

Digital dermatitis in French young bulls fattening farms

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Context

- 2017 – 2018: North of France: discover of digital dermatitis lesions (DD) in some young bulls (YB) fattening farms suffering of economic losses

→ Ulcerative lesion of the skin of the feet of cattle

Well known in dairy farms

But misunderstood in fattening units

Caused by bacteria (mainly Treponema)

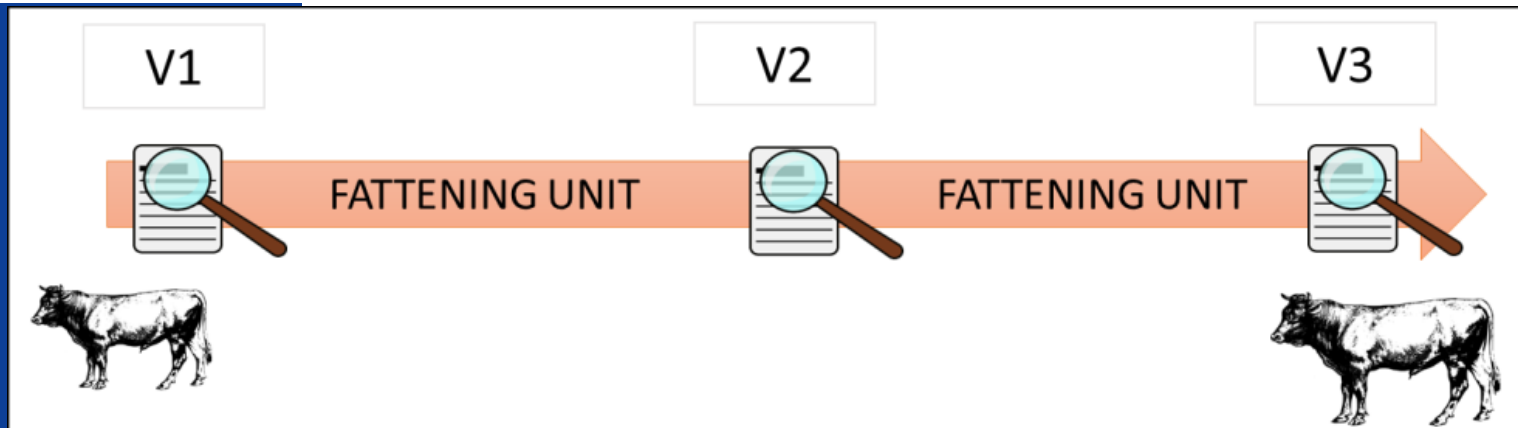


- 2020 – 2022 : Multi-partner project led by the Aisne Chamber of Agriculture, Co-financed by the Hauts de France region and Europe, to:

- Understand the development of DD in YB units and make hypothesis about the risk factors for the appearance of lesions (year 1)

- Propose and test control measures and know their acceptability (year 2)

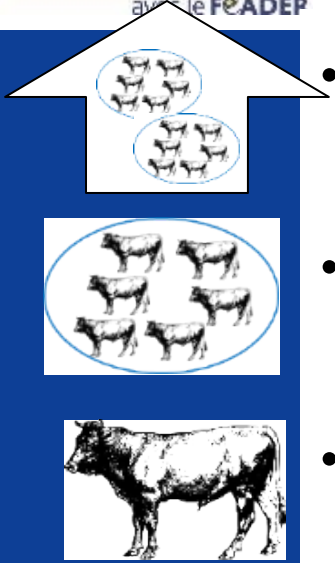
Material and methods



- 14 pens from 8 fattening farms included
- 3 visits : beginning, middle and the end of fattening period:
 - 4 feet of bulls observed by a professional trimmer working in a veterinary clinic
 - Description and recording of all DD lesions
 - Recording of litter's temperature of pens and collection of data on farming conditions and practices

