



Government of Nepal
Ministry of Agriculture and Livestock Development
Department of Livestock Services
Foot and Mouth Disease & TADs Investigation Laboratory
Chapali, Budhanilakantha, Kathmandu Nepal

ANNUAL PROGRESS REPORT

FY 2081/82



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FOREWORD

It is with great appreciation and pleasure that I present the Annual Progress Report of the Foot and Mouth Disease (FMD) & Transboundary Animal Disease (TADs) Investigation Laboratory, Budhanilkantha, Kathmandu for the Fiscal Year 2081/82. This report reflects the continued commitment, hard work, and technical excellence demonstrated by the entire laboratory team in pursuit of the goals set for the fiscal year.

As the National Reference Laboratory for Foot and Mouth Disease (FMD), Classical Swine Fever (CSF), and Blue Tongue (BT) Disease in Nepal, the FMD & TADs Investigation Laboratory plays a pivotal role in the country's animal health system. The laboratory performs vital diagnostic and surveillance functions, including ELISA-based serotyping of FMD virus, Serosurveillance of FMD, CSF, and BT, as well as Seromonitoring of vaccinated animals for FMD and CSF. Our molecular diagnostic capabilities include both Conventional Multiplex RT-PCR and Real-Time Multiplex RT-PCR, ensuring accurate and timely detection of FMD.

I would like to extend my sincere thanks to all the dedicated staff members whose contributions have made this year's progress possible. Your commitment to excellence, even in the face of challenges, has been instrumental in achieving our objectives.

A special note of gratitude goes to Dr. Chiran Krishna Tiwari, Veterinary Officer, for his hard work and dedication in preparing this comprehensive annual report.

We welcome constructive feedback and suggestions from our readers and stakeholders. Such input is invaluable and will be thoughtfully considered to improve the quality and content of our future reports.

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Table of Contents

1. INTRODUCTION	1
2. OBJECTIVES	1
3. ANNUAL PROGRAM AND PROGRESS FY 2081/82	2
4. MAJOR ACTIVITIES OF THE LABORATORY DURING FY 2081/82	7
4.1 FMD Sample collection and Virus typing	7
4.2 FMD carrier status Serosurveillance	9
4.3 FMD Vaccine Seromonitoring.....	10
4.4 Classical Swine Fever (CSF) Laboratory Diagnosis	12
4.5 Blue Tongue Serosurveillance	13
4.6 Proficiency testing (PT)	13
5. STAFF DETAILS	14
6. LABORATORY ANIMAL MANAGEMENT	14
7. OTHER ACTIVITIES OF LAB	14
8. BUDGET SUMMARY	15
9. MAJOR ACHIEVEMENTS	16
10. ABBREVIATION	17

List of Table

Table 1: Annual Program and Progress of FMD & TADs Investigation	2
Laboratory during FY 2081/82	
Table 2: Month wise Serotyping of FMD Virus by ELISA and RT-PCR	7
method FY 2081/82 (Surveillance and Outbreak)	
Table 3: District wise serotyping of FMD virus by Ag ELISA and RT-PCR	7
method FY 2081/82 (Outbreak)	
Table 4: Province wise distribution of FMD outbreak FY 2081/82	8
Table 5: District wise result of FMD NSP Antibody ELISA test for FY 2081/82	9
Table 6: Species wise result of FMD NSP Antibody ELISA test for FY 2081/82	10
Table 7: FMD Vaccine Seromonitoring status FY 2081/82	11
Table 8: CSF Serosurveillance status FY 2081/82.....	12
Table 9: CSFV Vaccine Seromonitoring FY 2081/82	12
Table 10: Blue Tongue Serosurveillance status FY 2081/82.....	13
Table 11: Serology test for PT samples	13
Table 12: Virology test for PT samples	13
Table 13: FMD & TADs Investigation Lab Staff details	14
Table 14: Record of lab animals in FMD & TADs Investigation Lab FY 2081/82	14
Table 15: Distribution of FMD virus transport media-kit for FY 2081/82	14
Table 16: FMD & TADs flex distribution status for FY 2081/82	15
Table 17: Details of Budget Transaction and Expenditure FY 2081/82	15

List of Figure

Figure 1: Province wise FMD Outbreak Pattern FY 2081/82 (Lab confirmed)	8
Figure 2: FMD Outbreak Status FY 2081/82	8
Figure 3: District Coverage of FMD NSP Serosurveillance for FY 2081/82	10
Figure 4: Seroconversion of FMD vaccine FY 2081/82 (Positive	12
% in O, A & Asia-1 antibody)	

1. INTRODUCTION

The laboratory, initially named the Foot and Mouth Disease (FMD) Control Laboratory, was established in 2040 B.S. Its name was later changed in 2061/62 B.S. to the National Foot and Mouth Disease and Transboundary Animal Diseases Laboratory (NFMD & TADs Lab). Since 2075/76 B.S., it has been operating under the name Foot and Mouth Diseases & Transboundary Animal Diseases Investigation Laboratory.

This lab has been serving as a National Reference Laboratory for the diagnosis of Foot and Mouth Disease, Classical Swine Fever and Blue Tongue in the country. The diagnosis of FMDV is conducted by serotyping of the tissue samples by Antigen Detection and Serotyping ELISA, Conventional Multiplex RT-PCR and Real Time Multiplex RT-PCR. Likewise, FMD antibody ELISA test for FMD vaccine Seromonitoring and FMD NSP ELISA test for FMD Serosurveillance are carried out in the lab. Similarly, the lab has also carried out the antigen ELISA test for Classical Swine Fever diagnosis and antibody ELISA for Classical Swine Fever vaccine Seromonitoring and also Serosurveillance of Blue Tongue disease by antibody ELISA Test.

Since 2012 AD, Nepal has been actively involved in the OIE/WOAH and SAARC Progressive Control Pathway for the control of FMD at the regional level. As part of this initiative, the laboratory has begun carrier status surveillance in non-vaccinated animals from non-outbreak areas.

During the fiscal year 2081/82, serotype O was identified as the predominant strain of FMDV with 85% prevalence in outbreak across 6 districts. FMDV Serotype A with prevalence of 15% was identified from Kanchanpur district, the emergence of serotype A occurred after 3 years in Nepal.

The laboratory has also been participating in the Proficiency Testing program organized by the World Reference Laboratory for Foot and Mouth Disease (WRLFMD), Pirbright, UK.

2. OBJECTIVES

Following are the major objectives of FMD & TADs Investigation Laboratory.

- 1) Act as a National Reference Laboratory for FMD, Classical Swine Fever, Blue Tongue and other TADs.
- 2) Provide technical support to Department of Livestock Services to develop policies, strategies and program for the control of FMD and TADs and eventual eradication of FMD and TADs.
- 3) Acquire, adopt, upgrade and establish different laboratory diagnostic methods for FMD, CSF & Blue Tongue.
- 4) Conduct laboratory diagnosis of FMD virus, CSF & Blue Tongue in case of outbreak, along with serotyping of the FMD virus.
- 5) Conduct Serosurveillance of FMD, Blue Tongue & CSF; Seromonitoring of FMD and CSF vaccination.
- 6) Create awareness to the public and farmers about FMD & TADs.

