey

Cléa Michelet

SMARTER Summer School – Toulouse, France

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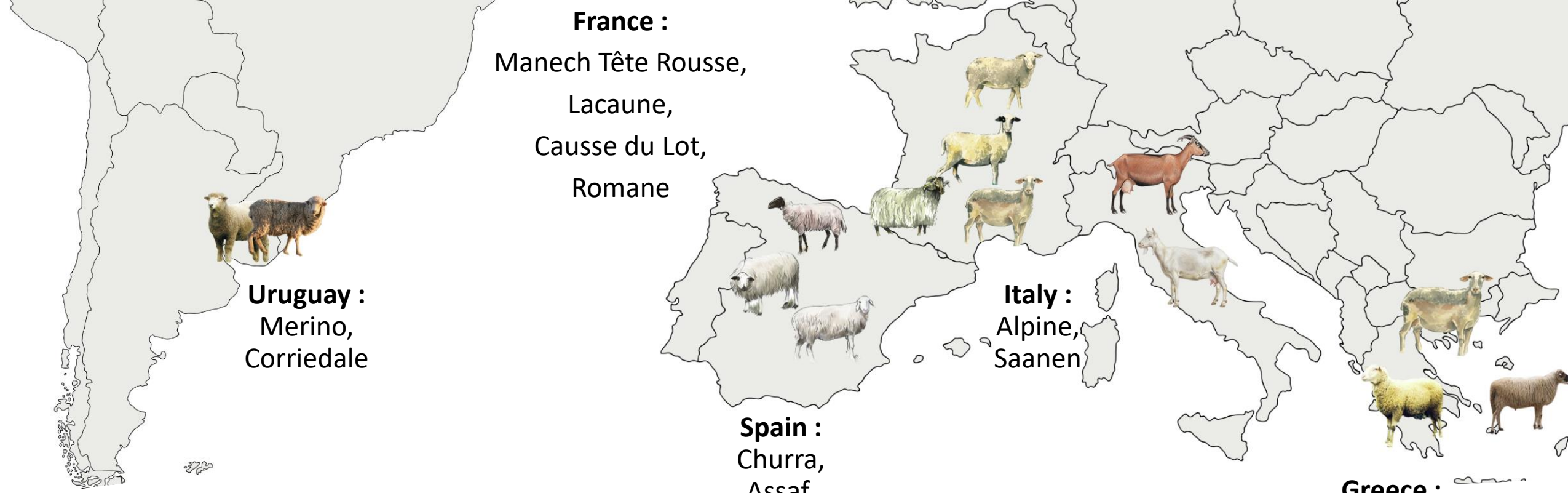


France :
Manech Tête Rousse,
Lacaune,
Causse du Lot,
Romane

Uruguay :
Merino,
Corriedale

Spain :
Churra,
Assaf,
Castellana

Italy :
Alpine,
Saanen

Greece :
Chios,
Lacaune,
Frizarta,
Assaf

Who is investigated ?

- 5 partner countries
- 15 breeds
- 3 productions : milk, meat, wool
- survey 50 breeders per breed

