

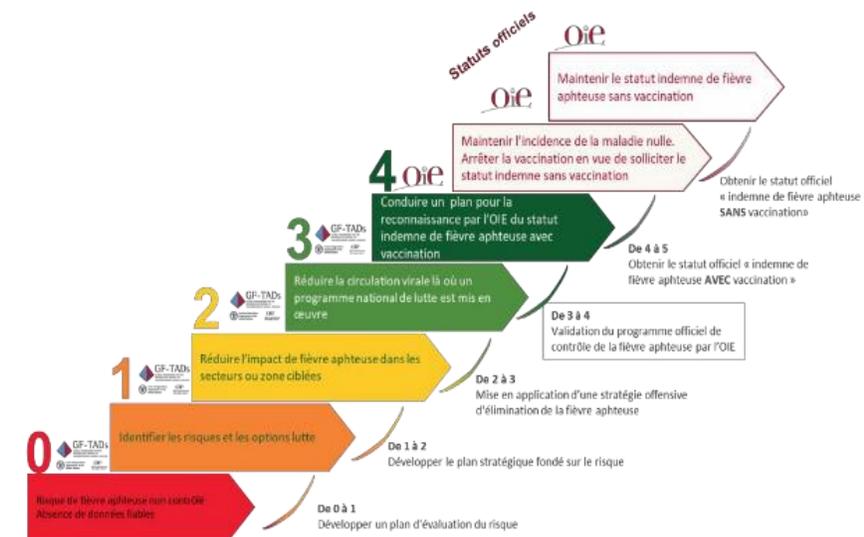


Organisation mondiale
de la santé animale
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Controlling foot-and-mouth disease: Cameroon's experience

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DIRECTION DES SERVICES VETERINAIRES



Plan

- Overview of the disease
- Assessment of Cameroon's stage
- Summary of activities carried out
- Outlook / Challenges





1- Overview of the disease

- ❑ Serotypes: A, O, C, SAT1, SAT2, SAT3, Asia1 .
- ❑ Sérotypes found in Cameroun: **A, O, SAT1, SAT2.**
- ❑ Susceptible animals: cattle, sheep, goats, pigs and other artiodactyls.
- ❑ Interest: considerable economic importance.
- ❑ Symptoms and lesions: hyperthermia, hypersalivation, loss of appetite and weight, drop in milk production, mouth ulcers (*noose, mouth, foot and udders*) , lameness, reduced production, myocarditis and myositis (*Young animals*), etc.





1- Overview of the disease

- ❑ Diagnosis: Clinical and laboratory (Elisa, PCR)
- ❑ Treatment: supportive therapy with antimicrobials
- ❑ Prevention: Early warning, biosecurity measures and vaccination
- ❑ Distribution of FMD outbreaks: **10 régions**





2- Assessment of Cameroon's stage

- 2nd meeting of the FMD Central Africa Roadmap: 27/29 September 2022

Assessment of Cameroon's stage using the tool «**Progressive Approach to Foot and Mouth Disease Control (PCP-FMD)**».

Etapas validées	Etapas provisoires								
	Pays	2018	2019	2020	2021	2022	2023	2024	2025
Cameroun	1	1	2	2	2	3	3	4	
Centrafrique	0	1	1	2	2	3	3	4	
Congo	0	0	1	1	2	2	3	3	
Gabon	0	0	1	2	2	3	4	4	
Guinée équatoriale	0	1	1	1					
Sao Tome et Principe	0	0	1	1	2	2	4	4	
Tchad	0	0	1	1	2	2	2	2	
Pays évalué par le GCR SADC (07/2017)									
RDC	*	1	2	2	2	2	3	3	



Cameroon is on stage 2 (provisoire): le Plan stratégique axé sur les risques n'existe pas mais facteurs de risque sont connus





3- Summary of activities carried out

- ❑ **2014: TCP/MTF/CMR/034/STF** to support improvement of the control of transboundary animal diseases of livestock subject to trade : **Strategic plan to control FMD;**
- ❑ **2017: Training of Veterinary Services staff in the sampling of oesophago-pharyngeal fluid in cattle;** - **Pilot phase of FMD vaccination: Botswana Vaccine Institute (BVI)**
- ❑ **2018: - Operatrional plan to control FMD:** duration 5 years
 - *Component 1: Protection of cattle herds;*
 - *Component 2: Epidemiological surveillance*
 - *Component 3: Improving response capabilities*
 - *Component 4: Monitoring-evaluation*