3. ANNUAL PROGRAM AND PROGRESS FY 2081/82

Table 1: Annual Program and Progress of FMD & TADs Investigation Laboratory during FY 2081/82

S.N.	Programs/activities	Expenditure title	Unit	Annual target		Annual progress	
				Quantity	Weightage	Quantity	Weightage
A. Under the Capital Expenditure							
11.3.11.1180	Purchase of Horizontal Autoclave	31122	number	1	3.15	1	2.18
11.3.11.1181	Purchase of Laboratory Refrigerator/ Ice Line Refrigerator for storage of PCR kit and reagent	31122	number	2	3.15	2	3.12
11.3.11.1196	Purchase and installation of Transformer	31122	times	1	8.82	1	8.32
11.3.22.1072	Purchase of Class II Biosafety Cabinet	31122	number	1	3.46	1	2.59
11.3.22.1071	Purchase of Filter lens for PCR Dark Hood	31122	number	2	0.63	2	0.46
11.3.22.454	Purchase and installation of Air Conditioner for Laboratory	31122	number	2	0.63	2	0.62
11.6.13.982	Purchase of fixtures (Carpet, Curtains etc) for new office building	31123	number	1	1.57	1	1.54
11.4.16.51	Deep Boring for Water supply in laboratory	31156	time	1	1.89	1	1.87
11.4.16.52	Purchase and installation of Hill Tank, Motor, Water Processing Plant, Pipeline and transmission system	31156	time	1	1.89	1	1.84
11.1.3.709	Repairing of water leakage in laboratory buildings and office quarters	31161	time	1	1.57	1	1.55
Total of capital expenditure				13	26.76	13	24.09
B. Under the Current expenditure							
1.1.1.4	Gazetted Class II	21111	person	1	2.76	1	2.76
1.1.1.101	Gazetted Class III	21111	person	3	6.93	3	6.29
1.1.1.136	Non-Gazetted I Class (Technical)	21111	person	2	4.14	2	4.06
1.1.1.117	Light Vehicle Driver level 5	21111	person	1	2.14	1	2.14
1.1.1.7	Non-Gazetted II Class (Technical)	21111	person	1	2.1	1	2.06
1.1.1.102	Non-Gazetted I Class (Account)	21111	person	1	2.05	1	1.91
1.1.1.138	Non-Gazetted II Class (Admin)	21111	person	1	1.92	1	1.78
1.3.1.1	Dress allowance for Civil servants	21121	person	10	0.31	10	0.31
1.2.2.2	Inflation allowance	21132	person	10	0.76	10	0.76
1.2.8.15	Infant care allowance	21139	person	2	0.03	0	0.00
1.2.10.4	Sitting allowance (meeting/ inventory auction meeting allowance)	21139	number	3	0.15	0	0
1.6.2.1	Contribution-based Pension fund	21212	month	3	0.31	3	0.31
1.6.4.1	Employee Contribution-based Insurance fund	21213	person	12	0.18	10	0.14
2.1.1.1	Water Tax	22111	number	1	0.06	0	0.03
2.1.2.1	Electricity Bill	22111	number	1	2.83	7	2.83
2.1.3.1	Drinking water (Jar)	22111	jar	100	0.15	100	0.15
2.1.3.2	Tanker water	22111	number	12	0.09	1	0.01

S.N.	Programs/activities	Expenditure title	Unit	Annual target		Annual progress	
				Quantity	Weightage	Quantity	Weightage
2.1.6.11	Communication bill (Telephone/ e-mail/internet/postal/courier)	22112	month	4	0.13	4	0.13
2.1.6.43	Telephone bill	22112	number	2	0.05	2	0.05
2.1.7.2	Website update	22112	number	1	0.13	1	0.12
2.2.2.9	Diesel for four-wheelers	22212	liter	960	0.54	490	0.54
2.2.2.11	Petrol for Motorcycle	22212	liter	1080	0.6	1080	0.51
2.2.2.464	Diesel for FMD Surveillance and Seromonitoring for FMD free Zoning and Compartmentalization	22212	liter	720	0.37	540	0.34
2.2.2.473	Diesel for Sample Collection and Outbreak Investigation from FMD infected animals	22212	liter	1200	0.68	950	0.67
2.3.1.5	Repair of Two-Wheeled Vehicles	22213	number	9	0.28	9	0.28
2.3.1.11	Repair of Four-Wheeled Vehicles	22213	number	2	1.26	5	1.26
2.9.2.8	Vehicle Insurance and Renewal	22214	number	9	0.62	12	0.33
2.3.2.98	Repair of Computers, Laptops, Fax, Photocopiers, Printers, and Telephones	22221	number	4	0.13	4	0.12
2.3.2.199	Repair and Maintenance of Laboratory Equipment ; Autoclave, Biosafety Cabinet, Analyzers (maintenance and operating expenses of machinery and tools)	22221	number	3	0.28	4	0.28
2.3.2.347	Distribution Panel, Transformer maintenance	22221	number	1	1.26	1	1.22
2.3.2.348	Water and electrical maintenance	22231	number	4	0.13	3	0.13
2.3.8.45	Electrical wiring and main DV Box Panel maintenance for Office building Office quarters	22231	number	1	0.94	1	0.89
2.3.9.305	Maintenance and painting of Office building, premises and residential buildings	22231	number	1	0.94	1	0.91
2.4.1.4	Office stationery, toners and other office supplies	22311	number	4	0.5	4	0.5
2.4.1.110	Office Miscellaneous Expenses	22311	number	4	0.57	4	0.57
2.9.5.47	Feed for laboratory animals	22312	number	1	0.28	1	0.28
2.2.3.98	Fuel for Machinery Tools, generators, grass cutters for office purposes (except vehicles)	22314	liter	450	0.23	542	0.22
2.4.12.152	Printing of Informational Materials (Flex, Brochures, Pamphlets) for Disease Investigation and Sample Collection regarding FMD and TADs	22315	number	1	0.82	1	0.82
2.4.13.7	Purchase of Newspapers and Books	22315	number	4	0.09	4	0.07
2.4.13.35	Publication of Annual report	22315	number	1	0.16	1	0.16
2.4.14.3	Information publication expenses	22315	number	2	0.19	2	0.15
2.5.2.484	Calibration of laboratory equipment	22411	number	1	1.89	1	1.88
2.5.7.5	Dress Allowance for Contract Employees	22413	number	2	0.06	2	0.06
2.5.3.700	Security Guard	22411	person	2	1.89	2	1.66
2.5.7.91	Office helper staff Contract	22413	person	2	1.96	2	1.87

S.N.	Programs/activities	Expenditure title	Unit	Annual target		Annual progress	
				Quantity	Weightage	Quantity	Weightage
2.5.7.222	Festival Allowance for Contract Employees (individual contract)	22413	number	2	0.16	2	0.16
2.5.8.9	Maintenance and Management of Internet and Electrical Equipment (Computers, Fax, Photocopiers, Printers)	22413	number	1	0.13	1	0.13
2.5.8.23	Service contract for Garden, Office Premises and Toilet Cleaning	22413	times	4	0.38	4	0.36
2.6.4.1074	Interaction Programs for Disease Investigation and Control of FMD and other TADs at Provincial and Local Levels	22512	number	4	0.76	4	0.76
2.6.4.1073	Three-Day Training for Field Technicians on Quality Sample Collection, Preservation, Coding, and Dispatch	22512	number	3	1.25	3	1.25
2.6.6.1216	Interaction Program on Provincial level Zoning and Compartmentalization	22512	number	2	0.5	2	0.5
2.7.7.309	Testing of Foot and Mouth Disease (FMD) by FMD NSP ELISA Method	22522	number	2000	0.28	4789	0.24
2.7.15.3026	FMD Serosurveillance and Seromonitoring for Zoning and Compartmentalization	22522	times	4	1.26	4	0.94
2.7.18.1489	Preparation and Distribution of Sample Collection Media Kit for FMD disease	22522	number	600	0.28	544	0.25
2.7.21.6	Garden Management	22522	number	1	0.19	3	0.16
2.7.25.1069	Health Checkup for Office staff	22522	person	12	0.19	10	0.12
2.7.25.1088	Purchase of Viral RNA Extraction and Purification Mini Kits (250 Tests)	22522	number	1	0.63	1	0.47
2.7.25.1093	Testing of Samples Collected from Vaccinated Animals (Seromonitoring) under the National Foot and Mouth Disease Control Program	22522	number	600	0.19	1343	0.14
2.7.25.1107	Purchase of ELISA Kits for CSF Diagnosis (Antigen)	22522	number	1	0.57	1	0.34
2.7.25.1119	Sample Preservation and Dispatch to OIE Reference Lab	22522	number	1	1.1	1	0.81
2.7.25.1116	Purchase of ELISA Kits for Blue Tongue Disease Diagnosis in Sheep and Goats	22522	number	3	1.42	3	1.42
2.7.25.1255	Purchase of FMD NSP ELISA Kits and Reagents for Foot and Mouth Disease Carrier Status serosurveillance	22522	number	4	2.27	4	2.23
2.7.25.1252	Purchase of FMD Serotyping Kits and Reagents	22522	number	2	1.13	1	0.85