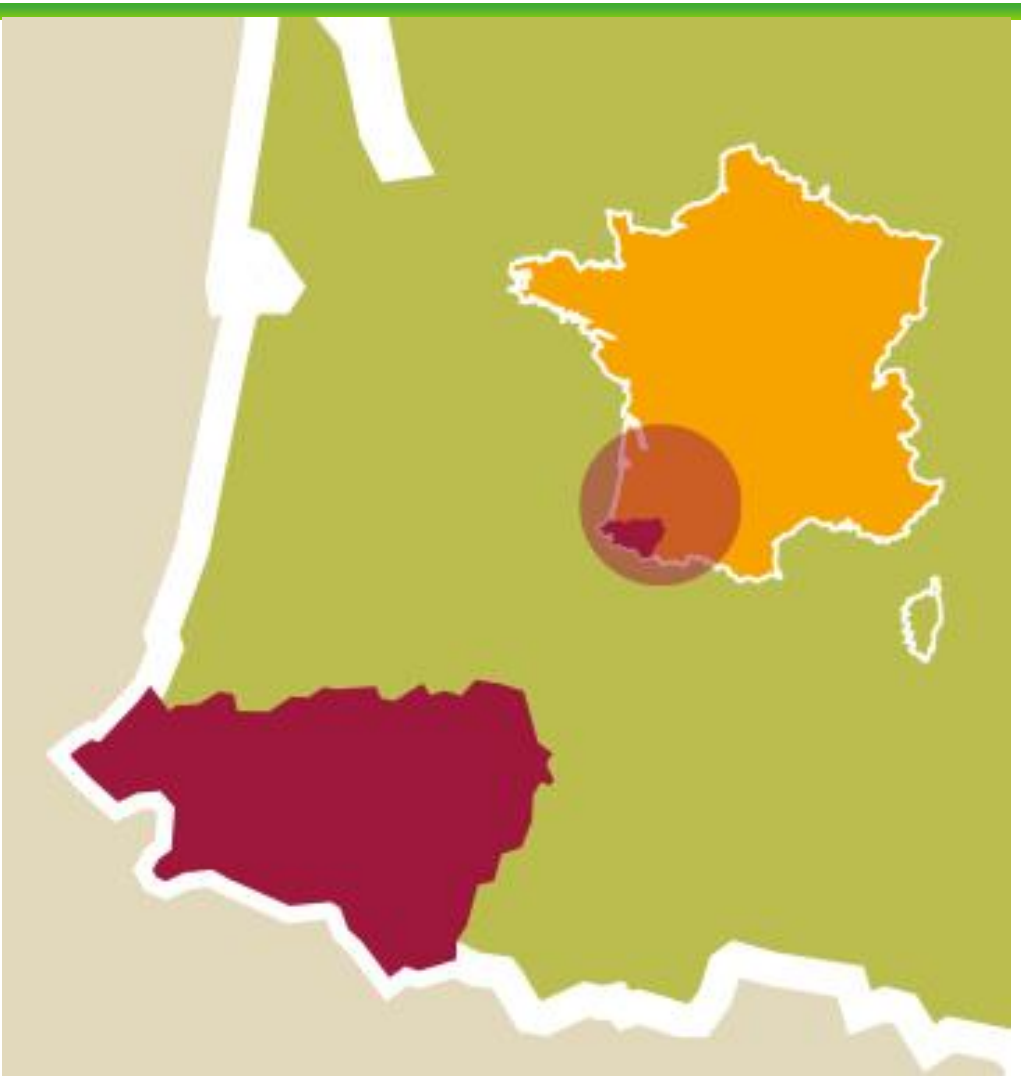
Objective of the survey

With this survey we want to know the preferences of small ruminant breeders for an "ideal" animal.

Is it a productive, rustic or efficient animal?

The results of this research will be used by the different genetic selection organizations for small ruminants and, more globally, by agricultural development and advisory structures.

It will allow to identify better the genetic traits to be included in the selection indexes and their associated weights.



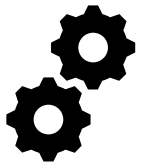
Example

Manech tête rousse

- Dairy sheep
- The most productive in the Pyrenees
- PDO Ossau-Iraty
- Rustic and well adapted to transhumance and to the difficult terrain of the Pyrenees

https://survey.1000minds.com/17000/SummerSchool

Survey composition



1

socio-demographic

- the farmer's profile
- his farm
- the composition and
- management of his herd
- his position with regard to selection tools

2

preferences

→ Study the links between preferences and characteristics of the respondent and his farm

1

Survey composition

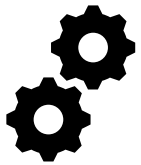
1. **Where is your farm?** *
   - France
   - Greece
   - Italy
   - Spain
   - Uruguay

2. **Which species do you breed?** *
   - Sheep
   - Goat

3. **What is the principal breeding production in your farm?** *Answer based on the species you have selected in the previous question.* *
   - Milk
   - Meat
   - Wool-Meat

Software : Alchemer

Survey composition



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- the farmer's profile
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→ Study the links between preferences and characteristics of the respondent and his farm