Plan opérationnel de Contrôle de la Fièvre Aphteuse au Cameroun

Mai 2018





3- Summary of activities carried out

- **General objective:** control foot-and-mouth disease with a view to improving the productivity of cattle herds;
- **Key points in controlling the disease:** vaccination, surveillance and biosecurity;
- Effective collaboration with breeder Organisations: awareness campaign, consultation meeting : *Communication plan and assorted tool;*
- Strengthening the capacities of Veterinary Services and LANAVET(*feasibility study on setting up a FMD vaccine production unit*);
- The estimated budget for the plan is three billion six hundred and twenty-eight million four hundred and thirty-one thousand (**3,628,431,000**) CFA francs, i.e. **1,110,000,000** CFA francs for surveillance.

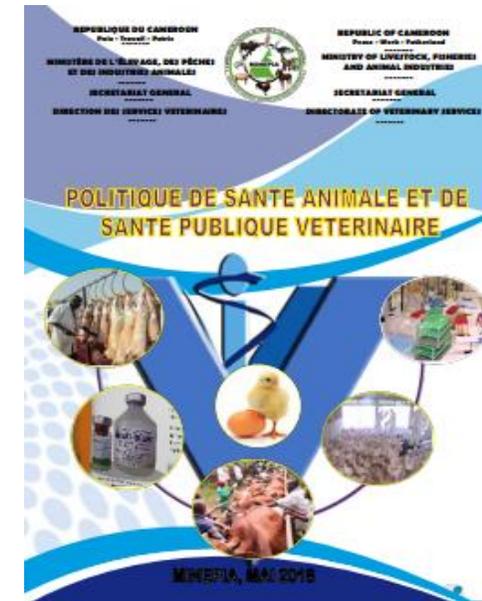




3- Summary of activities carried out

□ **2018 - Development of the animal health and veterinary public health policy document: Pillar °1 : health protection for livestock, with 5 priorities :**

- Improving the national animal disease surveillance system,
- Control and eradication of priority animal diseases,
- Animal welfare and the fight against production diseases;
- Health of aquatic species, non-conventional species, wildlife and beehives;
- Sanitation of the veterinary medicinal product market;





3- Summary of activities carried out

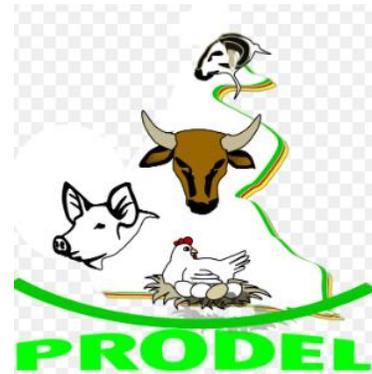
2018 - Risk factors and Basic survey protocol for foot-and-mouth disease

Risk factors

- Study conducted with the support of CIRAD - 2018 : (i) animal movements (cattle, sheep and goats); (ii) water points; (iii) national parks; (iv) cross-border insecurity and porous borders; (v) types of livestock rearing (confinement and roaming); (vi) markets and fairs; (vii) livestock tracks ; (viii) transhumance zones; (ix) slaughterhouses; (x) veterinary health inspection posts and transit posts; (xi) vaccination; (xii) deticizing baths and vaccination parks; (xiii) seasons; (xiv) community pastures; (xv) population; (xvi) equipment; etc...

Spatial data and their distribution

Human density; Animal health infrastructure
Mobility; Grouping points; Zootechnics
Animal density





3- Summary of activities carried out



Figure 1 : Principaux mouvements de bovins sur pied aux points de contrôle
Source RESCAM

