



ESFLU
European Swine
Influenza Network

Meeting Barcelona 2023

Lack of seroconversion in pigs infected by influenza A at early ages in endemic farms

Ivan Domingo Carreño

Department of Animal Health and Anatomy
Universitat Autònoma de Barcelona
Spain



1. Swine influenza is endemic in most countries → High prevalence in commercial indoors pig farm.
2. High diversity of strains/variant within each subtype, lineage and clade.
3. Despite the numerous studies conducted, there remain gaps in our understanding of this disease:
 - a) How between herd transmission occurs.
 - b) Why some subtypes/lineages/variant tend to prevail in a given moment in an area
 - c) The drivers of persistence in the endemic herds



Within the project, the following objectives are set:

1. To establish the phylogeography of swine flu in the area of Catalonia;
2. To determine the routes of entry and dissemination of swIAV between farms of a production system;
3. To assess the frequency of introduction of new viral variants in farms and the emergence of reassortants.
4. To examine the role of prolonged and repeating shedders in endemic pig farms.



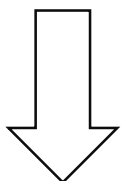
Transmission between farms

Introduction of infected gilts
Vehicles/fomites/visitors



Analysis of a series of production pyramids/systems

- Analysis of animals in different points of the pyramid
- Environmental sampling
- Sequencing
- Biosecurity surveys

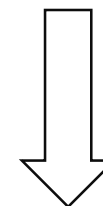


Map of swIAV in the pyramids and characterization of the spread within the system



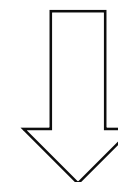
Maintenance of the virus within a farm

Role of prolonged shedders and repeating animals



Characterization of the immune response (humoral/cellular) of the animals depending on their status (prolonged shedders, reinfection or unexpected patterns) (ELISA, HI, NI, VNT, IFN- γ) ELISPOT

Co-infections present in the different groups



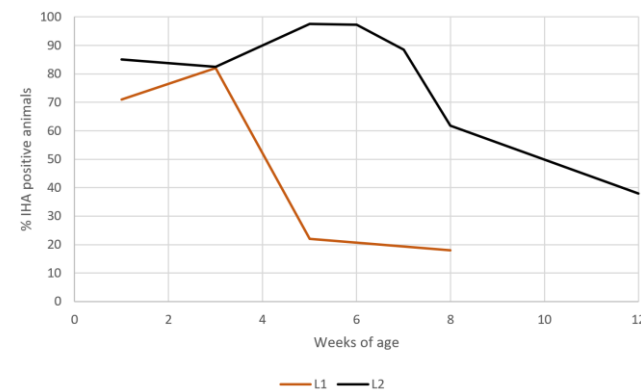
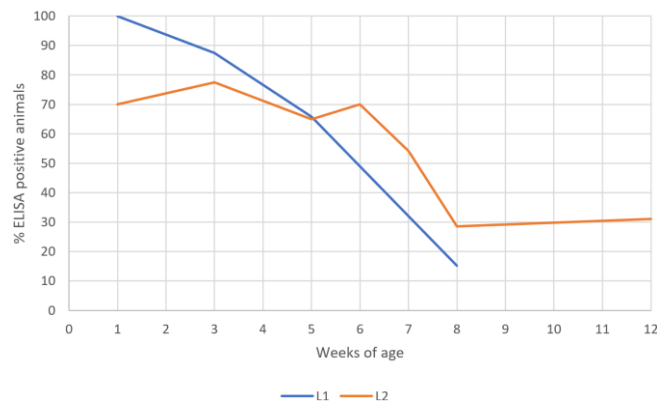
(on field) Characterization of "unusual" shedding/infection patterns



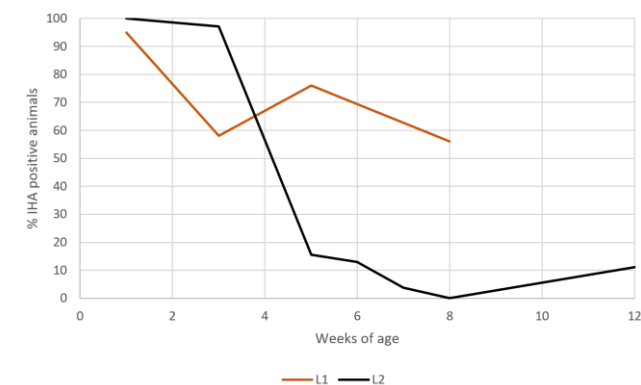
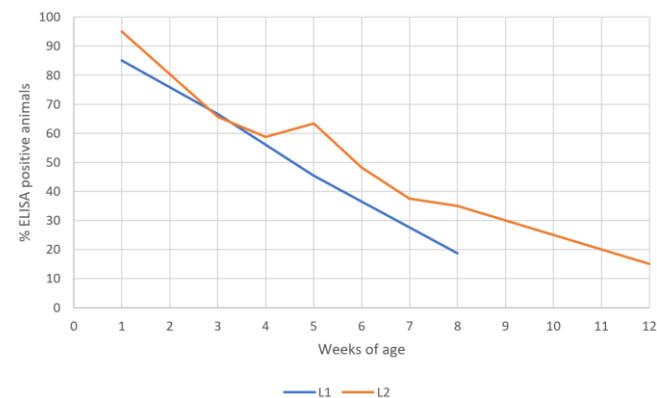
In previous studies:

- Almost all farms of Catalonia are infected
- High proportion of prolonged/repeated shedders in field conditions
- Almost all animals are co-infected by several respiratory/systemic pathogens
- Introduction of some pathogens (i.e. PRRSV may change the pattern of shedding)
- Lack of seroconversion observed in suckling/nursery piglets infected in endemic farms

Farm 1



Farm 2





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Thank you for you attention!