

# Compartmentalization as a tool to support food security, disease eradication and business continuity in the event of an outbreak of African Swine Fever

Krista Howden<sup>1</sup>; Kathleen Long and LeeAnn Peters<sup>2</sup>; Egan Brockhoff and Audrey Cameron<sup>3</sup>; Penny Greenwood<sup>4</sup>; Angus Cameron, Anne Meyer and Celine Faverjon<sup>5</sup>

<sup>1</sup>OHSS, <sup>2</sup>Maple Leaf Foods; <sup>1</sup>Canadian Pork Council; <sup>1</sup>Canadian Food Inspection Agency <sup>1</sup>AusVet Europe

## Introduction

Business continuity is part of the wider concept of resilience to animal diseases and of critical importance for food security and the viability of rural economies. The World Organization for Animal Health (WOAH) supports the application of compartmentalization as a tool to mitigate business risk from infectious animal diseases.

The purpose of our study was to identify the requirements for an ASF-free swine compartment, present the advantages and challenges of the approach and provide guidance for implementation in the Canadian context in which the industry exports 70% of domestically produced pork products.



Figure 1. Biosecurity is critical for the implementation of compartmentalization; record keeping is also necessary for documenting the implementation and supervision of the biosecurity plan (1).

## Methods and Materials

- Step 1: A comprehensive review of the literature and international standards to identify requirements for an ASF-free swine compartment was undertaken.
- Step 2: A desk-based and on-site assessment of a large vertically integrated commercial swine production system in Canada to identify practical, ASF-specific recommendations, including on-farm and abattoir requirements.
- Step 3: A public-private partnership approach to develop National Standards and a Framework for governance and oversight with Canada's Official Veterinary Authority, the Canadian Food Inspection Agency (CFIA).



Figure 2. Abattoirs need to ensure high standards of traceability and measures to prevent cross-contamination with ASFV (2).

## Results

1. Compartmentalization is a tool that requires **deep knowledge of structural factors** (value chain, stakeholders, legislative framework) and **disease-specific factors** (epidemiology, disease control measures).

**The application requires at a national level:**

- Minimum standards for biosecurity, surveillance and traceability
- Governance and oversight (auditing)
- Implementation framework

**At the compartment operator level**, it requires bio-exclusion measures to prevent the introduction of ASFV via:

- People
- Fomites
- Live pigs
- Pork products
- Animal feed, and
- Proximity pathways

2. Barn-based mortality and morbidity-based surveillance support early detection and demonstration of freedom from ASFV.

3. Biosecurity, segregation and traceability at slaughter establishments ensure compartment products are not cross-contaminated with ASFV.



Figure 3. Impacts of an ASF Outbreak and the role of compartmentalization.

## Conclusion

Integrated production systems lend themselves well to compartmentalization for ASF. Although substantial work is required to set up a national program, compartmentalization can demonstrate benefits beyond supporting business continuity and maintaining trade when viewed from a One Health lens.

These include:

- 1) reducing the need for surplus hog culling and food waste, minimizing negative impacts on animal welfare and farmer/responder mental health;
- 2) maintaining slaughter operations and retaining a food safety workforce during an ASF event;
- 3) reducing the need for public funding of industry compensation; and
- 4) building trusting partnerships between industry and governments.

## Contact

Krista Howden, DVM MSc DACVPM  
One Health Scientific Solutions  
krista@onehealthscientific.com  
www.onehealthscientific.com

## References

(1), (2) World Organization for Animal Health (WOAH) (2020). Compartmentalization Guidelines. African Swine Fever. Author.