Results : prevalence

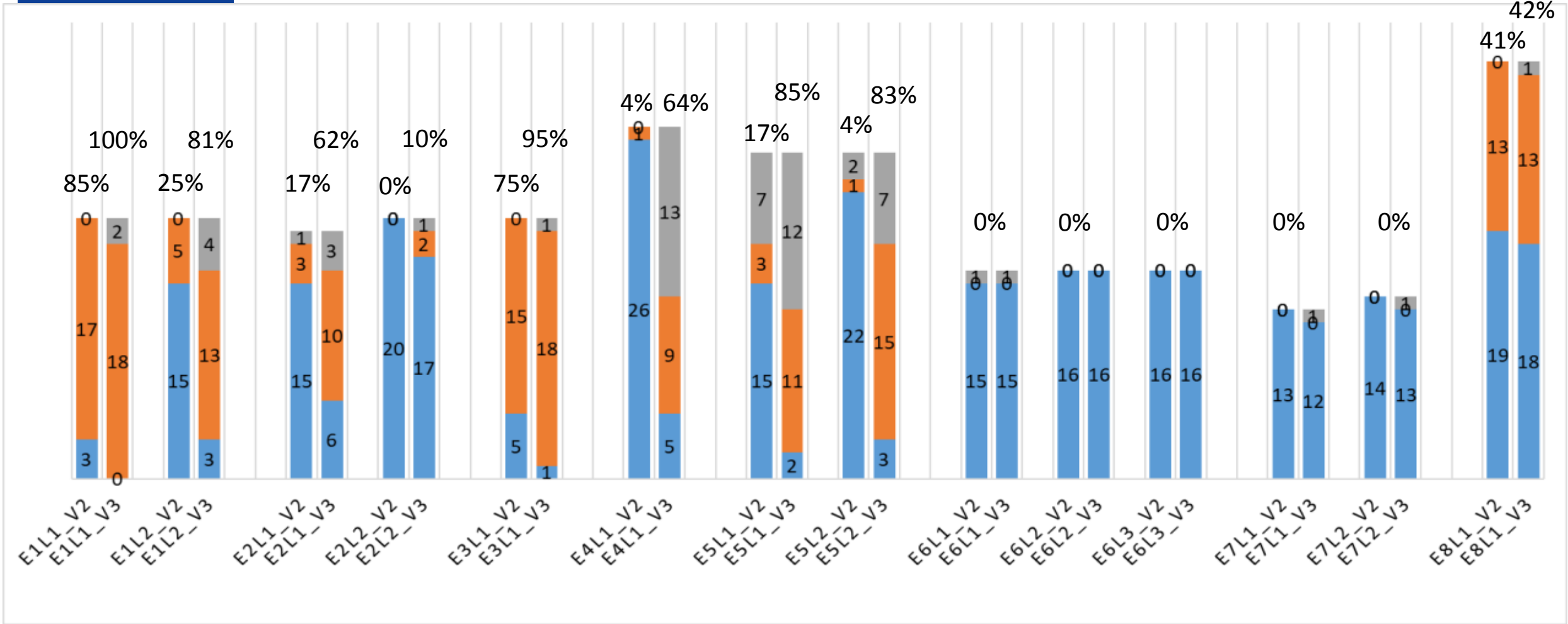
- 7 farms affected among the 8 included (for one farm: an animal >0 in a batch not monitored)
- 9 batches affected among the 14 included
- 271 animals included at V1 but several "lost to sight" (infirmarium, early slaughter) → 236 at V3
→ 242 animals included in the analysis (= animals always <0 + animals >0 at V2 and/or V3)
- No case observed at the first visit
- Significant differences of intra-batch prevalence between and within farms :
 - 8/14 batches affected at mid-fattening: intra-batch prevalence: 4-85%
 - 9/14 batches affected at the end of fattening: intra-batch prevalence: 10-100%