S.N.	Programs/activities	Expenditure title	Unit	Annual target		Annual progress	
				Quantity	Weightage	Quantity	Weightage
2.7.25.1260	Management and ELISA Kits for testing samples Collected from Vaccinated Animals under the National Foot and Mouth Disease Control Program	22522	number	3	2.36	3	1.77
2.7.25.1428	Purchase of Primer Probe Master Mix Reagent Kits for Real-Time RT-PCR Testing of Foot and Mouth Disease	22522	number	4	2.39	4	2.26
2.7.25.1425	FMD Surveillance and Sample Collection from Domestic Animals in National Park Buffer Zones area	22522	number	300	0.09	763	0.08
2.7.25.1434	Purchase of Antibody ELISA Kits and Reagents for CSF Diagnosis	22522	number	1	0.5	1	0.49
2.7.25.1432	Surveillance, Investigation, Sample Collection, and Laboratory Testing for CSF in Pigs	22522	number	160	0.1	183	0.09
2.7.25.1431	Testing of Samples Collected from Vaccinated Animals under the National Foot and Mouth Disease Control Program from other federal, provincial & local offices	22522	number	900	0.14	11174	0.12
2.7.25.1433	Sample Collection from Vaccinated Animals (Seromonitoring) under the National Classical Swine Fever Control Program	22522	number	160	0.1	451	0.08
2.7.25.1442	FMD carrier status Sero surveillance, sample collection & laboratory testing from live animal markets, quarantine checkpoints, and festival target haat bazars	22522	number	300	0.14	568	0.14
2.7.25.1859	FMD Outbreak Investigation and Sample collection	22522	number	200	0.13	86	0.11
2.7.25.1862	FMD testing using Conventional PCR method	22522	number	180	0.41	321	0.37
2.7.25.1864	Logistic Support (Soap, Surf, Boot, Mask, RainCoat, Sanitizer, Torchlight, Field Bag etc) for laboratory personnel	22522	times	2	0.38	2	0.33
2.7.25.1865	Blue Tongue disease Serosurveillance Sample Collection and testing in Sheep, goat, cattle and buffalo	22522	number	800	0.25	2442	0.19
2.7.25.1861	Purchase of reagent One step RT PCR kit 100 reactions; Primer, Ladder, Loading Dye etc	22522	times	2	0.63	2	0.55
2.7.25.1609	Testing of FMD using Conventional PCR method	22522	number	200	0.57	272	0.57
2.7.25.1860	Testing of FMD using FMD Serotyping Antigen ELISA method	22522	number	160	0.1	110	0.08
2.7.25.1863	Testing of FMD using Real time PCR method	22522	number	200	0.63	147	0.47

S.N.	Programs/activities	Expenditure title	Unit	Annual target		Annual progress	
				Quantity	Weightage	Quantity	Weightage
2.7.25.2041	FMD Serosurveillance and Seromonitoring sample collection, resource management and testing for preparation of FMD free Zone and Compartment	22522	number	1200	2.27	1246	2.26
2.8.1.996	Monitoring and Evaluation of TADs in Veterinary disease investigation laboratories (Internal visit)	22611	number	3	0.28	6	0.28
2.8.1.997	Monitoring and Evaluation of Foot and Mouth Disease and Classical Swine Fever Programs at Provincial and Local Levels (Internal visit)	22611	number	3	0.28	7	0.26
2.8.2.47	Daily Allowance for field technician	22612	number	4	0.19	21	0.19
2.8.2.396	Travel Expenses for FMD carrier status serosurveillance and sample collection from Cattle, Buffaloes, Sheep, and Goats	22612	number	4	0.44	11	0.44
2.8.2.398	Travel Expenses for Surveillance and Sample Collection from Domestic Animals in National Park Buffer Zones Areas	22612	number	2	0.22	3	0.21
2.8.2.399	Travel Expenses for Investigation and Sample Collection during Foot and Mouth Disease Outbreaks in Cattle and Buffaloes	22612	number	4	0.44	3	0.33
2.8.2.575	Travel Expenses for Classical Swine Fever Surveillance, Seromonitoring Sample Collection	22612	number	8	0.88	9	0.88
2.8.2.576	Travel Expenses for Outbreak investigation of Blue Tongue Disease and other diseases sample collection and seromonitoring	22612	Times	6	0.66	7	0.66
2.8.2.580	Travel Expenses for FMD serosurveillance and seromonitoring sample collection for FMD Free Zone and Compartment	22612	times	12	1.32	12	1.25
2.9.6.1	Daily Tea Expenses in the Office	22711	number	12	0.45	12	0.45
2.9.6.7	Tea Expenses for Regular Staff Meetings	22711	month	12	0.1	12	0.1
2.9.8.7	Hospitality, Welcome, and Farewell Programs cost	22711	number	4	0.1	5	0.1
8.1.6.21	Hiring Vehicles for disease investigation, control, and management of disease outbreaks	28143	number	4	0.63	2	0.37
Under the current expenditure		12521		73		29108	67.61
Under the capital and current expenditure		12534		100		29121	91.71

Total Financial progress: 91.71

Total weightage progress: 91.76

4. MAJOR ACTIVITIES OF THE LABORATORY DURING FY 2081/82

4.1 FMD Sample collection and Virus typing

FMD & TADs investigation laboratory received total of 86 suspected samples from affected animals across different districts. 7 districts out of 77, with suspected FMD cases were laboratory confirmed as FMD positive while 3 districts (Dolakha, Manang, Gorkha) having clinical cases of FMD were not confirmed by laboratory test. Out of 86 samples, 34 samples were positive for FMD virus serotype O and 6 samples were positive for FMD virus serotype A while none of the samples were positive for serotype Asia 1. Most of the received samples in the present fiscal year were qualitatively better in compare to previous years. The training programs and interaction with field level technical manpower as an integrative extension program of lab might have contributed for acquiring quality sample from field. However, the best samples for laboratory diagnosis of FMD like vesicular fluid, epithelium from the tissue, tongue, gums and dental pads and tissues from the inter-digital space at the early stage of infection within 4 days of onset of clinical signs are still lacking in some cases. Therefore, field veterinarians and technicians are required to know what and how the sample are collected and keep attention for the quality aspects of the samples in order to get better laboratory results.

Table 2: Month wise Serotyping of FMD Virus by ELISA and RT-PCR method FY 2081/82 (Surveillance and Outbreak)

Trimester	Month	No. of tested samples	FMDV Serotypes				FMD positive districts
			O	A	Asia-1	NVD	
1	Shrawan	11	4	-	-	7	Lalitpur (O)
	Bhadra	3	-	-	-	3	-
	Ashoj	-	-	-	-	-	-
2	Kartik	-	-	-	-	-	-
	Mangsir	22	16	-	-	6	Sindhupalchowk (O)
	Poush	4	2	-	-	2	Kathmandu (O), Kavrepalanchowk (O)
3	Magh	-	-	-	-	-	-
	Falgun	8	-	-	-	8	-
	Chaitra	1	-	-	-	1	-
4	Baisakh	3	-	-	-	3	-
	Jestha	5	-	3	-	2	Kanchanpur (A)
	Ashad	29	12	3	-	14	Kanchanpur (A), Nuwakot (O), Kathmandu (O), Baitadi (O)
Total		86	34	6	0	46	7/77

Table 3: District wise serotyping of FMD virus by Ag ELISA and RT-PCR method FY 2081/82 (Outbreak)