2

preferences

- Choice modelling
- PAPRIKA

→ Estimate the importance given by breeders to different genetic traits

❷ Survey composition

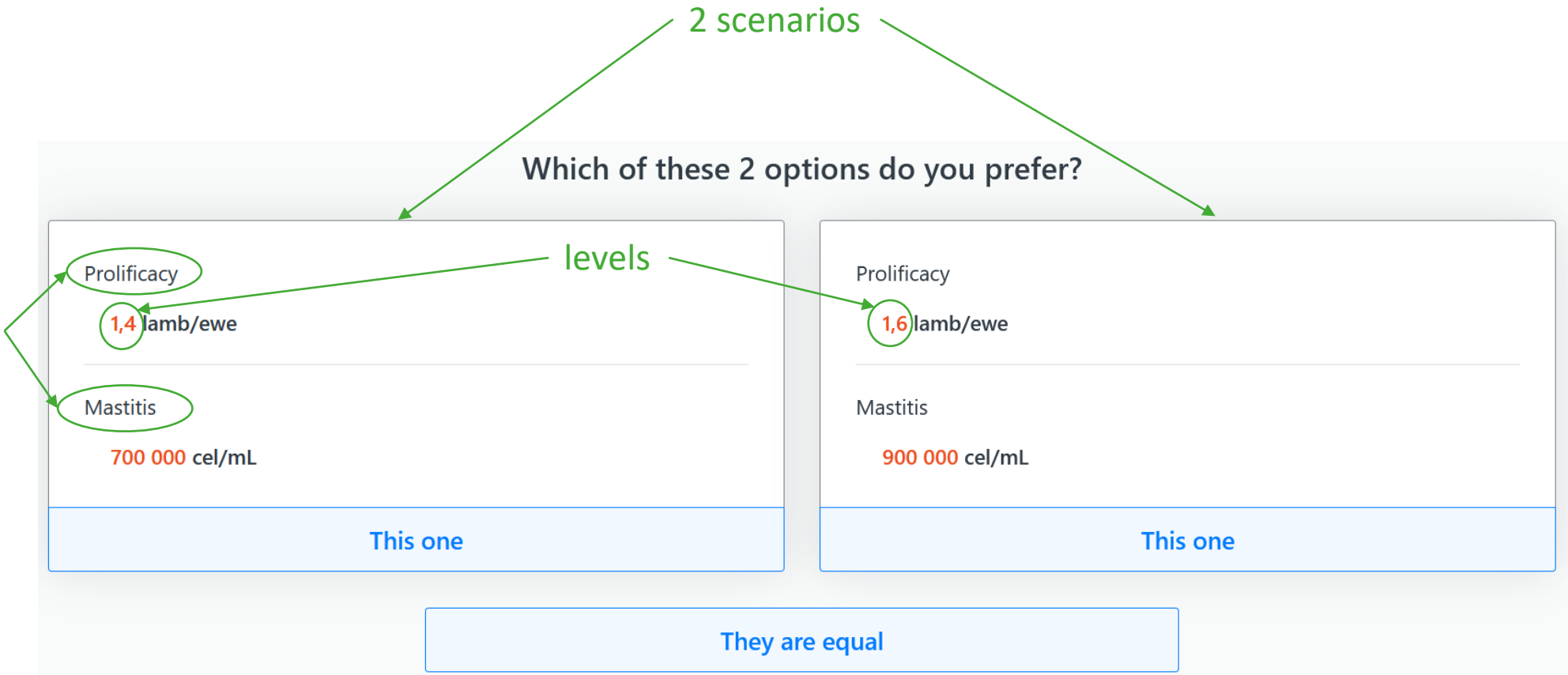
Preference survey

~~Contingent valuation : asking respondents directly about their willingness to pay for hypothetical scenarios~~

Choice modelling : respondents repeatedly choose their preferred scenario between two fictitious scenarios

- A scenario corresponds to an alternative
- The alternatives are defined on several characteristics, called attributes, expressed by values called levels.
- The succession of choices two by two makes it possible to deduce, by statistical modelling, the weight (i.e. the importance) that the various attributes have in the decision making of each individual surveyed.

Survey composition



Software : 1000minds

What is PAPRIKA ?

"Potentially All Pairwise RanKings of all possible Alternatives"

- Based on choosing between two hypothetical alternatives defined on just two attributes at a time and involving a trade-off .
- A global ranking of all possible alternatives is defined when all pairwise rankings of the alternatives with respect to each other are known.
- Depending on the number of attributes and levels chosen, the number of possible alternatives is potentially several million and more.
- PAPRIKA allows to reduce the number of questions asked while classifying all the alternatives between them
- Preference studies using this method have 6 to 10 traits with 2 to 4 levels

→ A combination of 8 attributes with 3 levels each was chosen for SMARTER

	Traits	Indicators	Levels
Production	Milk	*Lmilk/ewe/lactation*	200 250 300
	Dry matter in milk	*g/L*	100 120 140
Resilience	Parasitism	*%*	20 15 10
	Mastitis	*Somatic cell/mL*	1100000 900000 700000
Efficiency	Feed efficiency	€/ewe	60 45 30
	Prolificacy	*Nb lambs/ewe*	1,2 1,4 1,6
	Longevity	*Lactations/ewe*	4 6 8
	Mortality at weaning	%	15 10 5

Table of characters and levels selected to build the alternatives of the preference survey for dairy sheep Manech tête rousse (E. Janodet)

