



AFRICAN SWINE FEVER: A CROSS-SECTIONAL STUDY DESIGN

Philippines

P R E S E N T E D B Y :

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Objectives & Expected Outcomes

Objectives:

- To know the prevalence of ASF virus distribution in pig holdings in the country;
- To understand potential sources of virus introduction into the country and transmission routes between household, villages and regions;
- To know the contributing risk factors and which type of farms and regions are at higher/lower risk of infection;
- To know the approximate economic loss that may be associated with ASF.

Target Group and Case Definition

- **Target Group:** Backyard and commercial pig farms with at least 2 years of farming experience in Neverland.
- **Case Definition**
 - Household level:** Farming households (backyard and commercial) with at least one (1) pig positive for ASF ELISA test
 - Animal level:** Domestic pigs with a positive ASF ELISA test result

Stepwise Approach of Investigation

1. Prepare the list of all farming household (backyard and commercial) from ALL 15 administrative regions through the help of the Regional Veterinary Department and Local Government Units;
2. Identify farming household with existing animal population and those with at least 2 years of farming experience;
3. Random selection of the participating farming household will come from sampling frame or pre-selected farms based on the required criteria;
4. No. of animals to be sampled is 2 or more heads per farming household;
5. During sample collection, a survey questionnaire shall also be conducted;
6. All samples collected will be tested using **ELISA** at the Regional Animal Disease Diagnostic Laboratory;
7. Laboratory and survey questionnaire results shall be submitted to the National Veterinary Agency for analysis and interpretation.

Study Size

Study Population:

Regions: ALL 15 administrative regions

Pig holdings: Backyard and commercial farms with at least 2 years of farming experience

Animals: Domestic pigs more than 3 months old with or without clinical signs suggestive of the disease

Study Size:

Assumed true prevalence	0.5
Sensitivity	0.97*
Specificity	0.95*
Desired precision	0.05
Confidence	0.95
Sample Size	454 farming HH

Reference: <https://epitools.ausvet.com.au/prevalences>

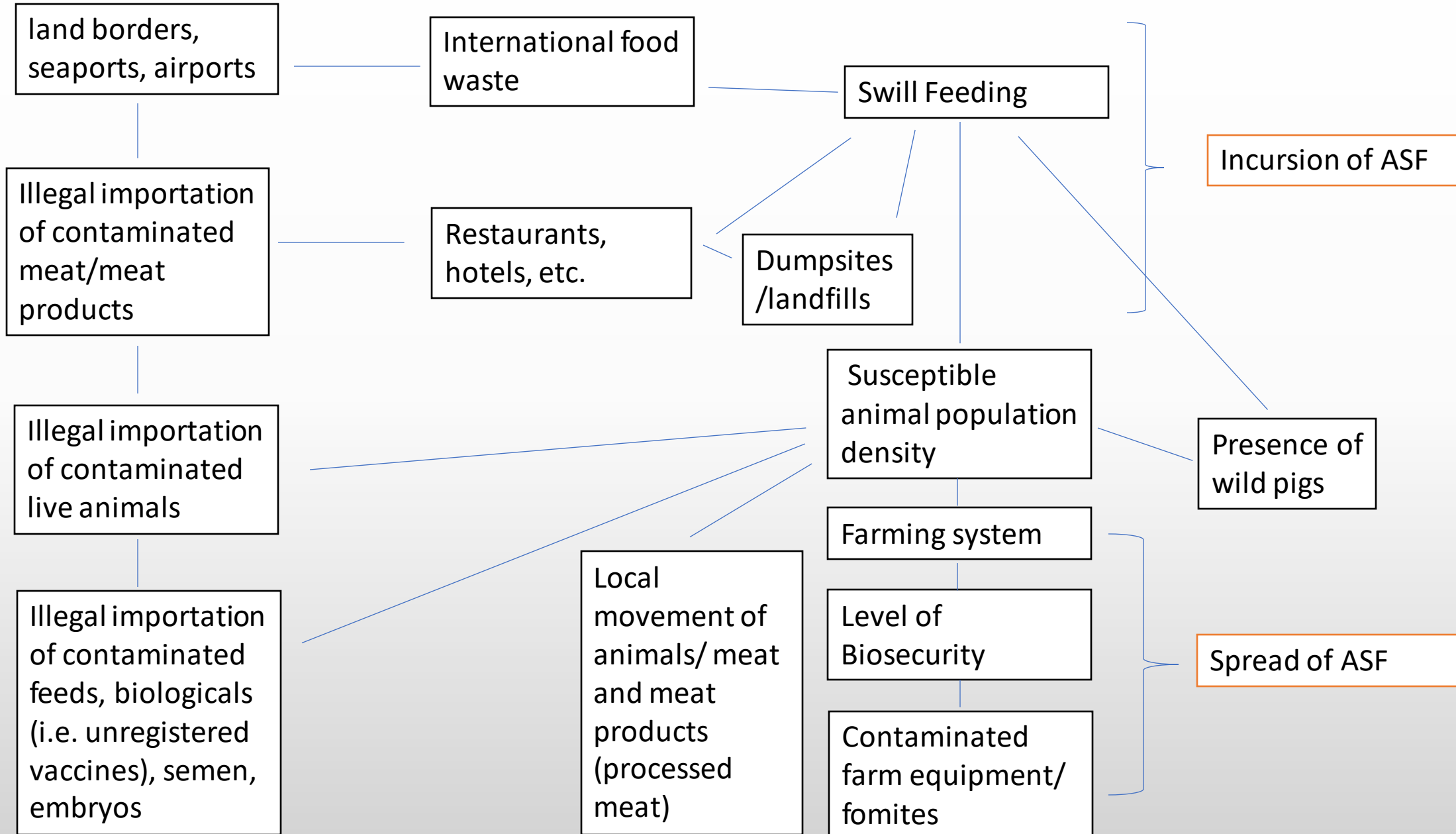
*OIE indirect ELISA test for ASF (Gallardo et al., 2013)

Sample size is estimated at herd-level. 2 or more animals shall be sampled per farming HH.