SN	District	No. of tested sample	FMDV Serotype			
			O	A	Asia-1	NVD
1	Baitadi	4	3	-	-	1
2	Dolakha	1	-	-	-	1
3	Gorkha	4	-	-	-	4
4	Kanchanpur	10	-	6	-	4
5	Kathmandu	11	5	-	-	6
6	Kavrepalanchowk	10	1	-	-	9
7	Lalitpur	10	4	-	-	6
8	Manang	3	-	-	-	3
9	Nuwakot	11	5	-	-	6
10	Sindhupalchowk	22	16	-	-	6
Total		86	34	6	0	46

Table 4: Province wise distribution of FMD outbreak FY 2081/82

SN	Province	Lab confirmed FMD +ve districts	FMD Clinical Cases only	FMD outbreak districts
1	Koshi	-		0/14
2	Madhesh	-		0/8
3	Bagmati	Kathmandu (5), Kavrepalanchowk (1), Lalitpur (4), Nuwakot (5), Sindhupalchowk (16)	Dolakha	5/13
4	Gandaki	-	Manang, Gorkha	0/11
5	Lumbini	-	-	0/12
6	Karnali	-	-	0/10
7	Sudurpaschim	Baitadi (3), Kanchanpur (6)	-	2/9
	Total	7	3	7/77

Figure 1: Province wise FMD Outbreak Pattern FY 2081/82 (Lab confirmed)

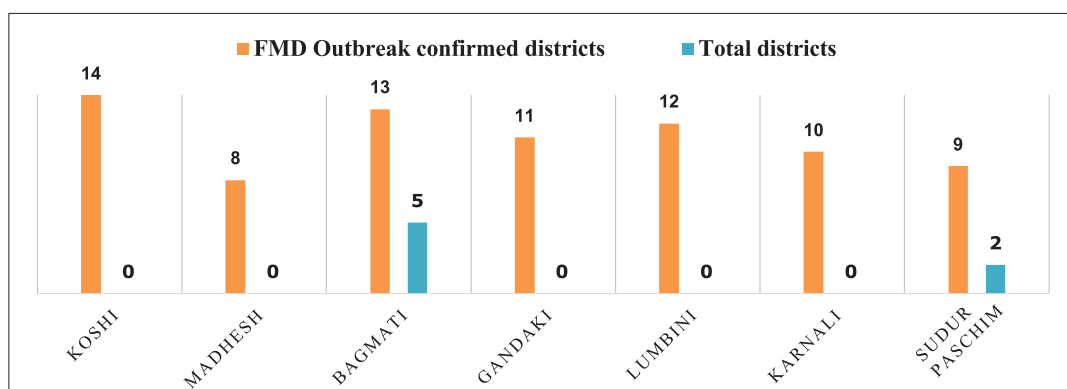
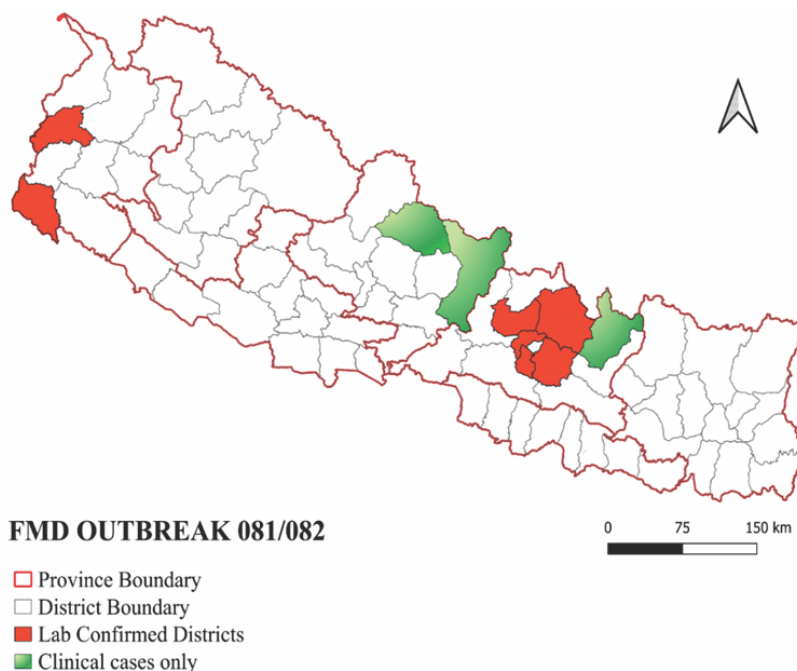


Figure 2: FMD Outbreak Status FY 2081/82



4.2. FMD carrier status Serosurveillance

A total no of 4765 serum samples from different districts were either collected by our lab staffs or received from other offices; Veterinary Laboratories, Quarantine offices, Veterinary Hospital & Livestock Service Expert Centre of provinces and Livestock service unit from various local levels. Those samples were tested by FMD NSP antibody ELISA test to study the carrier status of FMD in the animals. Out of 4765 serum samples, 244 samples (5.12%) were positive and 4521 samples (94.88%) were negative.

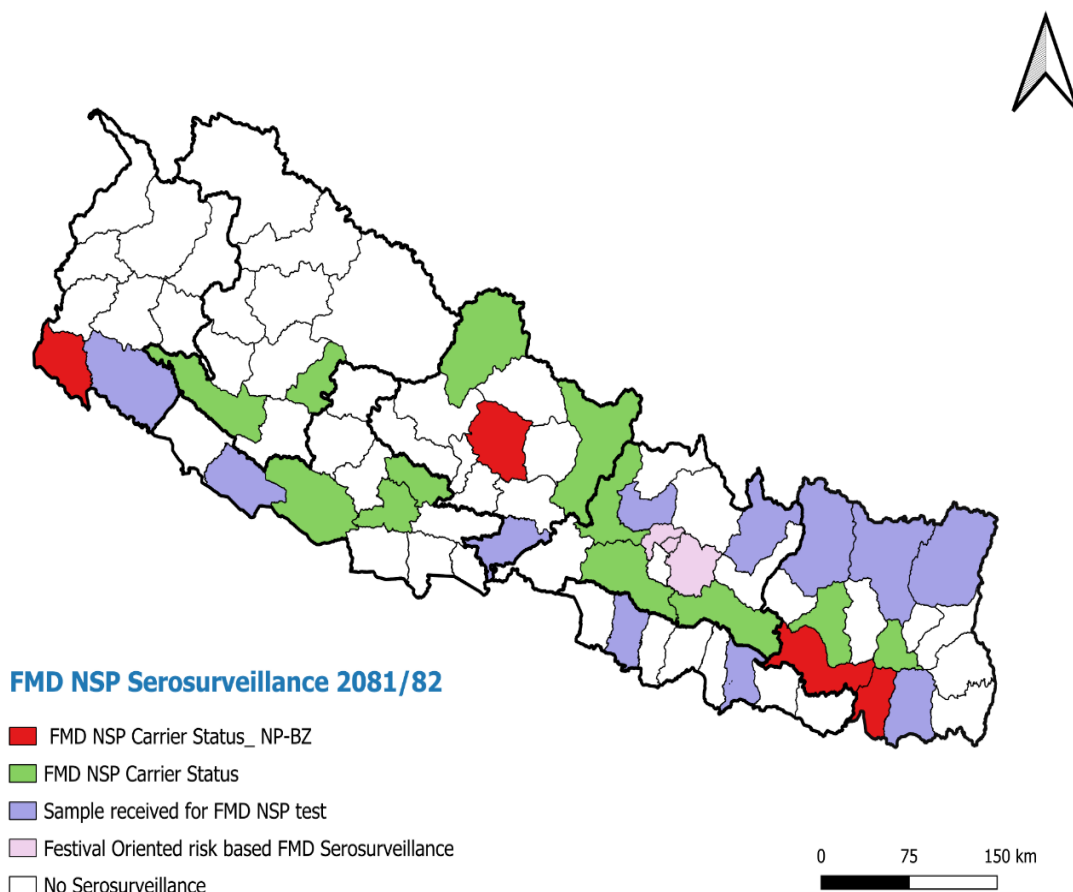
Table 5: District wise result of FMD NSP Antibody ELISA test for FY 2081/82

