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中国动物卫生与流行病学中心
China Animal Health and Epidemiology Center

中华人民共和国农业农村部

Ministry of Agriculture and Rural Affairs of the People's Republic of China



Integrating participatory epidemiological approaches into epizootic research

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What is Participatory Epidemiology (PE)

- PE uses participatory approaches and methods to improve our understanding of the patterns of diseases in populations.
- Often quantitative surveillance data is scarce or lack of contextual frame.
- Involve knowledge from communities and local leaders = own problem solving
- Enable integration of source of information: qualitative (FGD and KII), quantitative data, laboratory investigation



Community meetings in norther Senegal. Photo (Michel Dione, ILRI)



PPR outbreak investigation (Michel Dione, ILRI)



Episystem description and assessment

- The core of an episystem is the population component capable of sustaining PPR virus transmission over prolonged periods
- Participatory approaches can help assess the core determinants of an episystem
 - Mobility system (Nomadism, transhumance, sedentary)
 - Contact patterns (between herds – markets, transhumance)
 - Animal health delivery services



Case study : Detection of lineage IV in Burkina Faso using

- **EcoPPR project:** determine the occurrence of PPR disease and describe its history and pattern.
- **Participatory disease surveillance (PDS)** uses **participatory approaches and methods** (Participatory Epidemiology → local veterinary knowledge) + **conventional disease investigation methods** (lab. diagnostic)



Community meetings in norther Senegal. Photo (Michel Dione, ILRI)



PPR outbreak investigation in
Dione, ILRI)



Case study : Detection of lineage IV in Burkina Faso using

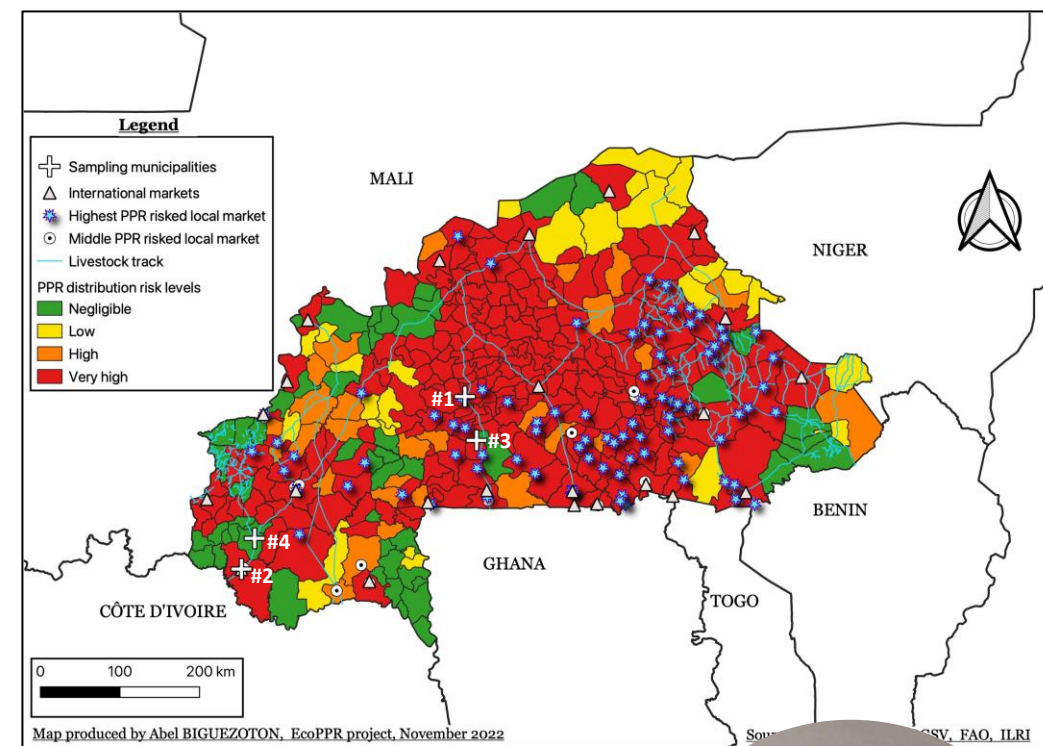
Step 1: Desk review + Key informant interviews with vets

Step 2: Community meetings with farmers

- Livestock movement corridors
- Major livestock markets
- Transhumance route
- Places of flock congregation (watering and grazing)