Results : prevalence

E = Farm L = Batch V = Visit

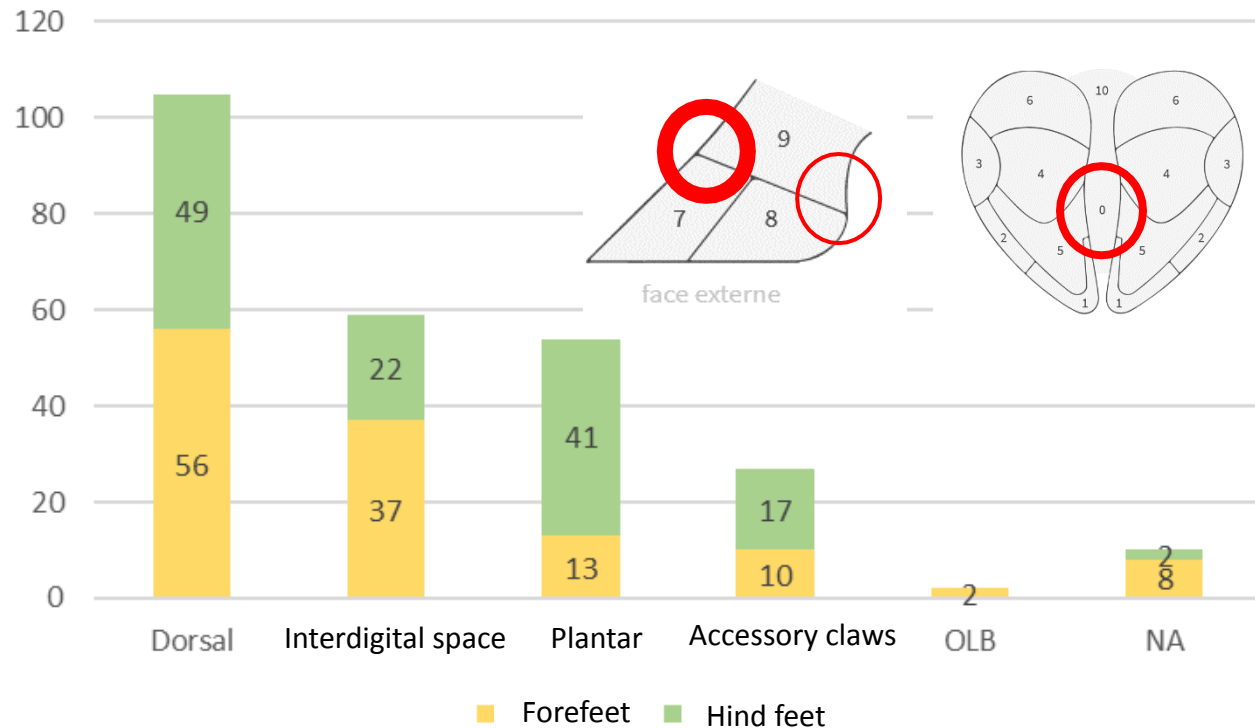
Healthy Infected Not observed



Results : lesions

- 257 DD lesions described : Mainly active lesions
- ≈ 50/50 forefeet (N= 126) vs hind feet (N= 131)
- Dorsal face > interdigital space (EID) > plantar face
- Accessory claws : ++ (10%)

