



LSD case-control study in Neverland

Thailand

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How to investigate the outbreak ?

- Establish team
- Define objective
- Create plan
- Preparing tools
- Collaboration with local people , farmer ,local vet
- Public awareness , control measures risk communication
- Report

Case definition and define controls

- Case definition : The HH/farm that has cattle with LSD lesions such as multiple nodules on the skin and mucous membrane and been confirmed the case by laboratory with positive result in January – August 2021
- Control : The HH/farm that their cattle has no LSD lesions in January – August 2021

Stakeholder involved

- Farmers
- Local veterinarian
- Animal trader
- Cooperative organization
- Slaughterhouse

Source and transmission

- How do you generate information about infection sources and factors contributing to transmission within and between villages ?
 - History taking
 - Outbreak investigation
 - Movement history
 - Questionnaire

Questionnaire

- Farmer information
 - Name
 - Age
 - Farm location
- Cattle and farm management
 - Breed
 - Sex
 - Age
 - Type (Dairy/Beef)
 - Water source
 - Feed source/method (grazing practice)
 - Contact with other animals
 - Replacement policy (close, open herd)
 - Vector control

Evaluation

Evaluate the consequences of LSD infection of animals, such as production loss associated with mortality and morbidity

- Milk production decreased (Milk product record)
- Carcass quality decreased (Carcass value record)
- Reproductive performances (Conception rate)
- Treatment cost (Revenue/Expenses Accounts)
- Manpower

Study size

- Sampling from outbreak in Jan - August 2021
- Total samples 1040
- Farm size 3-10 heads

Please enter the ratio of controls to cases	1
Please enter the prevalence of the risk factor	20.9 %
Please enter the values for two of the following parameters, and ? for the parameter to be calculated	
Sample size (both groups combined)	?
Power	80.0 %
Relative risk to be detected	1.50

Type I error 5.0 %
Sides 2
To change these values
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Results				
	Total	Group 1	Group 2	
Sample size	1040	520	520	Return to start
Power	80.0 %			
Minimum detectable relative risk >1	1.50	Maximum detectable relative risk <1		

Summary

- Study in Jan-Aug 2021
- 336 Samples
- Case: Cattle with LSD lesion
- Control : Cattle without LSD lesion
- Budget
 - ❖ laboratory testing
 - ❖ Vehicle , manpower
 - ❖ Public awareness (PR)
 - ❖ Treatment
- Questionnaire method :face to face

Discussion

- Misclassification bias: the cattle in control HHs may be in asymptomatic phase
- Controls may be hard to find
- Overmatching may occur between case and control HHs in the same village due to same food source
- 3-10 heads of farm size and random selection >> avoid selection bias