Step 3: Sample collection (Banfora (#4); Koudougou (#3); Niangoloko; (#2); Niou (#1); 96 swab samples (eye, nasal, mouth); 28 organs (liver, spleen, lung, pharyngeal ganglion, bronchial ganglion, mesenteric ganglion) from dead animals

Step 4: Lab analysis (RT-PCR and Sequencing) →>>> phylogenetic tree

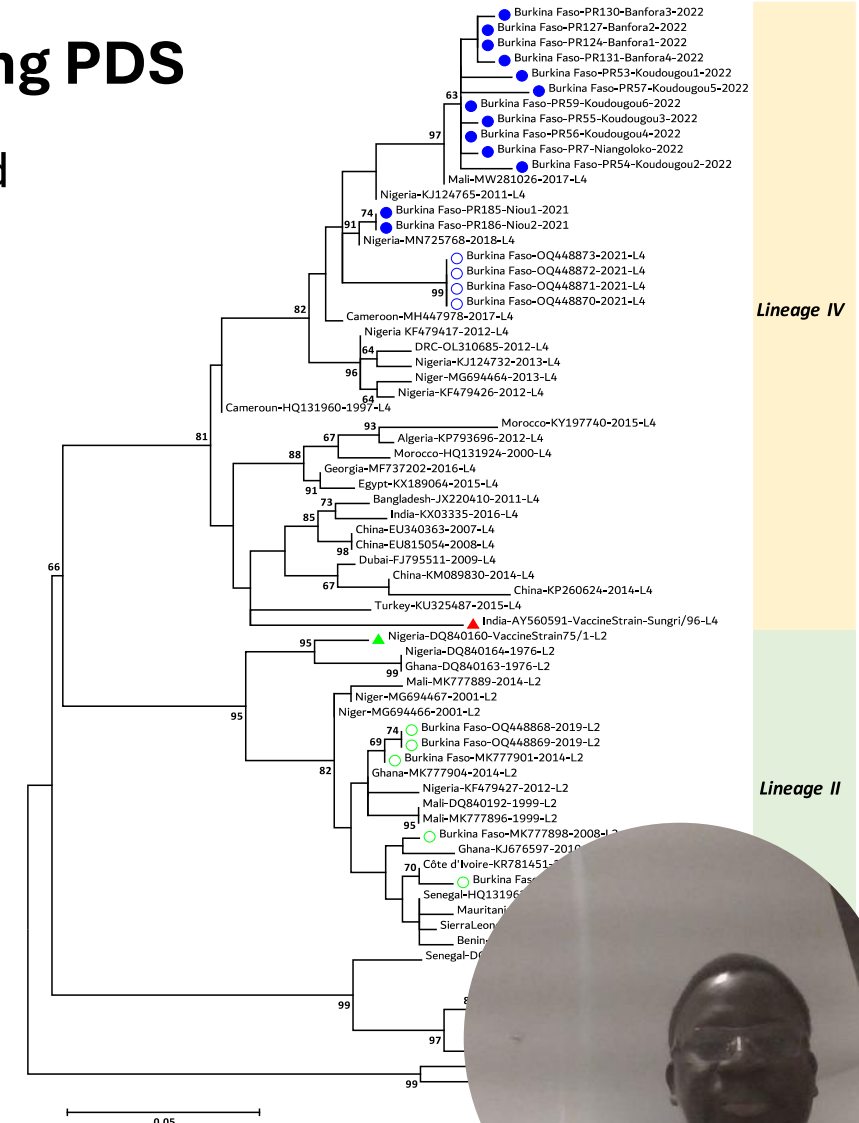


Case study : Detection of lineage IV in Burkina Faso using PDS

- High heterogeneity of lineage IV compared to previously identified PPRV in Burkina
- Lineage IV likely introduced from neighbouring countries such as Côte d'Ivoire and Mali.
- High potential of PPRV spread among countries of the Sahelian episystem

A well-established disease surveillance system integrating participatory and phylogenetic enabled us investigate lineages of PPRV circulating in different regions of Burkina Faso, while establishing the link to bordering countries.

This approach could be scale to episystem zones





viruses



Brief Report

Molecular Epidemiology of Peste Des Petits Ruminants Virus in West Africa: Is Lineage IV Replacing Lineage II in Burkina Faso?