≈ 20% of lesions were at the dorsal face of forefeet



Results : hypothesis of risk factors

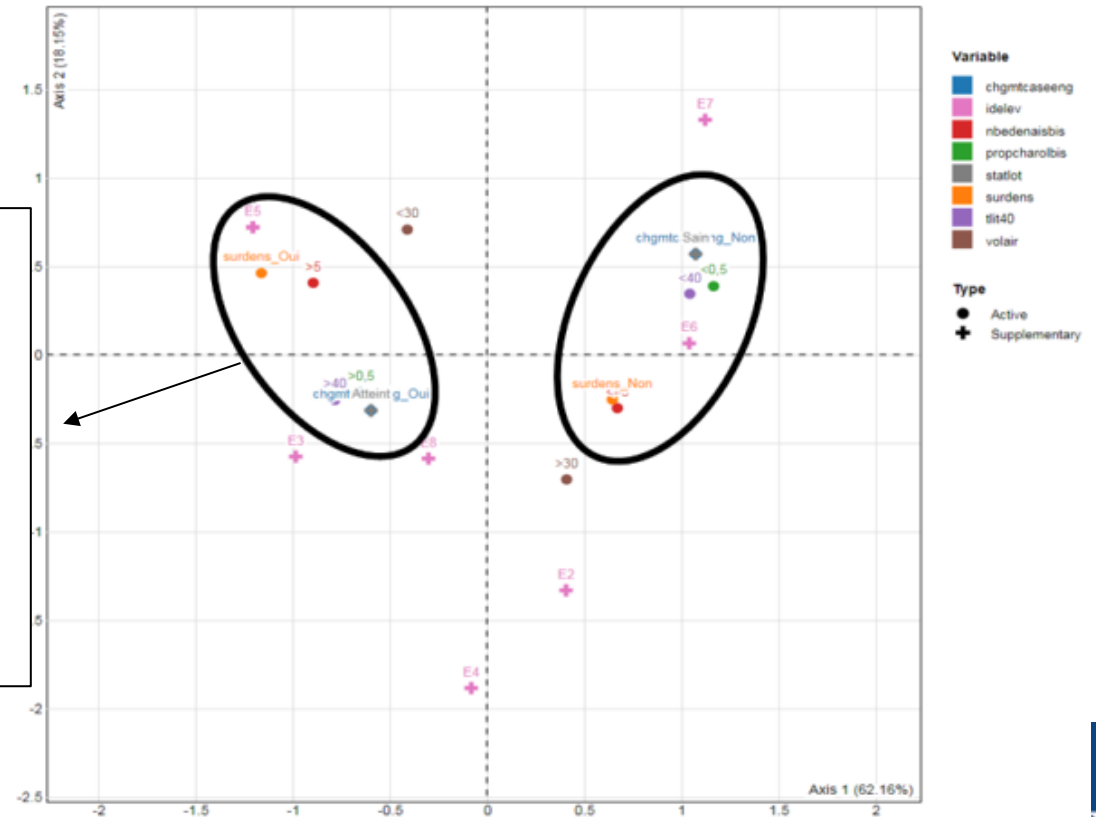


- Lots of variables, few farms → sometimes insufficient variability (identical or “rare” practices) e.g. feeding.
- Link between many variables → possible confounding factors

= HYPOTHESIS ON RISK FACTORS!

Multiple correspondence analysis
Hierarchical bottom-up classification

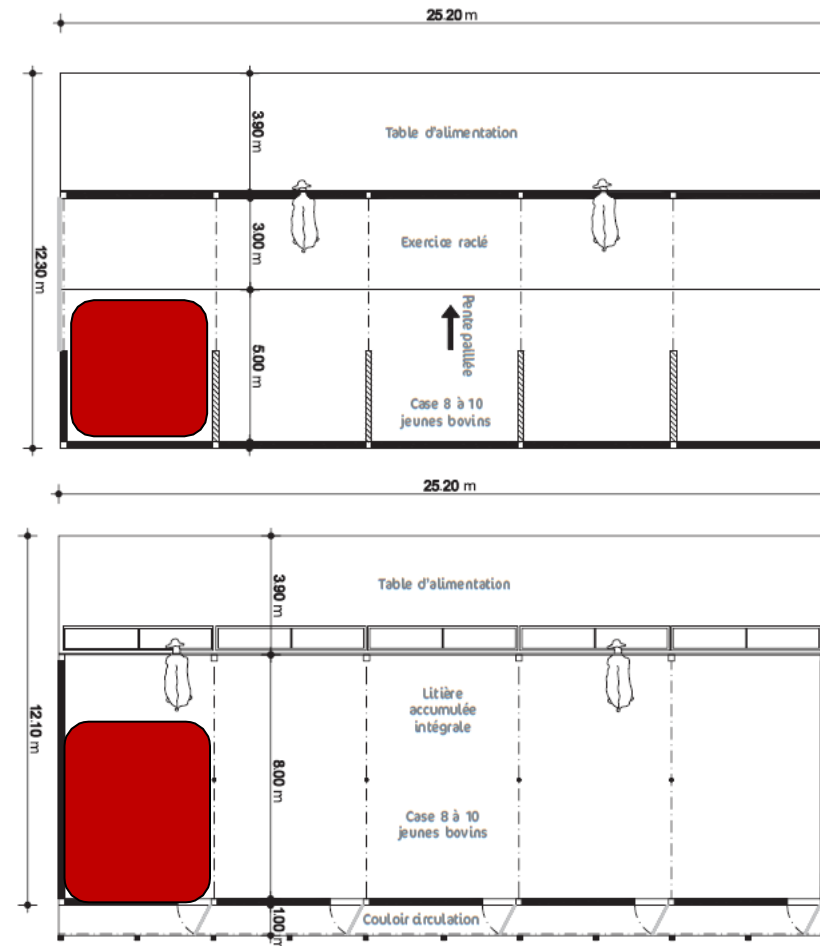
- **Batch Status** = infected
- **Bedding temperature >40°C** on at least one of the 12 sampling points
- **Passage of animals** in a pen with an unchanged litter (quarantine or during fattening)
- **Number of breeding farms** in a batch >5
- **Overdensity** = yes



