First outbreak of the Schmallenberg virus: estimate of the technical and economical consequences in French sheep flocks

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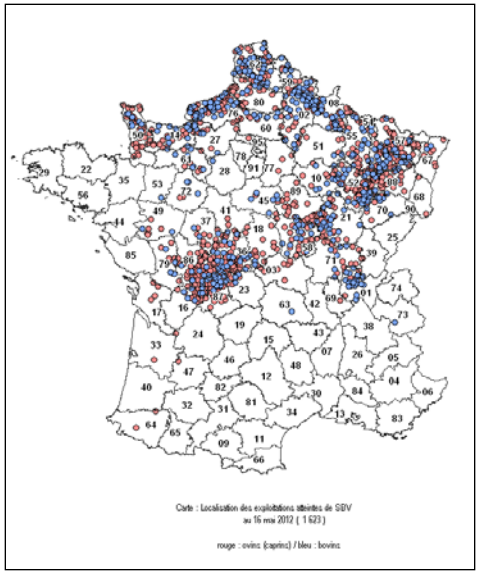
2012: first SBV outbreak in France

- 2011: first clinical observation of the SBV in Germany (cattle, then sheep)
- January 2012: first outbreak in France (clinical signs in sheep)
- Quick spreading during winter and spring from North and East to West and Center
- Clinical signs: malformed and/or stillborn lambs, frequency highly variable between farms and in time



Economical consequences
Prevention of impacts

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2 studies to better understand the consequences of the SBV virus on contaminated meat flocks:

Surveys at farms

- 20 Sheep flocks with clinical signs + SBV confirmed

➡ Description of all impacts observed by the farmer + the veterinary

Multivariate data analysis

- Data from the national platform for epidemiological surveillance
- 348 Sheep flocks: clinical signs + SBV confirmed

➡ Variability of the level of technical impacts

First estimate of economical consequences (farm system)

Impacts: mainly malformed lambs

Impacts observed by farmers and vets	Average mortality (348 flocks)	Maximum mortality (348 flocks)
Malformed stillborn lambs	9.5 % of « winter » lambs	62 % of « winter » lambs
Stillborn (not malformed) lambs	4.3 % of « winter » lambs	45 % of « winter » lambs
Malformed lambs living for at least 12 hours	2.1 % of « winter » lambs	29 % of « winter » lambs
Ewes died within 15 days after the birth of a malformed stillborn lamb	1.1 % of all ewes in the herd	15 % of all ewes in the herd

20 farm surveys:
Difficult lambing of malformed lambs
⇒ farmers got experienced
⇒ helped more efficiently + antibiotics

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No other visible effects

- Belated lactogenesis or a decrease in milk production or a lower condition of ewes: < 48 hours
- No measurable effect on the growth of surviving lambs
- No visible short term effects on on surviving ewes
- Few <u>visible</u> economical effects (only winter lambs)

