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Baptiste Sorin, Sébastien Assié, Sébastien Picault, Pauline Ezanno

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# Pathogen-specific models for bovine respiratory disease in a multi-batch fattening farm

Baptiste Sorin, Sebastien Assié, Sébastien Picault and Pauline Ezanno. Contact : baptiste.sorin@inrae.fr

Oniris, INRAE, BIOEPAR, 44300 Nantes

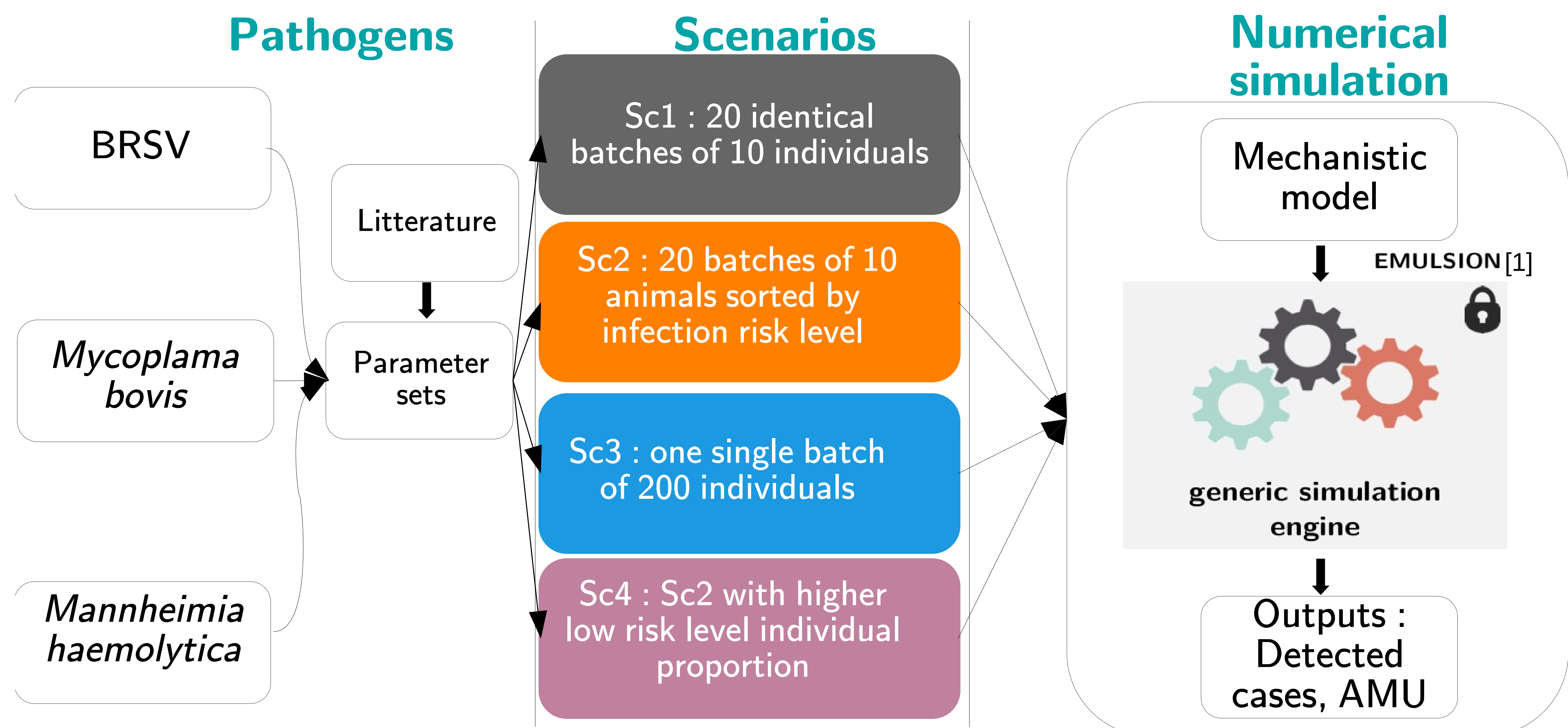


## Bovine respiratory disease (BRD)

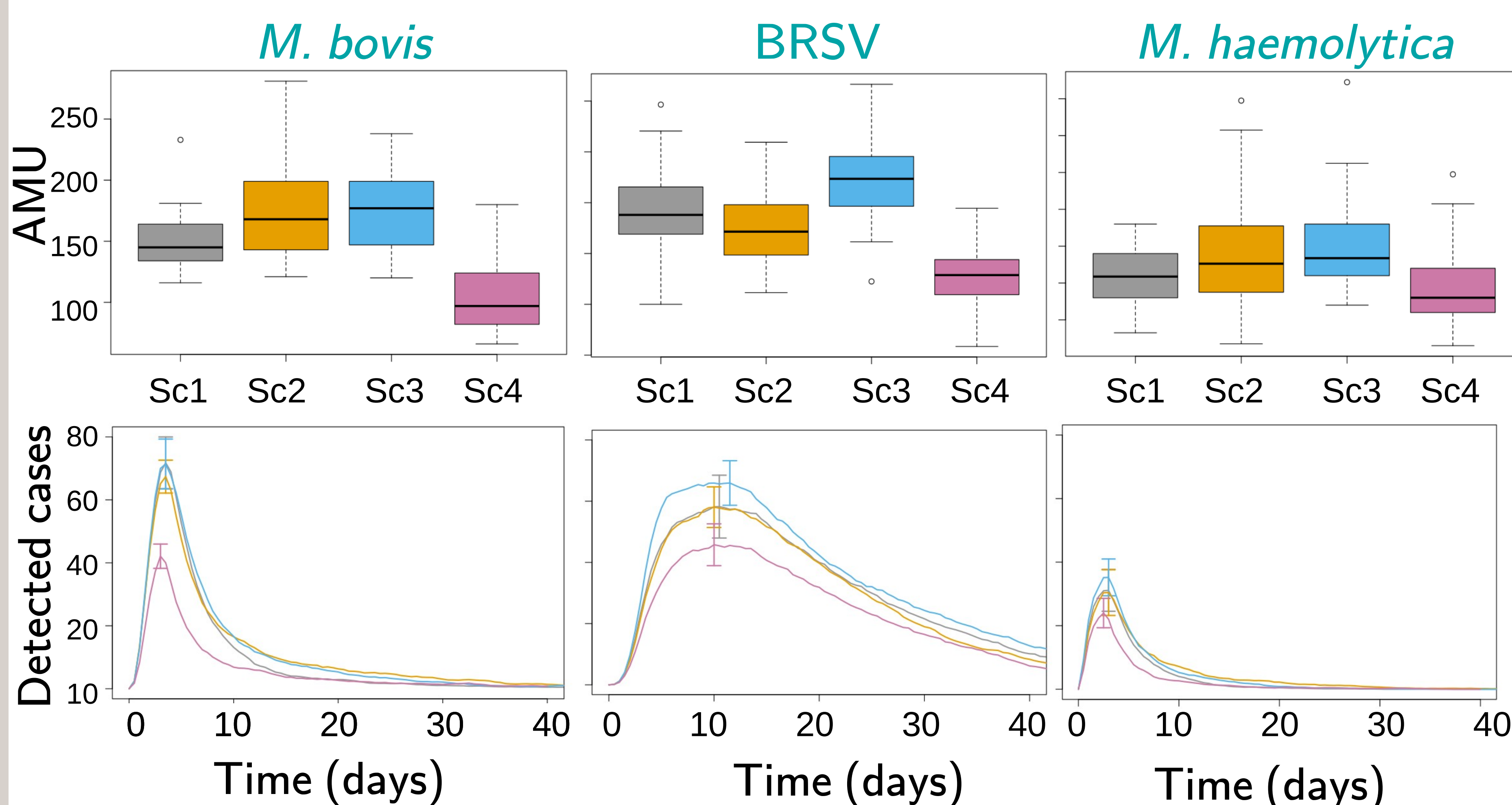
- Worldwide economic and sanitary burden in the cattle farming industry : cost, welfare problem and antimicrobial use
- Multifactorial origin: multiple pathogens + influence of farming practices
- Difficult assessment of farming practices influence
- Modeling is relevant to rank medical and zootechnical interventions

## Objectives

Testing the impact of farming practices on case detection and antimicrobial use (AMU) in 4 scenarios for 200 individuals in 40 days.



## Simulation outputs [2]



## Take home messages

- Very sensitive outputs to individuals risk level
- Small batches limit disease spread
- BRSV has the longest peak due to lack of control

## Perspectives

- Sorting batches does not decrease AMU : food for thoughts...
- Pathogen co-circulation
- Connect to on-farm data

## References

- [1] S. Picault, Y.-L. Huang, V. Sicard, S. Arnoux, G. Beaunée, and P. Ezanno. Emulsion: transparent and flexible multiscale stochastic models in human, animal and plant epidemiology. *PLoS computational biology*, 15(9):e1007342, 2019.
- [2] B. Sorin, S. Assie, S. Picault, and P. Ezanno. Modelling pathogen-specific infection dynamics of bovine respiratory disease in a multi-batch fattening farm. *Accepted for SVEPM*, 2023.