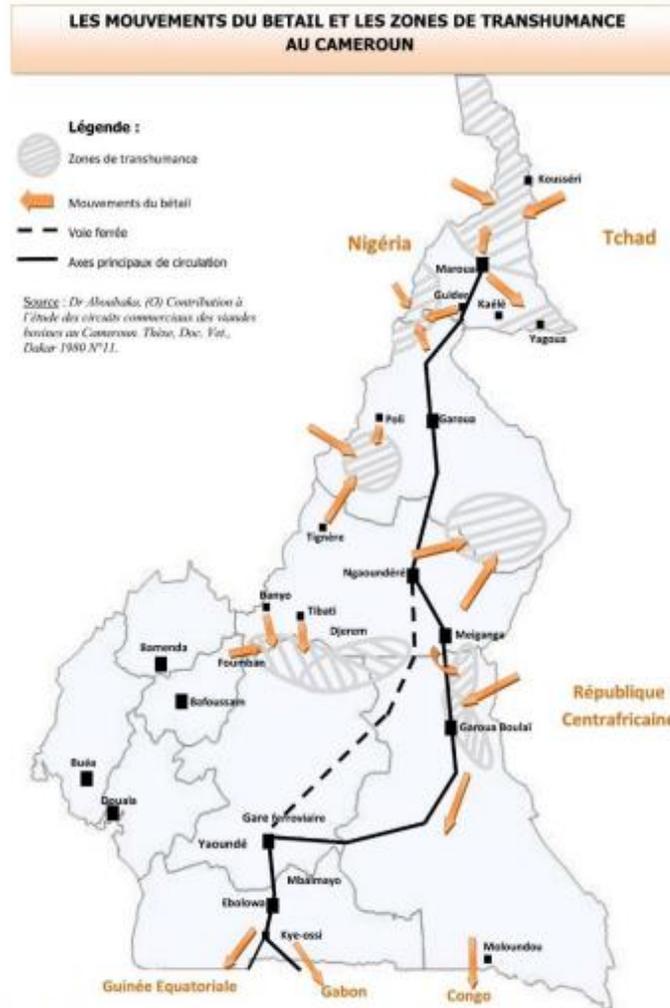


Figure 2 : Carte des mouvements du bétail et des zones de transhumance



Protocole d'enquête de base sur la fièvre aphteuse au Cameroun

juin 2015





3- Summary of activities carried out

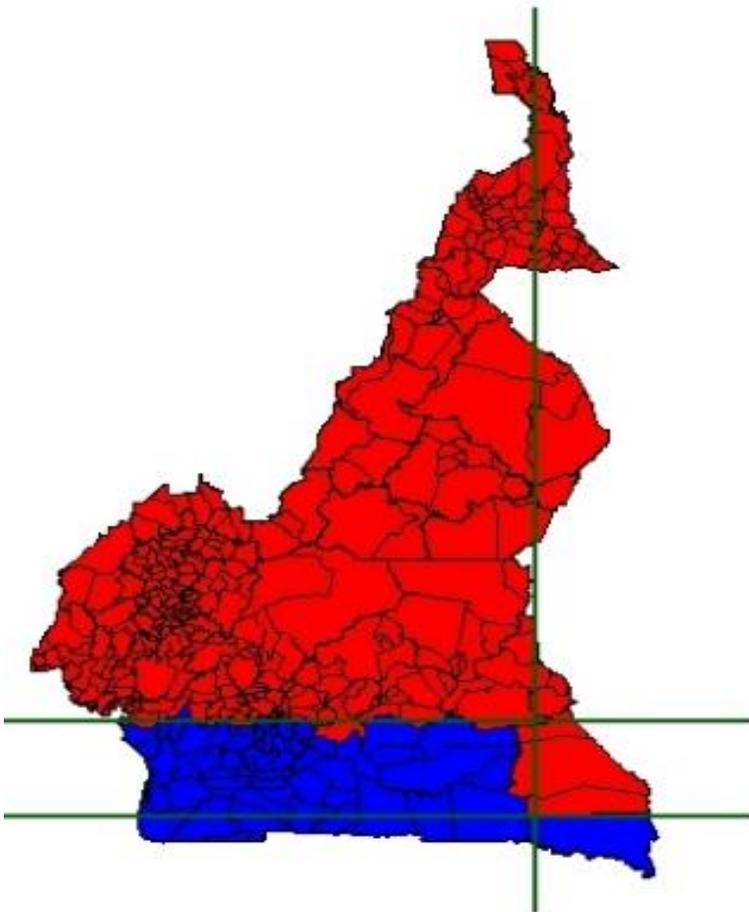


Figure 2 : Identification of Cameroon into low-risk (blue) and high-risk (red) areas of EMD - 2018