Stakeholder Involved

- **How are pig households and/or piggeries assessed (who is sampling, who administers a questionnaire)**
 - Pig farming households that meets the required criteria will be randomly selected;
 - Sample collection shall be conducted by the trained para-veterinary workers assigned in the village under the supervision of the Regional Veterinary Department;
 - Survey questions will be encoded in the provided database that can be access by the National Veterinary Agency.
- **Who provides information, who are local people to be involved**
 - Local veterinarians and/or Animal technician
 - Backyard and commercial swine raisers

Pathway of ASF Incursion and Spread



Source and Transmission

Risk factors

- Biosecurity measures
- Farming System
- Swill feeding
- Movement of Animals/ animal-products
- Contaminated farm equipment/ fomites
- Presence of wild pigs in the area
- Tick vectors

	Backyard			Commercial			
	+	-	AR	+	-	AR	OR
RF1							
RF2							
RF3							
RF4							
RF5							
RF6							

When P value $\leq$ to 0.05 and the 95% CI does not include null value of 1 then the Risk Factor (RF) with OR > 1 is considered significant

QUESTIONNAIRE FOR ASF CROSS SECTIONAL STUDY

Name of the Farm: _____

Owner: _____

Address:	Barangay	Mun/city	Province
	GPS	Long	Lat

Contact details: _____

Name of Farm Veterinarian: _____ **Date of surveillance:** _____

Type of farm:

Commercial ☐
Backyard ☐

Population: _____ No. of houses: _____

Population: _____

☐ Free-roaming ☐ Tethered ☐ Housed No. of pens: _____

Stage of Production	No. of Heads
Boar	
Sow/Gilt	
Suckling	
Weanling	
Growing	
Fattening	

Samples collected: ☐ Serum ☐ Whole Blood ☐ Organs, specify: _____

Source of stocks:

Farm source	
Address	

Animal Health Program (describe/list down all information regarding the topic)

Are there any clinical signs observed?	☐ Fever	☐ Abortion	☐ Emaciated	☐ Empty Stomach
	☐ Lethargy	☐ Abnormal gait	☐ Bloody diarrhea	☐ Eats slowly
	☐ Vomiting	☐ Off-feed/anorexic	☐ Respiratory signs	☐ Reduced feces
	☐ Black/red/purple discoloration of skin	☐ Epistaxis	☐ Others: _____	
Vaccination				
Medication				

Animal, animal products and by products Movement and Management

Marketing of Pigs	☐ Through middleman, to where? _____
	☐ Local slaughterhouse, where? _____
	☐ Backyard slaughter, where? _____
	☐ Sold to neighborhood (live animal), to where? _____
Disposal of pigs	☐ Buried
	☐ Incineration/burning
	☐ Mortality pit
	☐ Others: _____
Feeding Management	☐ Feeds
	☐ Swill or Kaning-baboy: _____fresh____cooked
	☐ Mixed
Disposal of wastes (manure and water wastes)	
Have you seen external parasite (e.g. ticks) in your pigs? *	☐ Yes
	☐ No

*Interviewer may show picture of ticks

Biosecurity Measures

	Description	Yes	No
Location	Are there pig farms located within ____ of the farm?		
	<500m		
	>500 m		
	>2 km		
Facilities	Clearly demarcated Clean Dirty Line, fenced		
	Signage of Biosecure area		
	Shower in-Shower out		
	Complete change of clothing/footwear		
	Pest control program in place		
	Regular cleaning and disinfection		
	Observe downtime		
	Supplies decontamination (personal/farm supplies)		
	Food items (no pork, pork products from outside)		
	No food/drinks in the pig area		
	Water, chlorinated and regularly tested		
	Load-in/Load-out (1-way), washed/disinfected between uses		
	Feed, feed bags are not allowed to enter HSA		
	Dead pig disposal, covered		
Records	Visitors Log, mortality, with written biosecurity measures		
Vehicle Movement	Vertically integrated (not exposed to viajeros)		
	Dedicated feed truck		
	Trucks washed/disinfected upon entry		

*Quantitative evaluation/scoring may also be employed per item

Exposure to Wild Pigs

Are there presence of wild pigs in the village?

☐

Yes

☐

No

Are there area/s where possible co-mingling
between wild and domestic pigs occur?

☐

Yes

☐

Grazing areas

☐

Others: _____

☐

No

Production Loss (at household level)

Losses due to ASF

Production Loss

	No. of Death	Live weight (kg)	Price per kg	Price per head
Pre-wean				
Grower				
Sow				

Operational Input Expense

	Unit	Qty	Price/ unit	Total
Feeds				
Water				
Biologics/Medicine				
Technical Services (Vet/paravets)				
Electricity				
Others: _____ (Please specify)				

Culling/ disposal cost

Particulars	Unit	Qty	Estimated Unit price	Amount, PHP
Lime				
Disinfectant				
Backhoe rental (if applicable)				
Electric stunner (if applicable)				
Expense for Hauling vehicle (if applicable)				
Manpower (if applicable)				

Summary /Discussion

- A total of 454 farming households (backyard and commercial) selected through random sampling in 15 administrative regions will be included in the study with 2 or more animals sampled per HH to know the seroprevalence of the disease;
- Type farming, swill feeding practices, biosecurity measures, wild pig exposure, movement of animals/animal products, fomite and tick vector are the risk factors associated to ASF to be investigated;
- Losses associated with ASF are to be measured based on the following parameters: production loss, operational input expenses, culling/disposal cost.