SN	District	No.of tested samples	Positive	Negative	Positive%
1	Arghakhanchi	124	5	119	4.03
2	Banke	26	6	20	23.07
3	Bara	138	41	97	29.71
4	Bhaktapur	65	1	64	1.53
5	Dang	132	19	113	14.39
6	Dhading	50	0	50	0
7	Dhankuta	126	1	125	0.79
8	Dhanusha	93	34	59	36.55
9	Dolakha	10	0	10	0
10	Gorkha	202	2	200	0.99
11	Gulmi	97	0	97	0
12	Kailali	352	2	350	0.56
13	Kanchanpur	244	25	219	10.24
14	Kaski	224	6	218	2.67
15	Kathmandu	449	22	427	4.89
16	Kavrepalanchowk	60	3	57	5
17	Khotang	284	1	283	0.35
18	Makwanpur	209	31	178	14.83
19	Morang	47	0	47	0
20	Mustang	180	2	178	1.11
21	Nawalpur E	11	0	11	0
22	Nuwakot	114	7	107	6.14
23	Panchthar	260	4	256	1.53
24	Rukum W	104	1	103	0.96
25	Sankhuwasabha	102	1	101	0.98
26	Sindhuli	200	0	200	0
27	Solukhumbhu	120	4	116	3.33
28	Sunsari	203	6	197	2.955
29	Surkhet	99	3	96	3.03
30	Udaypur	440	17	423	3.86
		4765	244	4521	5.12

Table 6: Species wise result of FMD NSP Antibody ELISA test for FY 2081/82

SN	Species	Total sample	Positive	Negative	Pos%
1	Buffalo	157	16	141	10.19
2	Cattle	427	69	358	17.96
3	Goat	3135	147	2988	4.69
4	Pig	447	7	440	1.57
5	Sheep	599	5	594	0.83
Total		4765	244	4521	5.12

Figure 3: District Coverage of FMD NSP Serosurveillance for FY 2081/82



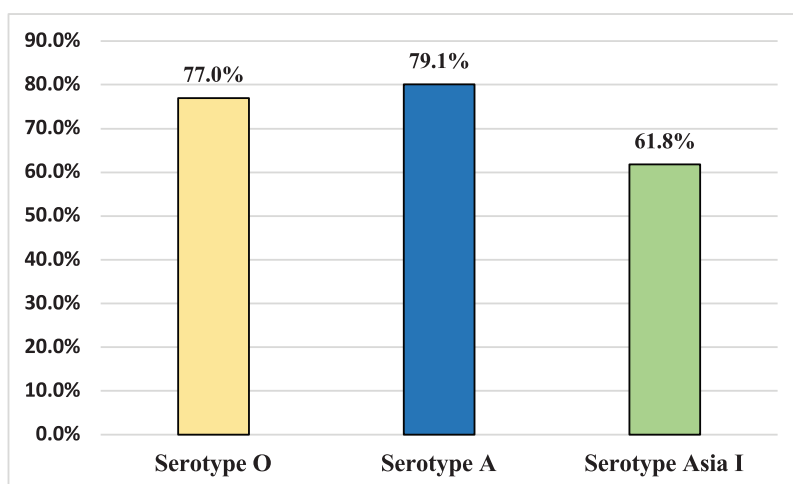
4.3 FMD Vaccine Seromonitoring

A total no of 5076 serum samples was collected / received from 23 districts and tested by FMD Antibody ELISA test. All samples were tested for FMD type O antibody and out of them 3904 (77%) samples were found positive. Only 2500 serum samples were tested for type A and out of them 1978 (79.1%) were found positive. Similarly, 3543 samples were tested for type Asia 1 antibody and out of them 2188 (61.8%) samples were found positive.

Table 7: FMD Vaccine Seromonitoring status FY 2081/82

S.N.	Province	District	Total Sampl e	Serotype O			Serotype A			Serotype Asia-1		
				Positive	Negative	Positive %	Positive	Negative	Positive %	Positive	Negative	Positive %
1	KOSHI	Dhankuta	94	55	39	58.5	18	12	60.0	2	28	6.7
2		Illam	2330	2104	226	90.3	1515	211	87.78	1558	692	69.2
3		Jhapa	228	183	45	80.3	106	41	72.1	70	77	47.6
4		Morang	194	90	104	46.4	40	58	40.8	34	79	30.1
5		Okhaldhunga	106	85	21	80.2	2	28	6.7	2	28	6.7
6		Panchthar	87	9	78	10.3	7	23	23.3	0	30	0.0
7		Sankhuwasabha	81	57	24	70.4	6	14	30.0	3	17	15.0
8		Sunsari	237	170	67	71.7	4	12	25	3	13	18.8
9		Udayapur	100	48	52	48.0	4	26	13.3	8	22	26.7
10	MADHESH	Bara	125	94	31	75.2	0	0	0	41	84	32.8
11		Dhanusha	101	18	83	17.8	0	0	0	0	0	0
12		Rautahat	95	2	93	2.1	0	0	0	0	0	0
13		Saptari	175	108	67	61.7	0	0	0	0	0	0
14	BAGMATI	Chitwan	153	150	3	98	0	0	0	121	32	79.1
15		Dhading	93	39	54	41.9	43	50	46.24	27	66	29
16		Dolakha	91	91	0	100	84	7	92.31	51	40	56
17		Kathmandu	24	24	0	100	0	0	0	17	3	85
18		Kavre	170	111	59	65.3	106	7	93.81	106	7	93.8
19		Lalitpur	104	102	2	98.1	0	0	0	23	4	85.2
20		Makwanpur	96	81	15	84.4	0	0	0	55	41	57.3
21		Nuwakot	96	78	18	81.3	8	5	61.5	49	47	51
22	SUDUR PASCHIM	Kailali	167	105	62	63	18	12	60	9	21	30
23		Kanchanpur	129	100	29	77.5	17	16	51.5	9	24	27.3
Total sample			5076	5076			2500			3543		
Average result				3904	1172	77	1978	522	79.1	2188	1355	61.8

Figure 4 Seroconversion of FMD vaccine FY 2081/82 (Positive % in O, A & Asia-1 antibody)



4.4 Classical Swine Fever (CSF) Laboratory Diagnosis

Classical Swine Fever (CSF) is a highly contagious and economically significant viral disease of pig caused by classical swine fever virus (CSFV), a member of the genus *Pestivirus* and family *Flaviviridae*. Only one CSFV serotype has been found, but minor antigenic variability has been demonstrated between viral strains.

A. CSF Serosurveillance test result

A total no. of 183 serum samples was collected / received from unvaccinated pigs of 5 districts and tested by CSF antibody ELISA test. Out of 183 tested samples, only 6 samples (3.3%) were found positive for CSFV antibody.

Table 8: CSF Serosurveillance status FY 2081/82

SN	District	Total samples	Positive	Negative	Positive%
1	Dhading	50	0	50	0
2	Dolakha	10	4	6	40
3	Khotang	41	0	41	0
4	Morang	42	1	41	2.4
5	Okhaldhunga	40	1	39	2.5
Total		183	6	177	3.28

B. CSF Vaccine Seromonitoring test result

A total no. of 496 serum samples was collected / received from 9 districts and tested by CSF antibody ELISA test. Out of 496 serum samples only 306 samples (61.7%) were positive for CSFV antibody

Table 9: CSFV Vaccine Seromonitoring FY 2081/82

SN	District	Total samples	Positive	Negative	Positive%
1	Chitwan	46	32	14	69.6
2	Dhading	40	30	10	75
3	Kailali	156	92	64	59
4	Kanchanpur	40	35	5	87.5
5	Kaski	5	5	0	100
6	Kavre	56	0	56	0
7	Morang	45	34	11	75.6
8	Nawalpur E	61	59	2	96.7
9	Sunsari	47	19	28	40.4
Total		496	306	190	61.7

4.5 Blue Tongue Serosurveillance

Blue Tongue is an infectious, non-contagious, arthropod (*Culicoides* species) transmitted disease of sheep with possible occurrence in other domestic and wild ruminants. During 2081/82, a total number of 2442 serum samples was collected from Cattle, Buffalo, Sheep & Goat from 14 districts. Out of tested samples, 1376 (56.35%) were positive and 1093 samples were negative.