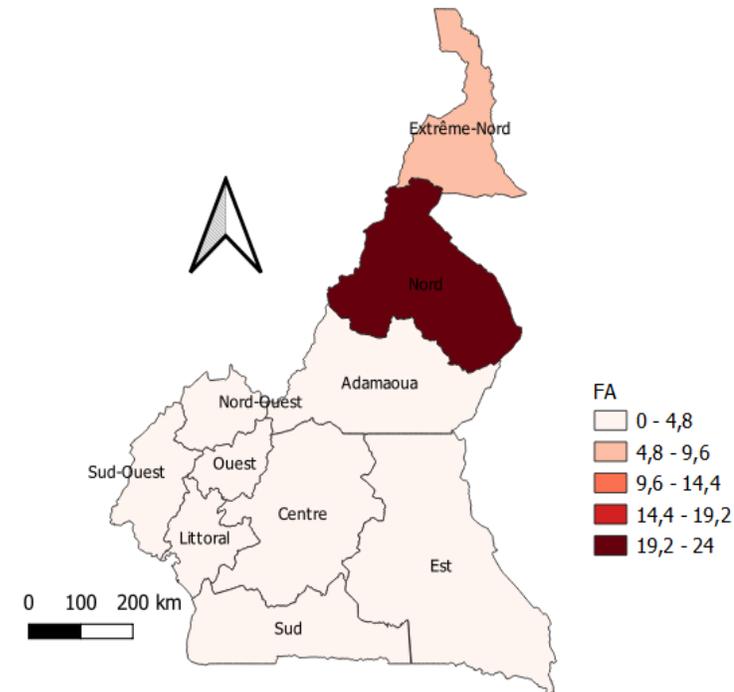
- **7 factors:** movement (accessibility), proximity to parks and protected areas, proximity to water sources, animal densities (cattle, sheep, goats and pigs) and production systems.
- Risk factors previously identified, processed, analyzed and weighted using **the Multi Criteria Decision Analysis (MCDA) and weighted linear combination (WLC) methods.**





3- Summary of activities carried out

- **In LANAVET: collect et analyse de 5334** samples with **2506 positives** detected by serological (ELISA) and molecular techniques (PCR and sequencing).
- **2019 - Detection of a new topotype of serotype SAT1**, never before detected anywhere in the world. It has been designated **Topotype X**. Publications (*Ehizibolo et al., 2019* and *Bertram et al., 2019*);
- **Active surveillance of FMD in small ruminants** (*PhD thesis work*): preliminary results based on serological data: Serotype A and O;



Mapping of FMD outbreaks (2020-2021)





3- Summary of activities carried out

• **2021 - Study on the understanding and correlation of clinical surveillance and prevalence of foot-and-mouth disease in small ruminants in Cameroon (underway in the North region) – DSV/RESCAM, LANAVET, ESPV, Eufmd.**



Resultats:

A total of **237** samples, including 29 swab products and 208 serum, were analyzed.

- The 208 serum were tested by **NSP ELISA (detection of antibodies to the FMD non-structural protein 3ABC)**, with **106 positives (51%)**.
- 78 of the **NSP ELISA-positive** samples were tested for antibodies to **FMD serotype O (type O ELISA)**; 13 sera (17%) were positive.
- FMD virus genetic material was not detected in the 29 swab products tested by molecular biology (PCR).

Prevalence of 6,25% (Serotype O)

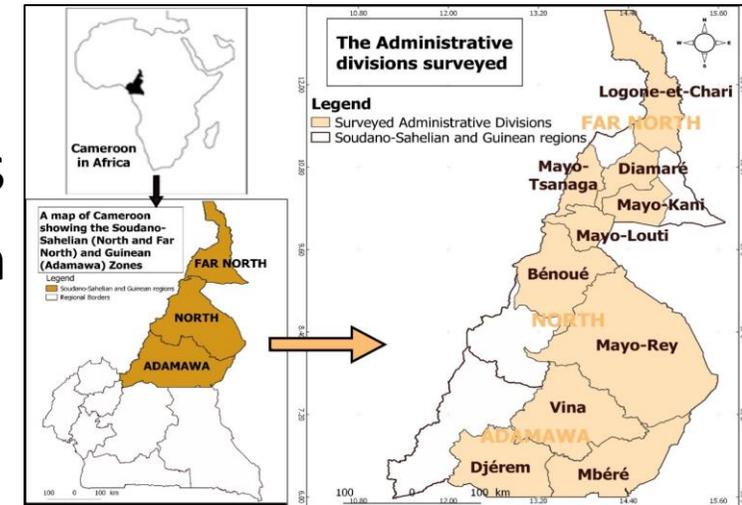




3- Summary of activities carried out

- **2020 - Seroprevalence and Risk Factors of Foot-and-Mouth Disease in Sheep and Goats in the Soudan-Sahelian and Guinean Regions of Cameroon**