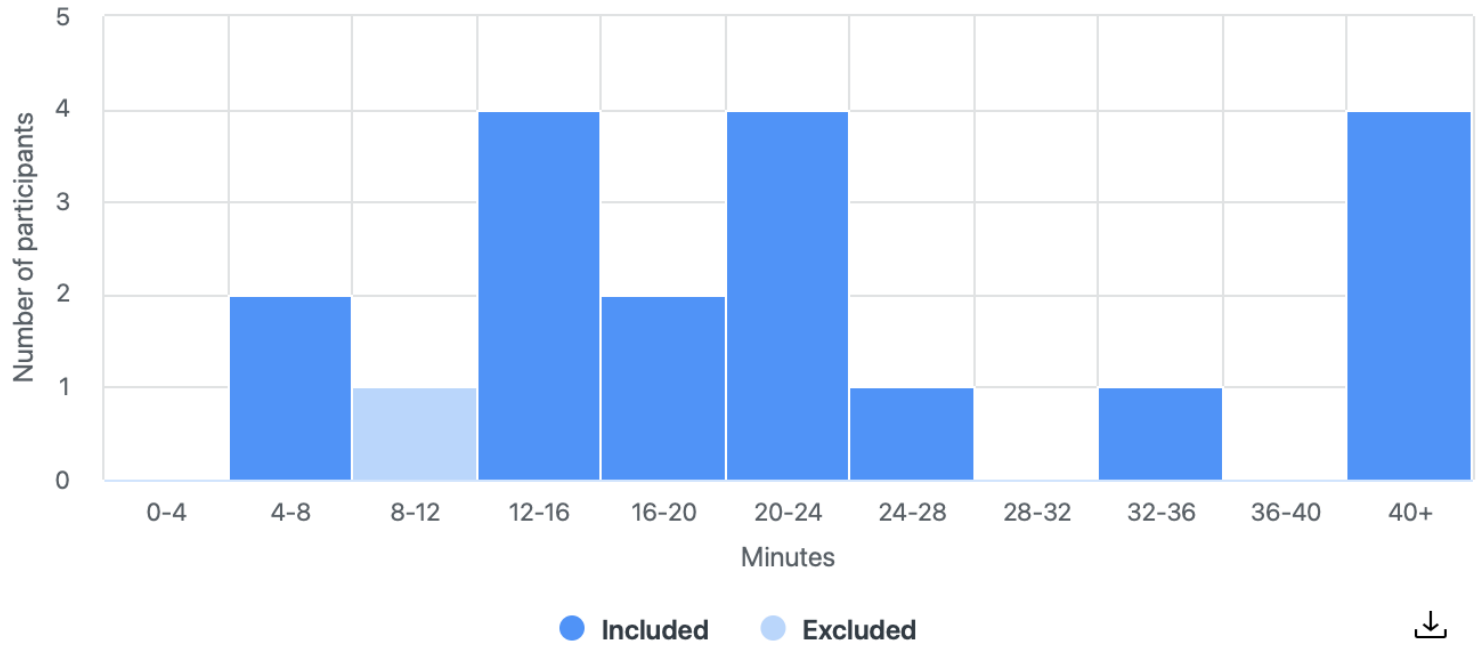
Definition of characters and levels

- focus groups with breeders
- literature review
- exchanges with project partners and other collaborators (Institut de l'Elevage, Centre Départemental de l'Elevage Ovin, Races de France, fellow researchers)

Results

Time taken to complete survey

Median time for included participants to complete the survey: 21m 17s



Results

Prolificité

1,2 agneau/brebis 1,4 agneau/brebis 1,6 agneau/brebis	1,4 agneau/brebis 1,6 agneau/brebis 1,2 agneau/brebis	1,4 agneau/brebis 1,2 agneau/brebis 1,6 agneau/brebis	1,6 agneau/brebis 1,4 agneau/brebis 1,2 agneau/brebis	1,6 agneau/brebis 1,2 agneau/brebis 1,4 agneau/brebis	1,2 agneau/brebis 1,6 agneau/brebis 1,4 agneau/brebis
36.4%	27.3%	15.2%	12.1%	6.1%	3.0%