Table 10: Blue Tongue Serosurveillance status FY 2081/82

SN	District	Total samples	Positive	Negative	Positive%
1	Arghakhanchi	124	68	56	54.8
2	Banepa	60	19	41	31.6
3	Bhaktapur	65	51	14	78.4
4	Dhankuta	126	73	53	57.9
5	Gorkha	202	80	122	39.6
6	Gulmi	97	9	88	9.2
7	Kailali	196	112	84	57.1
8	Kathmandu	449	260	216	57.9
9	Khotang	243	201	42	82.7
10	Mustang	180	97	83	53.8
11	Nuwakot	106	1	105	0.9
12	Sindhuli	200	93	107	46.5
13	Sunsari	156	143	13	91.6
14	Udaypur	238	169	69	71
Total		2442	1376	1093	56.35

4.6 Proficiency testing (PT)

FMD & TADs laboratory participates in the proficiency testing done by WoAH Reference laboratory for Foot and Mouth Disease, the Pirbright Institute, UK each year. In the year 2081/82, 4 serology samples and 6 virology samples for Foot and Mouth disease were received in the lab.

Table 11: Serology test for PT samples

SN	Serological Test	No. of tests
1	FMD NSP Competition ELISA	24
2	FMD Type O Competition ELISA	36
3	FMD Type A Competition ELISA	36
4	FMD Type Asia 1 Competition ELISA	36
Total serological test		132

Table 12: Virology test for PT samples

SN	Virology test	No. of tests
1	FMDV Antigen Detection and Serotyping ELISA	30
2	FMD Real time RT-PCR	30
3	FMD Conventional RT-PCR	18
Total virological test		78

5. STAFF DETAILS

Table 13: FMD & TADs Investigation Lab Staff details

SN	Name	Post	Class	Post sanctioned	Post Available	Vacant
1	Dr. Krishna Raj Pandey	Senior Veterinary Officer	G. Class II	1	1	0
2	Dr. Nisha Poudel	Veterinary Officer	G.Class III	3	3	0
3	Dr. Chiran Krishna Tiwari	Veterinary Officer	G.Class III			
4	Dr. Durga Dhungana	Veterinary Officer	G.Class III			
5	Mr. Shiba Kumar Karki	Animal Health Technician	Non G. Class I	2	2	0
6	Mr. Bal Kumar Rai	Animal Health Technician	Non G. Class I			
7	Mrs. Bhawani Bhandari	Accountant	Non G. Class I	1	1	0
8	Mr. Chitra Bahadur Basnet	Assistant Animal Health Technician	Non G. Class II	1	1	0
9	Mr. Uttam Nath	Kharidar	Non G. Class II	1	1	0
10	Mr. Shankar Prasad Paudel	Light Driver	Unclassified	1	1	0
11	Mrs. Radhika Rai	Office Helper	Unclassified	2	2	0
12	Mr. Roshan Thapa	Office Helper	Unclassified			
Total				12	12	0

6. LABORATORY ANIMAL MANAGEMENT

FMD Laboratory has an animal house where rabbits are reared especially for usage in diagnostic procedures at diagnostic laboratories and development of vaccines at National Vaccine Production Laboratory.

Table 14: Record of lab animals in FMD & TADs Investigation Lab FY 2081/82

Animal Detail	Distributed in other labs	Stock in the unit
Rabbit	5 (CVL)	25
Total	5	25

7. OTHER ACTIVITIES OF LAB

FMD Laboratory conducts laboratory extension programs which includes transfer of laboratory technology through interactions about Transboundary animal diseases with stakeholders, field level training about sample collection, preservation, coding and dispatch to the laboratories and also distributes laboratory publication regarding sample collection of various TADs and information on FMD. In addition, for the quality sample collection and dispatch during outbreak of FMD across the country, the lab produces virus transport media-kit for FMD sample collection and distributes to sub national and provincial veterinary laboratories, Veterinary Hospital and Livestock Service Expert Centre (VHLSEC) as well as other veterinary services in local levels. This fiscal year 2081/82, FMD & TADs investigation laboratory also hosted as a training center for FMD related sample collection and ELISA techniques training organized by DOLFD-Koshi Province.

Table 15: Distribution of FMD virus transport media-kit for FY 2081/82

SN	Office	No. of Offices	No of media kit distributed
1	VLs	Surkhet (34), Biratnagar (50)	84
2	Koshi Province	8	205
3	Bagmati Province	5	155
4	VHLSEC (Gandaki)	Mustang (30), Myagdi (30), Baglung (20)	80
5	VHLSEC (Lumbini)	Arghakhanchi (20)	20
6	VHLSEC (Karnali)	Rukum (20)	20
Total		20	564

Table 16: FMD & TADs flex distribution status for FY 2081/82

SN	Flex distributed offices	Office (flex)	Total no. of flex distributed
1	Veterinary Lab	VL Surkhet	2
2	Provincial Ministry	MoLMAC- Karnali Province	2
3	DoLFD	Karnali (22) , Koshi (70)	92
4	Livestock Training Centre	Karnali	4
5	VHLSEC (Gandaki)	Syangja (30), Mustang (20), Myagdi (20), Baglung (22)	92
6	VHLSEC (Karnali)	Rukum W	14
7	VHLSEC (Koshi)	Dhankuta, Ilam, Jhapa, Sankhuwasabha Paanchthar, Sunsari	28
8	VHLSEC (Lumbini)	Arghakhanchi (20), Gulmi (20)	40
9	Professional Council	Nepal Veterinary Council	50
Total		19	324

8. BUDGET SUMMARY**Table 17: Details of Budget Transaction and Expenditure FY 2081/82**

Budget Line	Budget heads	Approved budget (NRS in 000)	Expenditure (NRS in 000)
21111	Staff Salary	7000	6667
21121	Dress	100	100
21212	Contribution-based Pension fund	100	98
21139	Inventory Auction Meeting Allowance and Maternity care allowance	58	0
21132	Inflation allowance	240	240
21213	Insurance Fund for staffs	58	43
22111	Water & Electricity Tariff	998	960
22112	Telephone and Communication	97	96
22212	Fuel	694	654
22213	Repair of Vehicle	490	489
22214	Insurance and Renewal	198	106
22221	Machinery Equipment Repair Cost	570	557
22231	Cost of Maintenance of built public assets	600	573
22311	Masalanda and Office materials	340	339
22312	Animal feed	90	88
22314	Fuel (Extra Uses)	72	69
22315	Newspaper & Annual Report publication Cost	398	375
22411	Service and Counseling Cost	1200	1126
22413	Contract Service Cost	856	817
22512	Skill development and Public Awareness Training Cost	796	796
22522	Program cost	6396	5522
22611	Evaluation and monitoring cost	180	173
22612	Travel cost	1320	1260
22711	Miscellaneous cost	208	207
28143	Vehicles Hiring cost	200	117
Total		23259	21472
31122	Machineries and Tools	6300	5494
31123	Fixtures (carpet, curtains, etc.) for a new office building	500	489
31156	Laboratory water plant and accessories management	1200	1178
31161	Structural repair of constructed buildings	500	491
Total amount		8500	7652
Grand total amount		31759	29124