A total of 350 serum samples from 268 sheep and 82 goats were collected in the 3 regions (Adamawa (n=93), North (n=105), and Far North (n=152)), January to July 2020 Results



The overall seroprevalence of antibodies to the **non-structural protein of the FMD virus was 45.4%** (95% CI: 40.3 – 50.7), that of **serotype A was 4.6%** (95% CI: 2.8 – 7.3) and that of **serotype O was 17.4%** (95% CI: 13.8 – 18.7). NSP antibodies seroprevalence was **significantly higher in sheep, but anti-serotype O antibodies were higher in goats**. The main risk factor independent of the species is region.





3- Summary of activities carried out

• 2022 - Economic Impact of the Foot and Mouth Disease (FMD) on Domestic Small Ruminants Production in the Northern Regions of Cameroon

This study was conducted in the northern regions of Cameroon, from August 2022 to January 2023,

Objective: to evaluate the economic impact of Foot and Mouth Disease (FMD) in small ruminants production northern regions (Adamaoua, North and Far North) of Cameroon.

In this study, 175 farmers were interviewed using well-structured questionnaires.

The total economic losses associated with this disease were high in the North and Far North regions with averages of 722.54 ± 668.12 USD and 644.80 ± 962.90 USD respectively.

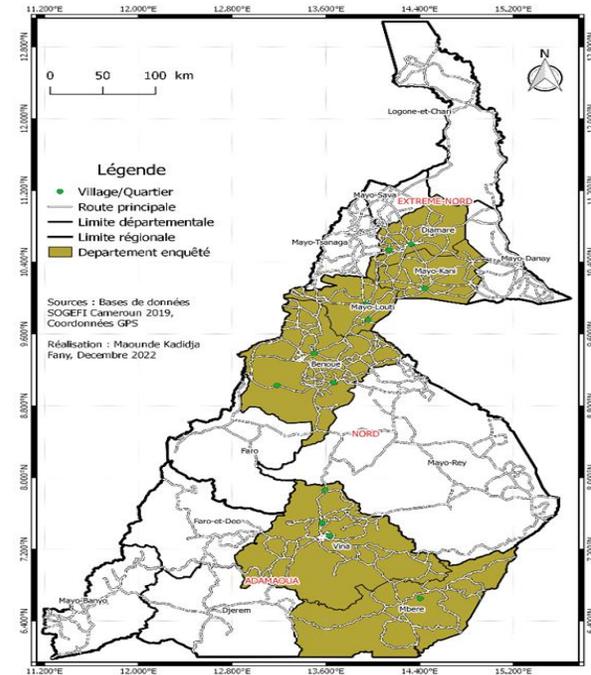


Figure 1: Location map of the study area with some villages surveyed



3- Summary of activities carried out

- **2014 - 2022- Training for RESCAM field agents**



Organisation des Nations Unies
pour l'alimentation et l'agriculture



Formation des agents de terrain



Sampling by RESCAM agents

Source : RESCAM

Stakeholder awareness-raising workshop





3- Summary of activities carried out

- 2019 – Aout 2023 : Collect epidemiological data.

Types of samples : Oropharyngeal fluid, serum, organs and swab products.

Regions	Outbreaks	Sensitive animals	Number of cases	Number of death	slaughtered animals
Adamaoua	7	345	261	0	7
Centre	3	672	624	2	2
Extreme-Nord	1	11	2	0	
Extrême-Nord	10	209	73	0	8
Littoral	2	42	13	0	2
Nord	56	2538	407	11	5
Nord-Ouest	1	278	7	3	
Ouest	8	545	157	12	6
Sud-Ouest	1	20	2	0	
Total général	89	4660	1546	28	30



4- Outlook / Challenges

Technical and financial assistance to collect data (Risk-based strategic plan) and to implement the control plan;

Support for materials and equipment (surveillance/investigation and serotyping, prevention and control, including vaccination);

Logistical and communications support;

Continuing education (online and face-to-face);

Vaccination of animals with high genetic potential (milk, meat),





4- Outlook / Challenges

Economic analysis;

Serotyping according to species;

Improving the coordination of interventions and the monitoring and evaluation framework in the sub-region (animal mobility),

Development of FMD training modules for initial training (theory and practice)





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**Thank you for
your attention**



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