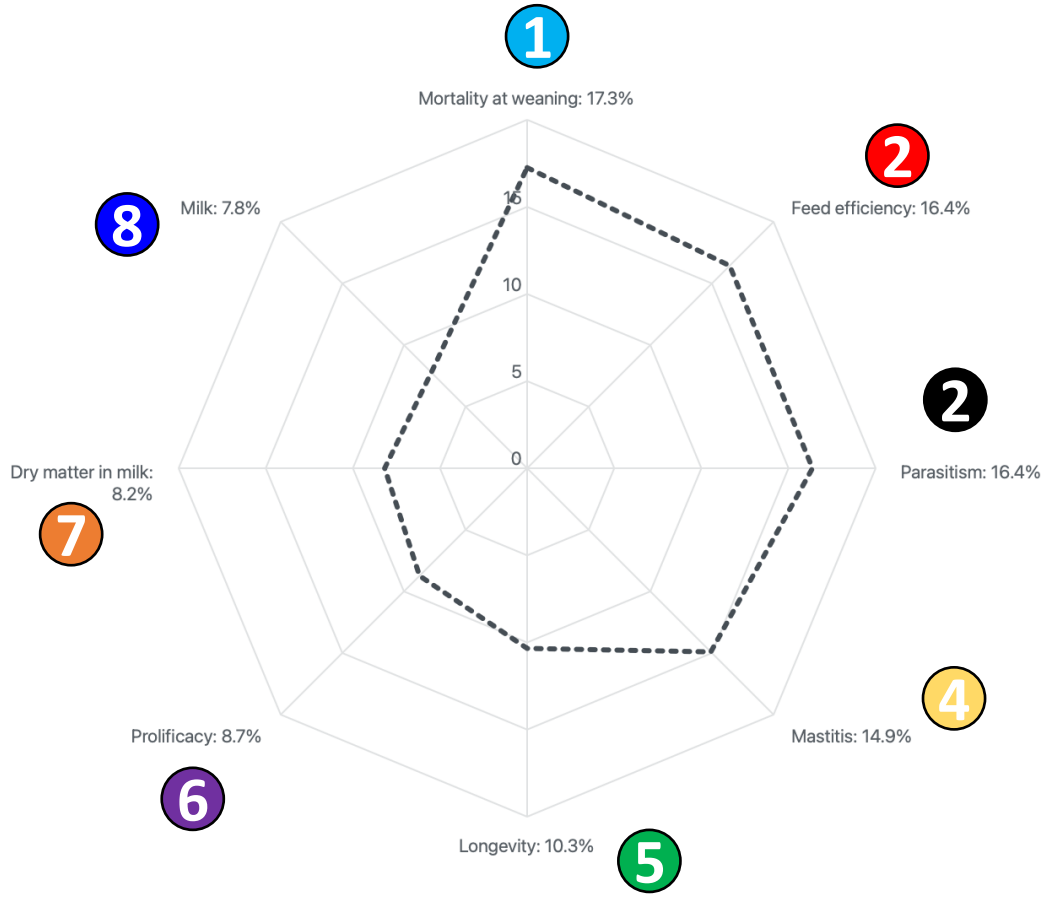
Breeders n=33

Prolificacy

1,2 lambs/ewe 1,4 lamb/ewe 1,6 lamb/ewe	1,6 lamb/ewe 1,4 lamb/ewe 1,2 lambs/ewe	1,4 lamb/ewe 1,2 lambs/ewe 1,6 lamb/ewe	1,4 lamb/ewe 1,6 lamb/ewe 1,2 lambs/ewe
44.4%	44.4%	5.6%	5.6%
Group 1	Group 2		