9. MAJOR ACHIEVEMENTS

- 1) Routine Serotyping of FMD virus at the laboratory has helped to know the status of FMD virus serotypes in the country and vaccine to be used. Finally, it helps to control the FMD in time and prevent from the heavy economic loss of farmers.
- 2) Routine Serosurveillance of FMDV to find out the status of FMD in non- outbreaks areas and help to lunch RBSP of FMD PCP Control Pathway.
- 3) Routine Serosurveillance of CSFV to find out the status of CSFV in the porcine population of Nepal.
- 4) Serosurveillance of Blue-Tongue disease in sheep, goat, cattle and buffalo also helps to know the status of disease in Nepal.
- 5) Routine Seromonitoring of vaccinated animals against FMDV and CSFV give the clear picture about the quality of vaccine and effectiveness of vaccination program.
- 6) The laboratory has been doing the molecular diagnosis of FMDV by Conventional Multiplex RT-PCR since 2012 and by Real Time Multiplex RT-PCR by 2022.
- 7) The laboratory has been sending the few FMD outbreak sample annually to WRLFMD, Pirbright, UK for Genotyping & Vaccine Matching Test.
- 8) The Laboratory has been actively participating in the Proficiency Testing (PT) done by WRLFMD, Pirbright, UK. Six virology samples and four serology samples were received and tested in the fiscal year 2081/82 for proficiency testing.
- 9) The laboratory has been doing routine calibration of laboratory equipment in order to maintain measurement accuracy, uniformity, and repeatability, ensuring trustworthy standards and outcomes.
- 10) In this fiscal year 2081/82, a new BSL 2 plus lab which was constructed for FMD & TADs Investigation Laboratory by Nepal Livestock Sector Innovation Project (NLSIP), is now operating the molecular section.

ABBREVIATIONS

ASF	: African Swine Fever
BTv	: Blue Tongue Virus
BSL	: Biosafety Level
CSFV	: Classical Swine Fever Virus
CVL	: Central Veterinary Laboratory
DLS	: Department of Livestock Service
DoLFD	: Department of Livestock and Fisheries Development
ELISA	: Enzyme Linked Immunosorbent Assay
FAO	: Food and Agriculture Organization
F/Y	: Fiscal Year
FMD	: Foot and Mouth Disease
FMDV	: Foot and Mouth Disease Virus
LSO	: Livestock Service Office
M	: Municipality
MoALD	: Ministry of Agriculture and Livestock Development
NLSIP	: Nepal Livestock Sector Innovation Project
NSP	: Non-Structural Protein
NVD	: No Virus Detected
OIE	: Office International des Epizooties
PCP	: Progressive Control Pathway
PCR	: Polymerase Chain Reaction
PT	: Proficiency Test
RBSP	: Risk Based Strategic Plan
RM	: Rural Municipality
RT-PCR	: Reverse Transcription Polymerase Chain Reaction
TADs	: Transboundary Animal Diseases
UK	: United Kingdom
VHLSEC	: Veterinary Hospital and Livestock Service Expert Centre
VL	: Veterinary Laboratory
WOAH	: World Organization for Animal Health
WRLFMD	: World Reference Laboratory for Foot and Mouth Disease

Some glimpses of FMD Serosurveillance, Seromonitoring and Outbreak Investigation programs



Fig: Festival oriented FMD carrier status serosurveillance FY 2081/82



Fig: FMD carrier status serosurveillance at Khotang



Fig: FMD lab team with DoLFD Lumbini team for FMD serosurveillance at Gulmi



Fig: FMD serosurveillance sample collection at Udaypur (left), Sunsari (Centre) and Makwanpur (right)



Fig: FMD serosurveillance sample collection at Kanchanpur



Fig: Sample collection for FMD Surveillance in National Park Buffer Zone area at Kaski



Fig: Sample Collection for FMD serosurveillance at Rukum West



Fig: Sample Collection for FMD serosurveillance at Surkhet



Fig: Sample collection for FMD Seromonitoring (Nuwakot, Dhadhing, Makwanpur)



Fig: Collection of tissue sample during FMD Outbreak Investigation (Sindhupalchowk, Kathmandu, Kavrepalanchowk, Nuwakot)

Some glimpses of Blue Tongue Serosurveillance



Fig: FMD & TADs Lab team for Blue Tongue Serosurveillance at Mustang



Fig: Sample collection for BT serosurveillance at Gorkha



Fig: BT Serosurveillance sample collection at SGRC- Nuwakot (left), Sindhuli

Some glimpses of CSF Serosurveillance and Seromonitoring



Fig: Sample Collection for CSF Serosurveillance (Dhading, Khotang)



Fig: FMD & TADs Lab team for sample Collection for CSF Serosurveillance (Morang, Okhaldhunga)



Fig: Sample collection for CSF Seromonitoring (Kavrepalanchowk, Chitwan)

Some glimpses of laboratory tests at FMD & TADs Investigation Laboratory



Fig: Laboratory testing at serology lab

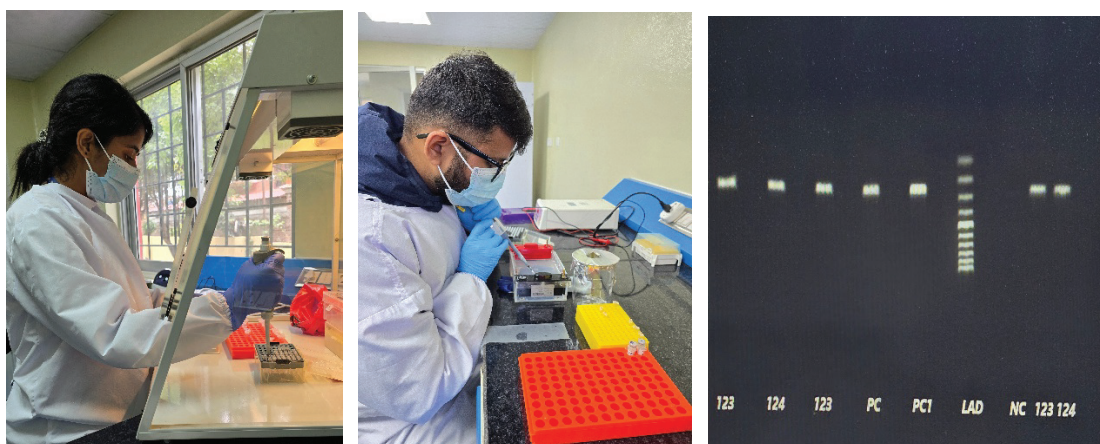


Fig: Diagnosis of FMD by conventional Multiplex RT-PCR

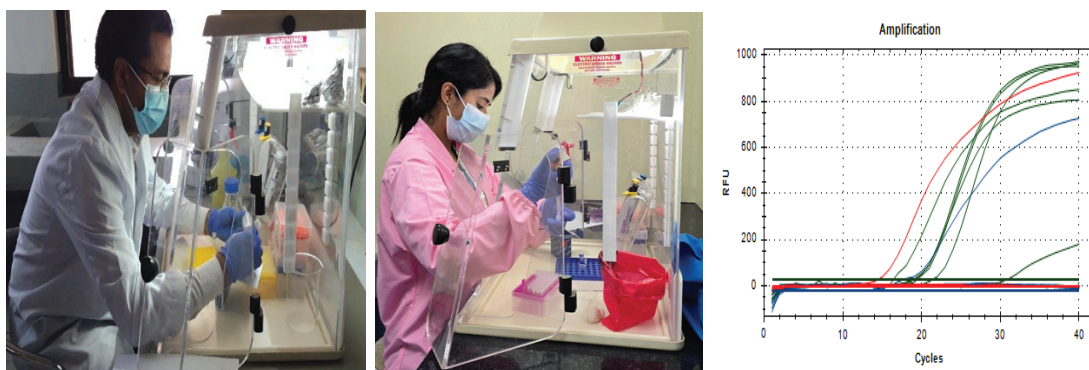


Fig: Diagnosis of FMD by Real Time Multiplex RT-PCR

Some glimpses of Interactive programs regarding FMD & TADs; Training program regarding sample collection, preservation and dispatch and other programs conducted by FMD & TADs Investigation lab in FY 2081/82



Fig: Interactive program at VHLSEC, Syangja (left) and Manang (right)



