60 Points that to be covered during FMD outbreak Investigation

Background Information

1. Farmers name and phone number (if available)
2. Name of local level, ward , Districts/ province
3. Type of Farm and number of animals, (commercial, semi commercial, backyard cattle, sheep, goat, pig (specify),
4. Date and time of report of outbreak from farmer to Service Center/ VHLSEC.
5. Date and time of report from Service Center/ VHLSEC to NFMD LAB/DLS/ VES.
6. Date and time of visit by veterinarian or field staff,
7. Name of contact field staff, address and phone number.
8. Provide information about the team visit to outbreak area.
9. Date and time of visit

Field investigation

10. Farm and village background information,
11. Different animal categories and numbers (herd size,)
12. Farm type and husbandry practices
13. Whether any inter-mixing of animals such as cattle, sheep, goat and pigs
14. General information regarding introduction of any new animals
15. General information regarding buying and selling of any livestock and livestock product
16. General information about the affected village/ farm (no. of households)
17. Household rearing cattle, sheep, goat and pigs and farming system.
18. General information about any recent local festival or gathering in the village/ locality.
19. Collect XY coordinates (using GPS), altitude, road network, Government offices, and frequency of movement of people in an out of the outbreak area

Baseline morbidity, mortality and clinical signs

20. Determine baseline mortality for period (week or month) before the outbreak and in previous year, both generally, and more specifically for the same seasonal time period as the present outbreak in the previous year;
21. General information of the present disease outbreak such as number of households affected, population at risk, livestock population in the surrounding villages etc...
    a. Record of the daily morbidity and mortality figures in the farm/ village
    b. Record of the detail clinical signs.
22. Epicurve

Bio-security arrangements

23. Describe bio-security arrangement of the farm e.g. disinfectant foot wash, perimeter wall/fence
24. Mixing of different groups' e.g. Contact between cattle, sheep, goat and pigs.
25. Feeding and management
26. Describe the grazing system (cattle, sheep, goat) followed including whether the animals are grazed in their own private pasture or in shared community pastures.
27. Describe feed sources/s including whether the animals are fed with swills.
28. Describe the housing type and the bedding materials used in the shed.

29. Describe water source/s and including whether the affected animals are deliberately made to dip their footing the river or stream.

Wild animals

30. Determine the presence of any cloven footed wild animals in the area
31. Determine whether there are any suspected FMD cases in the cloven footed wild animals in the vicinity.

Vaccination history

32. Record vaccination programs and verify whether the animals in the affected herd/ villages are vaccinated against FMD and other diseases.

Laboratory investigation

33. Establish or verify the outbreak
34. Provisional diagnosis made on clinical signs, epidemiological pattern, and gross pathology.
35. Provisional disease control measures should be in place before the confirmatory diagnosis is made.

   Establish the case definition for FMD.

36. **Suspect case:** If the affected animal(s) show both foot and mouth lesions and when there are more than one cases in the herd/ village depicting similar clinical signs.
37. **Confirmed case:** An animal that has clinical signs consistent with FMD with several animals in the same herd/ village affected with varying stage of disease which is being reconfirmed through detail epidemiological investigation by the Veterinarians with or without positive laboratory results at NFMD & TADS LAB .
38. Differential diagnosis has to be made against Bluetongue, Foot Vesicular Stomatitis, Swine vesicular disease, physical injuries (feet and tongue), Contagious Ecthyma, Peste des Petits Ruminants (PPR), Rabies, mineral poisoning.

Describe outbreak in terms of time, animal and place.

39. When was the index case?
40. What is the exact period of outbreak?
41. Given the diagnosis what is probable period of exposure?
42. Is the outbreak most likely to be point source or propagated or both?

Animal (attack rates, risks etc.)

43. Any differences in the attack rates among different herds, species etc.
44. Which groups (cattle, pig, sheep, and goat) have the highest and which have the lowest attack rate?
45. Any difference in the attack rate among different age group of the susceptible animals?

Place (plot the location of outbreak on a map with physical characteristics such as road, water bodies, mountains, infrastructures etc.)

46. What are the Geographical distributions of the cases?
47. What is the pattern of the cases among different livestock species in different management system?
48. Whether case farm is close to the international borders, national highways, migratory routes or other spatial risk factors?

Develop hypothesis based on the pattern of disease (animal, time and place).

49. Source of disease outbreak - forward and back ward contact tracing
50. Mode of transmission.
51. Whether the outbreak is a common source or propagating
52. If a common source, whether it is point or multiple exposures
53. What are the risk factors associated with problem?

Control and Prevention (SOPS for RRT; ring vaccination and treatment of FMD affected animals etc.)

• Provisional control measures should   be in place before the outbreak is officially declared.

Reporting

54. Document the findings
55. Provide   recommendations to all the   relevant stakeholders
56. Submit the final report

Post vaccination and Treatment: Surveillance and monitoring

57. Is the frequency of the disease remaining constant; increasing or decreasing?
58. Is the control program effective?
59. Does the disease have any impact on productivity or profitability?
60. Any suggestions for improvement of control measure

Name and designation of outbreak Investigation Team members with signatures

SN	Name	Designation	Office	signature