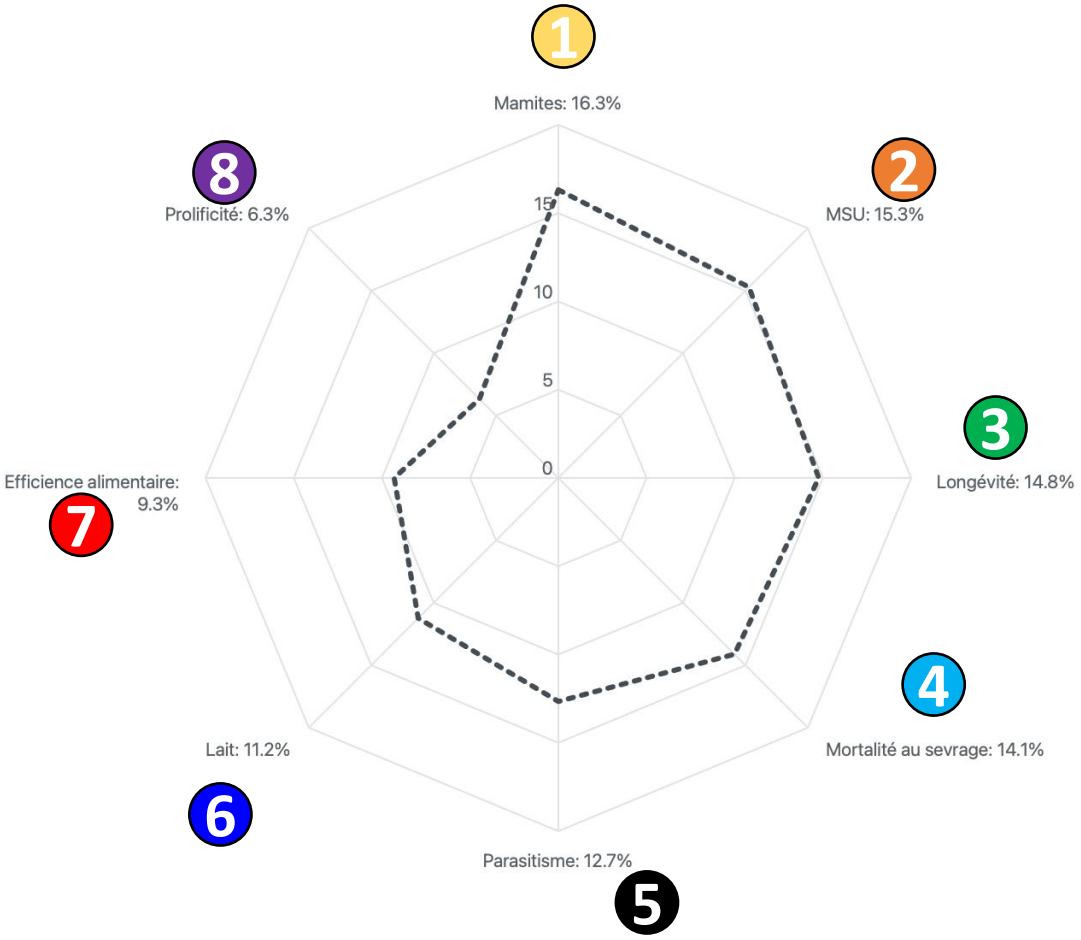
Researchers n=18

Results

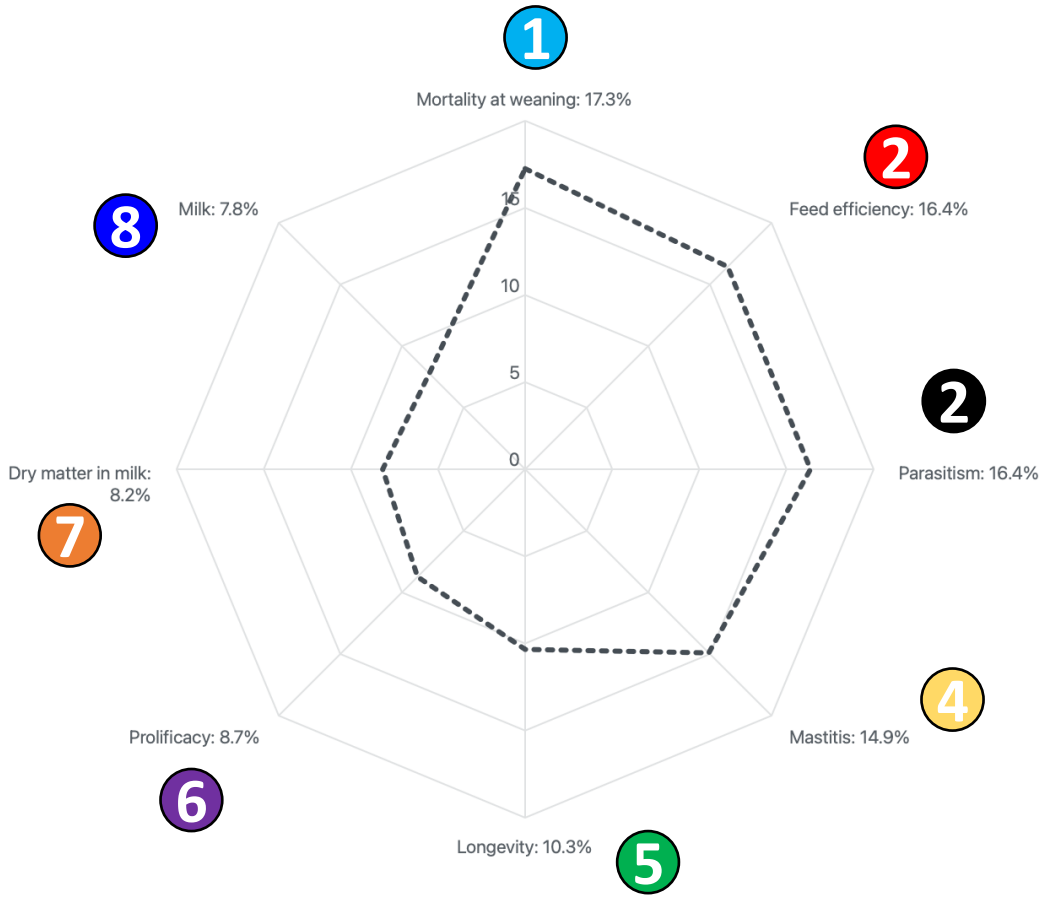


Researchers

Results

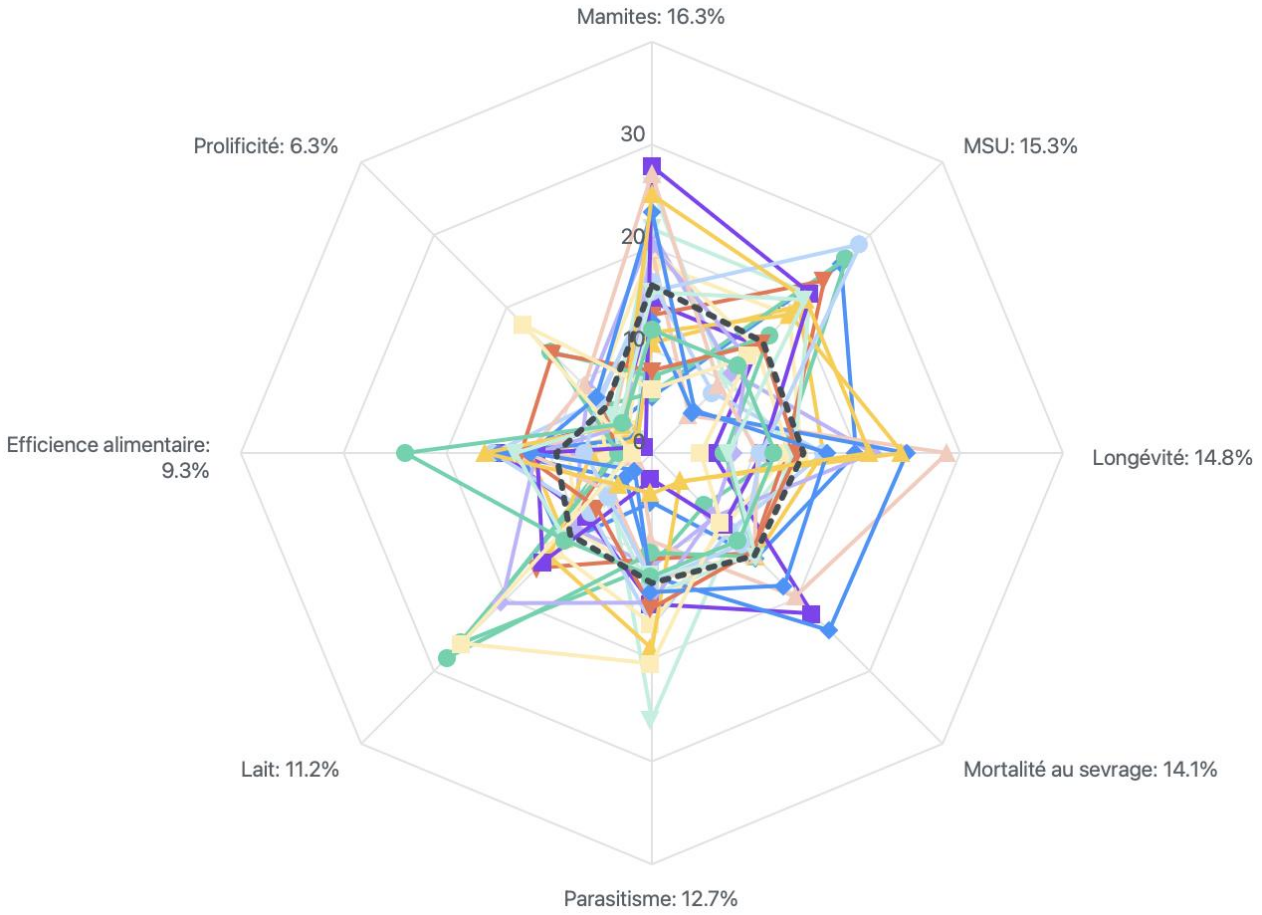


Breeders

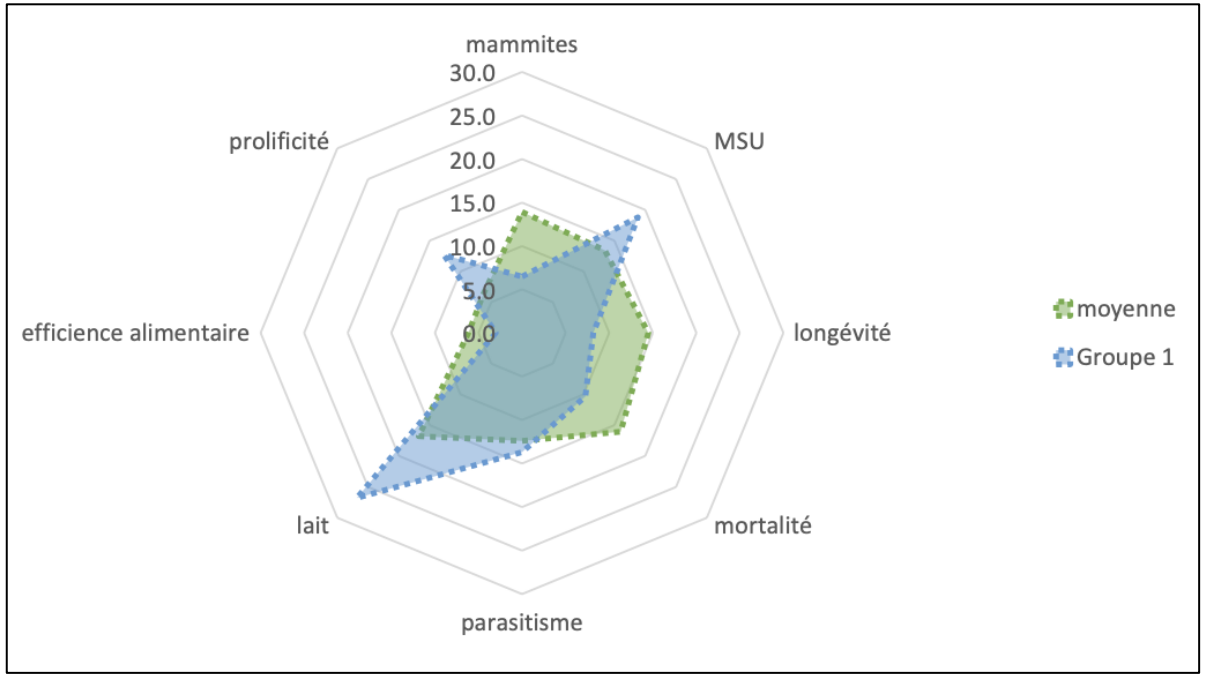


Researchers

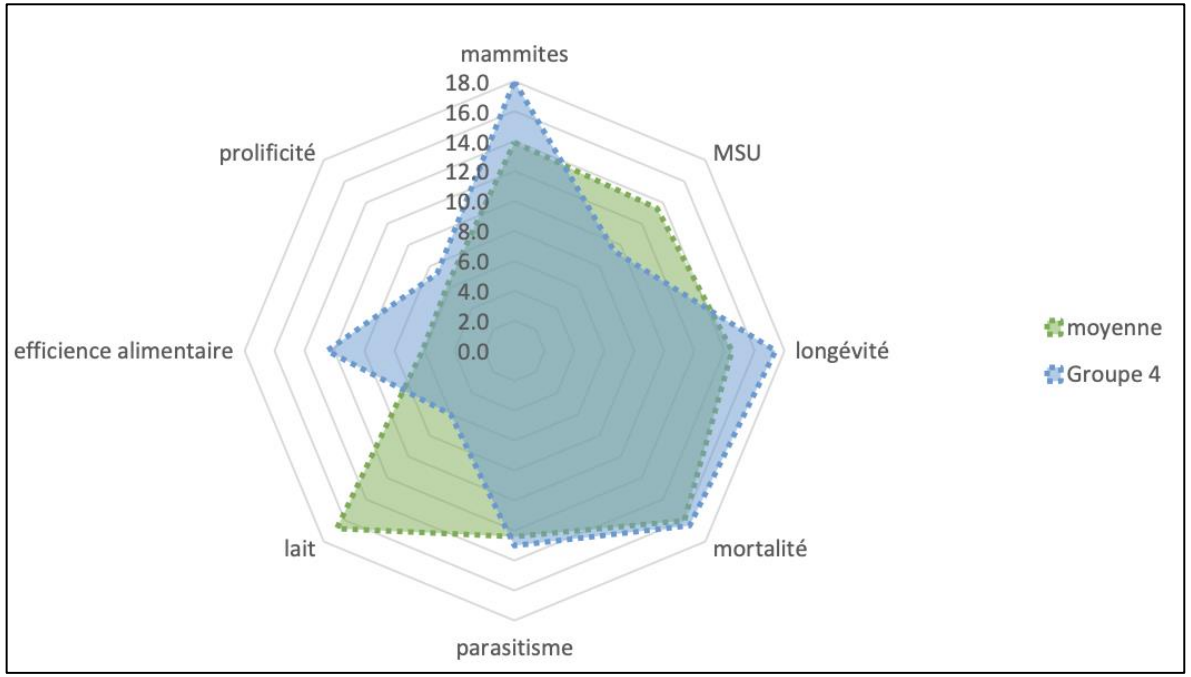
Results


Mamites: 16.3%
MSU: 15.3%
Longévité: 14.8%
Mortalité au sevrage: 14.1%
Parasitisme: 12.7%
Lait: 11.2%
Efficience alimentaire: 9.3%
Prolificité: 6.3%
30
20
10

Results



production and quality of milk



health and longevity

Conclusion

- Diversity of profiles in each breed and each country
- Help to balance breeding goals with new traits
- Combine these results with the economic aspect, environmental, societal, etc

Picture credit:
https://www.produits-laitiers-aop.fr/produits/ossau-iraty/
https://www.ossau-iraty.fr/