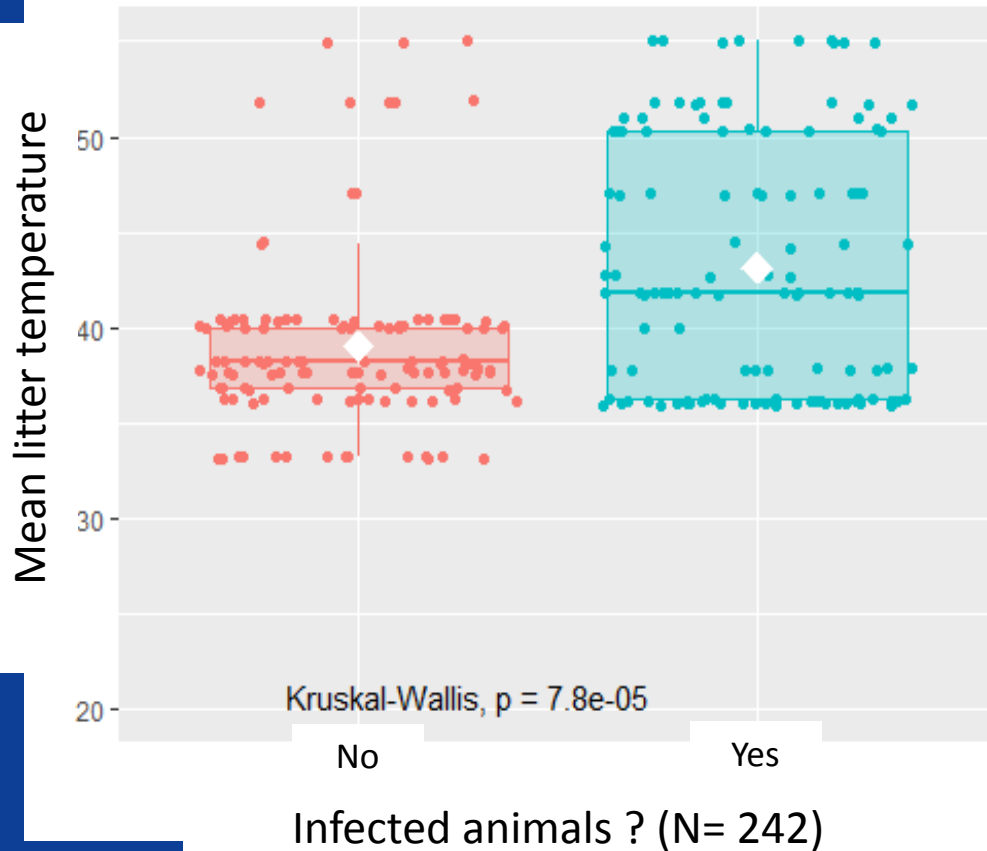
Results : overdensity

Overdensity over 12 months of age : ↑ time spent standing, ↑ litter temperature, ↑ humidity