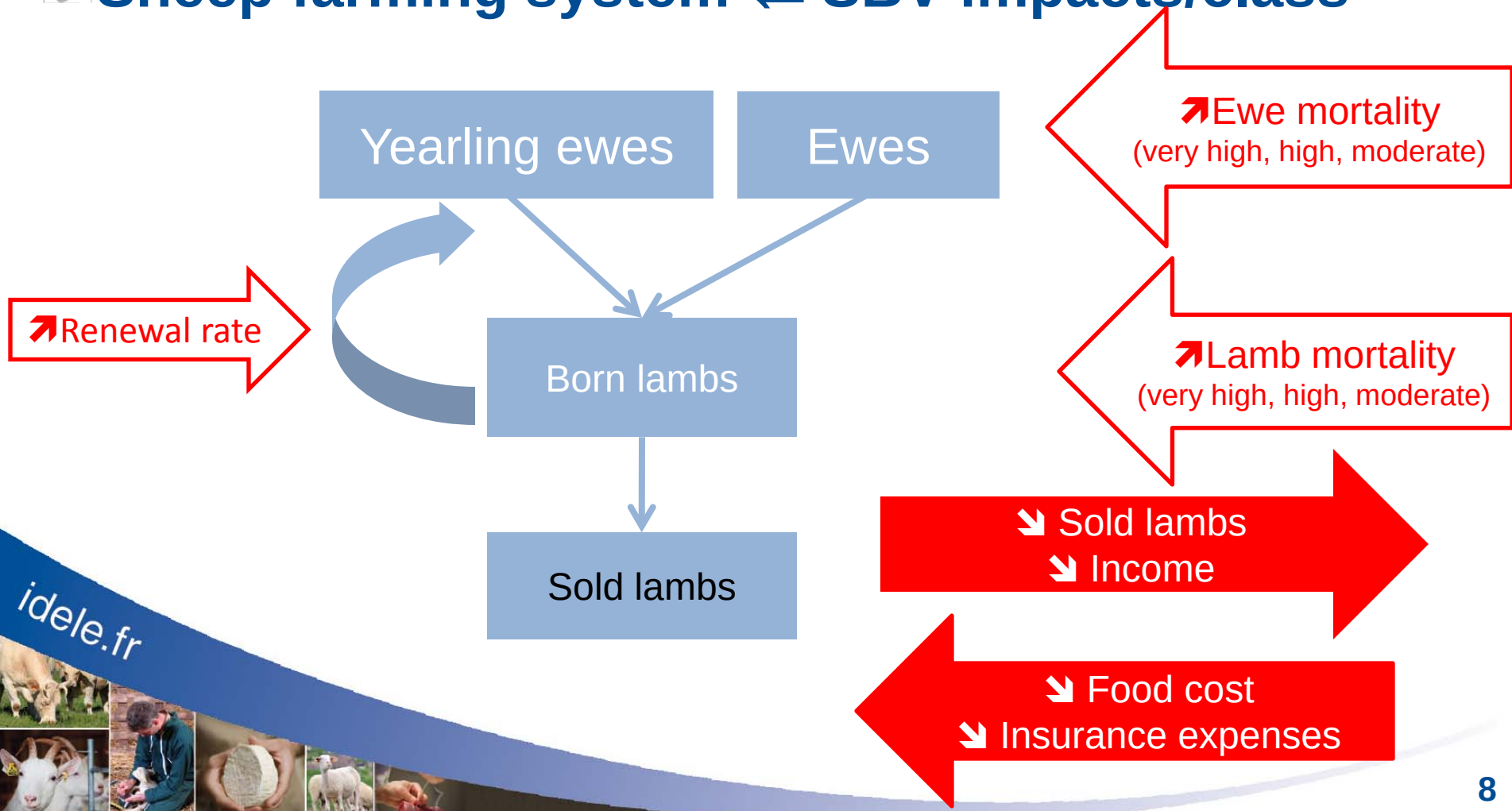
Most flocks suffered moderate impacts

Classification	% (348 herds)	Effects : mortality
Very high impacts	6 %	41 % of winter lambs 2.6 % of ewes
High impacts	23 %	20 % of winter lambs 1.7 % of ewes
Moderate impacts	70 %	6 % of winter lambs 0.9 % of ewes

- **Only winter lambs affected (≥ 2 lambing seasons)**
- **Short period of time: 2 to 3 weeks**
- **but … underestimated effects?**
  - Stillborn but not malformed?
  - Early abortion?

Economical consequences for the farmer

Sheep farming system ⇐ SBV impacts/class



2 regional farm systems

- **To estimate variations in the economical consequences**

Specialized meat sheep production (Limousin)	Cereals and meat sheep production (North)
800 ewes 1024 lambs Productivity = 128 %	400 ewes 534 lambs Productivity = 134 %
2 lambing seasons: November/December February/March	3 lambing seasons: September November January

Economical losses: in all affected herds

- **Economical impact depends on the system but comparable loss of income per ewe**

	Specialized sheep producer		Cereals and sheep producer	
Level of impacts	Farm income variation	Gross margin per ewe	Farm income variation	Gross margin per ewe
Very high	- 19 %	- 12 %	- 3 %	- 19 %
High	- 9 %	- 6 %	- 2 %	- 10 %
Moderate	- 3 %	- 2 %	- 1 %	- 3 %

What to do next time?

- **Clinical signs: unpredictable before lambing**
- **Not possible to avoid mortality of lambs**
- **Possible to limit the effects on ewes:**
  - Monitoring and relevant assistance to ewe during lambing
  - Preventing infection after the lambing of a malformed lamb
- **Prevent possible effects on surviving lambs?**
  - Checking the ewe for lactogenesis
  - Providing colostrums to lambs

Thank you for your attention

Many thanks to farmers, veterinaries and technicians for their contribution to the surveys.