Partitioning, a novel approach to mitigate the risk and impact of African Swine Fever (ASF) in endemic settings

Costard S.[1], Perez A.M.[2], Zagmutt F.J.[1], Pouzou J.G.[1], Groenendaal H.[1]
[1] EpiX Analytics, Fort Collins, CO, USA; [2] Center for Animal Health and Food Safety, College of Veterinary Medicine, University of Minnesota, MN, USA

Key points:

- Partitioning aims to incentivize farmers to invest in ASF detection and biocontainment in endemic areas
- On commercial farms, it relies on three key elements: stringent biosecurity across epidemiological units, on-farm surveillance for early detection, and targeted depopulation and substantiation of disease freedom
- Partitioning should be implemented as a public-private partnership driven by industry, but with regulatory oversight

African swine fever (ASF) continues to spread across several global regions, highlighting the need for supplementary control strategies. Full depopulation is central to current ASF control efforts, and its efficacy depends on surveillance and timely disease reporting, while resulting in large losses regardless of producers' efforts. This disconnect between prompt reporting and subsequent farm losses can deter producers from investing in ASF detection and control. Approaches are needed to incentivize producers to invest in surveillance, early reporting and containment. We postulate that commercial swine farms may be effectively partitioned in separate epidemiological units to which biosecurity, surveillance and control apply. The proposed Partitioning approach relies on (Figure 1): 1. external and internal biosecurity to reduce ASF introduction risk and maintain separate units; 2. cost-effective on-farm ASF surveillance to enhance early detection; 3. response plans that include targeted culling and substantiation of freedom from infection on remaining units. Partitioning can be an effective public-private partnership approach for ASF risk reduction, while helping to reduce outbreak losses. It requires relevant legislation to incorporate the notion of within-farm subpopulations and provide a regulatory framework for targeted depopulation and demonstration of disease freedom. It should be driven by industry, as its benefits are accrued mainly by individual producers, but regulatory oversight is key to ensure proper implementation.

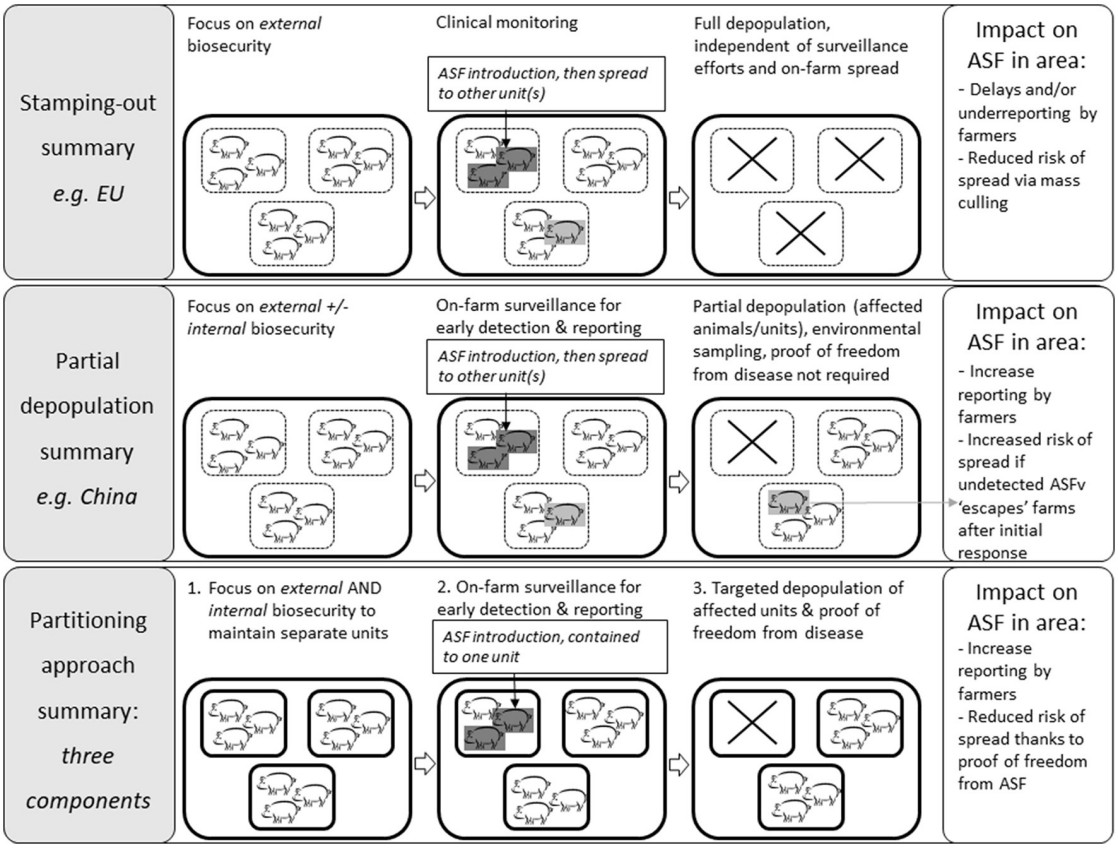

Figure 1: Comparison of the principles of the standard ASF control approach, partial depopulation, and Partitioning approach, using an example farm with three epidemiological units

Full article at: https://doi.org/10.3389/fvets.2021.812876