



Cross-sectional study design to investigate African Swine Fever problem in Neverland, 2021

Cambodia

Objectives & Expected outcomes

- State objectives and expected outcomes of study design
 - ❖ To describe prevalence of ASF in Neverland
 - ❖ To identify potential risk factors associate with ASF outbreak
 - ❖ To estimate household financial loss due to ASF outbreak

Target group and case definition

- Define the target group and develop a case-definition at animal and at household level
 - 15 administrative regions in Neverland
 - Randomly select village from the sampling frame to conduct study

Stepwise approach of investigation

- Develop a case definition
 - Study time; September to October, 2021.
 - Multi stage sampling
 - Design and apply in-person questionnaire interview
 - Confirm case will be use
 - Animal level; Randomly collect sample from individual pig in the farm
 - Household level; If at least one pig from individual farm positive with ASF confirm by provincial Lab will assign as positive farm.

Study size

- How many and what type of pig holdings and animals should be sampled, and in which regions (make assumptions)
 - In total 1155 individual pigs will be collect sample
 - $1155/15 = 77$ pigs per administrative region
 - 5 pigs per village
 - So, 16 villages will be randomly select for this study

The screenshot shows the Epi Info software interface with the StatCalc window open. The StatCalc window is titled "StatCalc - Sample Size and Power" and includes a subtitle "Population survey or descriptive study For simple random sampling, leave design effect and clusters equal to 1." The input fields are set as follows: Population size: 800000, Expected frequency: 50%, Acceptable Margin of Error: 5%, Design effect: 3.0, and Clusters: 15. A table displays the resulting sample sizes for different confidence levels and cluster sizes.

Confidence Level	Cluster Size	Total Sample
80%	33	495
90%	54	810
95%	77	1155
97%	95	1425
99%	133	1995
99.9%	217	3255
99.99%	303	4545

The bottom of the Epi Info window features a navigation bar with "ANALYZE DATA", "EPI INFO™ WEBSITE | ABOUT EPI INFO™", "LANGUAGE: en-US", and "VERSION: 7.2.5.0". Below this, two boxes describe the software's capabilities: "Clean, transform, and analyze data with commands." and "Visualize analytical results with gadgets, charts, and tables."

Stakeholder involved

- How are pig households and/or piggeries accessed (who is sampling, who administers a questionnaire)
 - Who provides information, who are local people to be involved
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- ❖ Divide into 2 team (1 Sampling team and 1 Interview team) avoid contaminate the disease transmission
 - ❖ People who provide information and involve
 - Provincial vet/ district vet
 - trained para-veterinary worker
 - Head village
 - farm owners and worker in the farm to gather information, production and procedure details

Source and transmission

- Which risk factors should be investigated and what questions should be asked (design a short questionnaire, include only relevant information)
- ❖ Number of pig head in the farms?
- ❖ Measure of wild boar around the farm (Yes/No)
 - Wild boar/carcass seen
 - Crossbred pigs
 - Wild boar access to feed storage
- ❖ Source of drinking water (Yes/No)
 - Tap water
 - Other (river, lake, pond.....)
- ❖ Source of feeding (Yes/No)
 - Swill feeding
 - Cereal or forage from ASF+
- ❖ Tick observation by farmer in or around the pig farms? (Yes/No)

Source and transmission (Cont)

- Which risk factors should be investigated and what questions should be asked (design a short questionnaire, include only relevant information)
 - ❖ Biosecurity measure (Yes/No)
 - ❖ Fencing the farm
 - ❖ Not entering premise at carcasses collection point
 - ❖ Non-contact loading of animal
 - ❖ Rodent control
 - ❖ Intact insect net
 - ❖ Breeding system (AI, Own mate)
 - ❖ Replacement piglet (From own herd/From outside)

Production loss

- Develop criteria and questions to evaluate the production loss associated with mortality and morbidity due to ASF at the household level.
 - ❖ Number of pig sick/death from last 3 month (clinical sign of ASF suspected case)
 - ❖ treatment
 - ❖ Piglet's price estimate
 - ❖ Live fattening pig price/Kg
 - ❖ Feed for pigs/day estimate
 - ❖ Labor/worker
 - ❖ Vaccination

Summary /discussion

- Cross-sectional study design
- Multi stage sampling
- Population survey to calculate sample size
- Collect sample from pig in individual village and farm
- Use confirm case to identify infected farms base on Lab confirmation
- Identify potential risk factors and economic due to ASF