Abel S. Biguezoton ^{1,*}, Guy Sidwatta Ilboudo ², Barbara Wieland ^{3,4}, Rahinata W-Y. Sawadogo ¹, Fairou F. Dah ¹, Cheick A. K. Sidibe ⁵, Adrien Zoungrana ¹, Edward Okoth ⁶ and Michel Dione ⁷



viruses



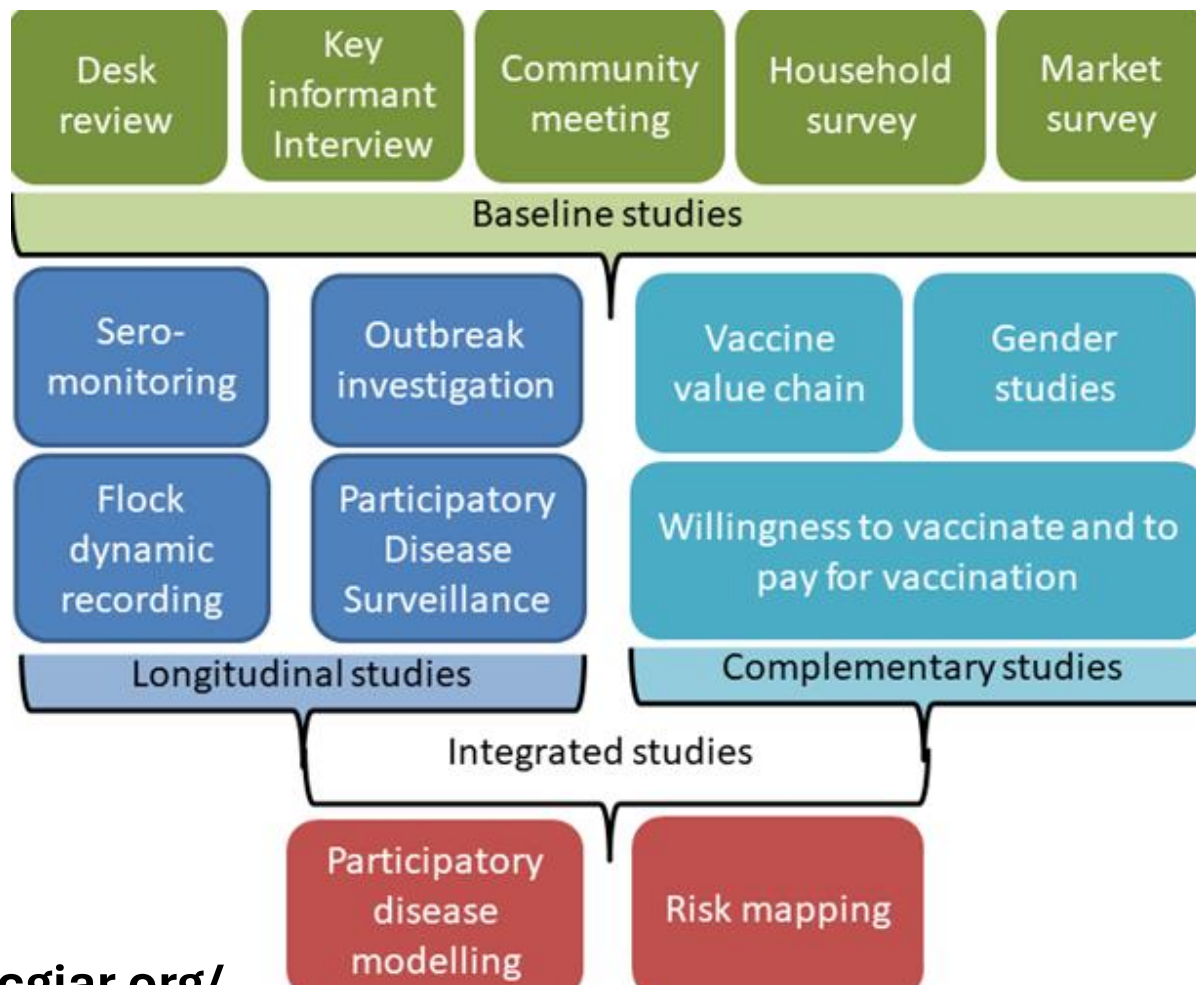
Communication

First Report of the Emergence of Peste des Petits Ruminants Lineage IV Virus in Senegal

Aminata Ba ^{1,*}, Gaye Laye Diop ¹, Mbengué Ndiaye ¹, Michel Dione ² and Modou Moustapha Lo ¹



EcoPPR toolbox: A comprehensive set of tools to study PPR episystem



<https://cgspace.cgiar.org/>

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