	Area of cattle living area m ² /YB	
	Exercise area	Bedding area
E1	1,80	2,20
	4,00	
E2	/	4,50
	4,50	
E3	1,80	2,25
	4,05	
E4	2,70	4,60
	7,30	
E5	1,80	2,10
	3,90	
E6	/	4,50
	4,50	
E7	/	4,90
	4,90	
E8	/	4,50
	4,50	



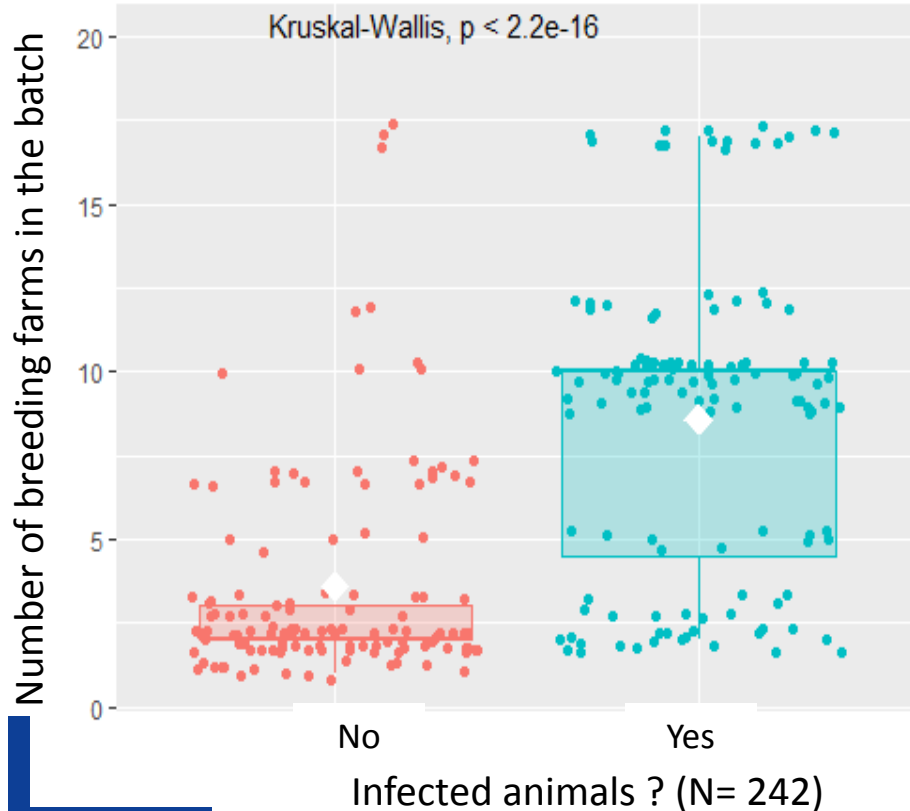
Litter temperature



Increase in litter temperature :

- = Heterogeneous distribution of animals if heterogeneous T° in the pen (e.g. mulch by animals) \rightarrow increase in "overdensity" risk factor
- Damaged skin? = bed of treponema?

Number of breeding farms in the batch



Increase in the number of breeders

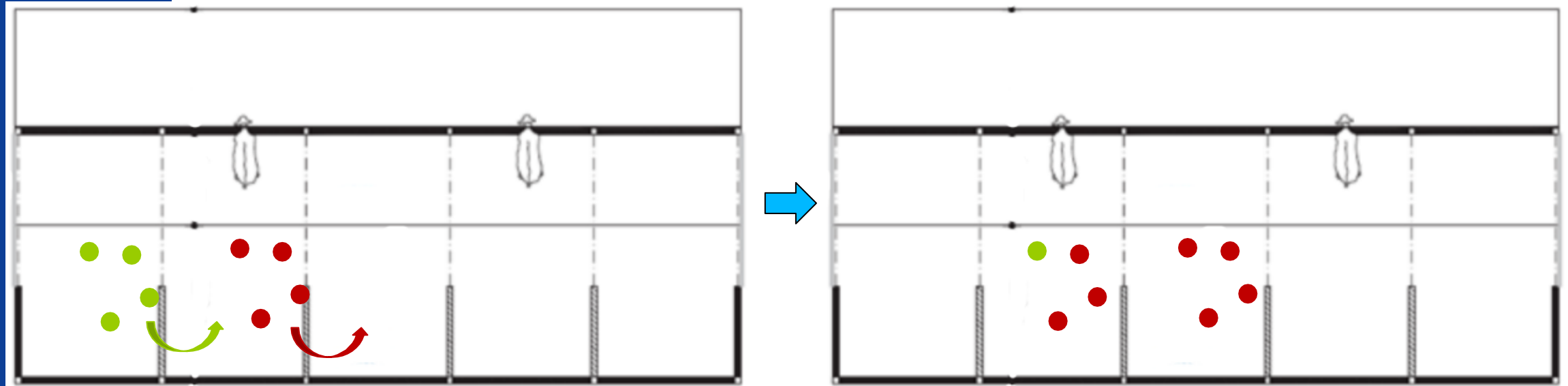
- = Increased risk of introducing affected animals
- Increased animal stress + fights → weakening + possible injuries
- More varied and increased bacterial intake, hence greater demand on the immune system, itself weakened by stress

Change of pen during fattening

Moving from the quarantine pen to the fattening box and/or changing boxes during fattening without cleaning the pen and without changing the straw beforehand

= Contamination of new arrivals via the litter of former animals.

→ Contamination of new arrivals



Other risk factors observed

- Scraping areas that communicate and the direction of scraping: scraping of the contaminated pens towards the healthy pens = seeding of the healthy pens with treponema
- Presence of the infirmary-pen next to the fattening pens = increased risk of contamination of fattened animals
- Access to water: in quantity and quality: sufficient number, sufficient flow throughout the building, even if several animals drink → Reduced access to water = stress + prolonged standing time
- Humidity → Presence of moist areas = macerated skin = bed of treponema
- Atmosphere/ventilation → Humidity, ammonia
- Insufficient feeding space = prolonged standing time

Conclusion

Few monitored farms and close systems

→ A larger scale study would be needed to validate these hypothesis regarding risk factors.

→ However, this 1st study allowed to

- confirm presence of DD in fattening units, sometimes high intra-batch prevalence
- describe and to better understand this disease in French fattening farms
- identify practices on which it could be possible to act to limit the development of the disease, and therefore economic losses.

→ Control DD in fattening units = limit the economic impact and on animal welfare during fattening :

- decrease the infectious pressure at the entrance
- avoid scattering


1. Identify and correct risk factors


2. Identify infected animals in the batch and take care of them quickly: trimming, disinfectant bath, isolation...


3. Put in place preventive measures: e.g.: footbath (beginning or even during fattening) and/or treatment of the litter with competing bacteria, or other treatments


FEEDLAME


- Study on foot lesions affected French young bulls is in progress
- Led by UMR Oniris Biopar
- Poster displayed at this congress


Prevalence of foot lesions in French slaughter dairy and beef young bulls housed in indoor feedlots

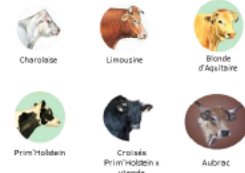

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Lameness
 ↳ animal welfare
 ↳ economy.
 

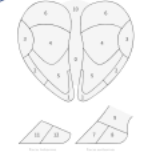
Young bulls reared indoor in France



How frequent are foot lesions?


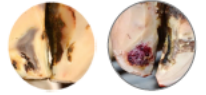
↗ lameness perceived by veterinarians, technicians, trimmers – Why?


6 breeds


Post-mortem examination
 3 slaughterhouses
 4 feet observed


Location?


Nature?


Severity?


Hypothesis on risk factors (distribution)?


Funding: France Futur Elevage

R Data analysis ongoing ...

Thanks for your attention.