Fig: FMD zoning & compartmentalization related interactive program at Sindhuli



Fig: FMD zoning & compartmentalization related interactive program at VHLSEC, Kailali



Fig: FMD & TADs related interactive program at Dang (left) and Rukum W (right)



Fig: Sample collection, preservation and dispatch training for field veterinarians, VHLSEC, Ilam



Fig: Sample collection and ELISA training facilitated by FMD & TADs lab team at FMD & TADs Lab for Koshi Province

Fig: FMD & TADs related interactive program at Dang (left) and Rukum W (right)



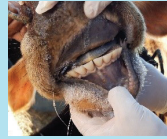
नेपाल सरकार
कृषि तथा पशुपन्छी विकास मन्त्रालय
पशु सेवा विभाग

खोरेत तथा सिमाबिहीन पशु रोग अन्वेषण प्रयोगशाला

बुढानीलकण्ठ, काठमाण्डौ

खोरेत रोग:

यो गाई, भैँसी, भेडा, बाख्रा, बंगुर जस्ता स्तनधारी जनावरहरूमा विषाणुबाट लाग्ने, धेरै पशुहरू बिरामी हुने, मुख र सुट्टामा असर गर्ने, महामारी रुपमा फैलने, दुध उत्पादन अत्याधिक घटाउने सिमाबिहीन पशु रोग हो ।



यो रोग लागेमा हुने क्षति

- गाई भैँसीको दुध उत्पादन घट्छ ।
- ब्याउने जनावरहरूमा तृहिनै संभावना हुन्छ ।
- जोरु हिँड्नुल गर्न नसकिने सेतिपाती ठप्प हुन्छ ।

खोरेत रोग लागेका जनावरहरूमा आँखाले देख्न सकिने निम्न किसिमका लक्षणहरूको आधारमा रोगको अवधि अन्दाज गर्ने चित्रहरू

गाई भैँसीमा

पहिलो दिन: शुरुमा बढी न्याल, फिङ काइने, ज्वरो आउने, लंगडाउने, दुध घट्ने, मुख बाउने र भोक्राउने हुन्छ । पानीले भरिएको फोको (Fluid filled vesicles) बनेको देखिन्छ । खाला हल्का सेता हुदै पहिलो भएर अलि माथी उठेको हुन्छ ।



दोश्रो र तेस्रो दिनमा: जिब्रोको फोका (Vesicle) फूट्दछन् तर धेरै जसो घाउको सतह (Epithelium) हल्का सेतो पहिलो (white and pale) देखिन्छ र टाँसिएर बसेको बाक्लो खालाको भित्र भाग रातो देखिन्छ ।



चौथो र पाँचौ दिनमा: घाउको सतह (Vesicular Epithelium) हराएर जाने र पहिलो किसिमको पदार्थ जस्तो फाइब्रिन जम्मा (Fibrin deposition) हुन्छ ।



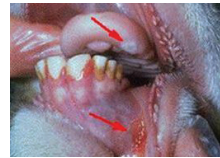
छैटौ र सातौ दिनमा: घाउ निको हुने अवस्थामा पुगेको देखिन्छ ।

आठौ, नवौ र दशौ दिनमा: मुख भित्र जिब्रोमा भएको घाउ निको हुने अवस्थामा देखिने ।



भेडा बाख्रामा

पहिलो दिन: प्रष्ट लक्षण थाहा पाउन नसकिँदापनि मुख र सुट्टामा घाउ (Lesions) देखिन्छ साथै लंगडाउने, ज्वरो आउने, भोक्राउने हुन्छ । यी लक्षण मध्यम (Mild) नै देखिन्छन् ।



दोश्रो दिन: मुख भित्र तल्लो बंगुरा र माथिल्लो भागमा घाउको इपिथेलियम लेयर उठेकै रातो देखिने ।

तेस्रो दिन: भेडाको सुट्टाका रौ भरेको देखिने र हल्का रातोपना देखिँदापनि निको हुने अवस्थामा देखिने ।

पाँचौ र छैटौ दिन: जिब्रोमा भएको घाउहरू निको हुने अवस्थामा देखिने । ब्याउने भेडी तृहिन सक्ने ।



बंगुरामा

पहिलो दिन: शुरुमा ज्वरो आउने, भोक्राउने, लंगडाउने, दानापानी खान मन नगर्ने सामान्य नै भएतापनि सुट्टाको खुर वरिपरि रातोपना देखिने, सुनिने, छान्दा तातो हुन्छ ।

दोश्रो दिन: बंगुराको खुर उठेकै रगत बगे जस्तो देखिने ।



तेस्रो दिन: बंगुराका खुरहरू रातोबाट कालो दाग हुदै निको भए जस्तो देखिन्छ ।



समयमा खोरेत रोग पत्ता लगाई पशुधनको आर्थिक क्षति हुनबाट जोगाऔं ।
खोरेत रोग सम्बन्धि विशेष जानकारीको लागि निम्न ठेगानामा सम्पर्क राखौं ।

खोरेत तथा सिमाबिहीन पशु रोग अन्वेषण प्रयोगशाला

बुढानीलकण्ठ, काठमाण्डौ, फोन नं. ०१-४३७०६५७, ४३७२५७८, Email: nfmdnepal@gmail.com

Fig: FMD & TADs related interactive program at Dang (left) and Rukum W (right)

नेपाल सरकार
कृषि तथा पशुपन्छी विकास मन्त्रालय
पशु सेवा विभाग

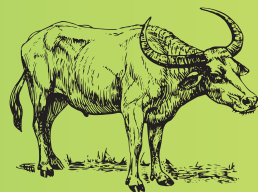
खोरेत तथा सिमाबिहीन पशु रोग अन्वेषण प्रयोगशाला

बूढानीलकण्ठ, काठमाण्डौ

पशुपन्छीहरूमा लाग्ने प्रमुख संक्रामक रोगहरूको प्रयोगशाला परिक्षणका लागि नमूना संकलन, संरक्षण र प्रेषण

क्र.स.	रोगको नाम	उपयुक्त नमूना संकलन	संरक्षण तथा सम्प्रेषण
१	खोरेत (FMD)	मुख, जिब्रो, गिजा र खुन वरिपरीको ताजा घाउको स्वाब एवं तन्तु नमूना एवं मुख वरीपरी आउने पानि फोका मित्रको म्नेल	५०% फरफेट बफर ग्लीसरीनमा राखी कुलबक्समा Ice pack सहित राखेर पठाउने ।
		सिरम (रोजा लागेको पछिल्लो अवस्थामा)	सिरम मायलमा राखी कुलबक्समा Ice pack सहित राखेर पठाउने
		मरेको पशुको लिम्फनोड, फियो, मुटु आदी	Sterile bottle वा Zip Lock bag मा राखी कुलबक्समा Ice pack सहित राखेर पठाउने ।
२	लम्पी स्किन डिजिन (LSD)	खालामा हुने गिराको घाउको पाप्रा, तन्तु वा स्वाब	मि.टि.एम./पि.बि.एस./10% Glycerine मा राखेर कुलबक्समा Ice pack सहित राखेर पठाउने ।
		रगत	३ मि.लि. रगतको नमूना EDTA vial मा राखेर कुलबक्समा Ice pack सहित राखेर पठाउने ।
		सिरम	सिरम मायलमा राखी कुलबक्समा Ice pack सहित राखेर पठाउने
३	पि.पि.आर. (PPR)	आँखा, नाकबाट निस्कनेको श्रावको स्वाब (Ocular/Nasal Swab)	०.५-१.० मि.लि. पि.बि.एस.मा राखेर कुलबक्समा Ice pack सहित राखेर पठाउने ।
		मरेको मेडाबाखाको लिम्फनोड, फियो, फोक्सो, कलेजो आदी	Sterile bottle वा Zip Lock bag मा राखी कुलबक्समा Ice pack सहित राखेर पठाउने ।
४	क्लासिकल स्वाइन फिबर र अफ्रिकन स्वाइन फिबर (Classical Swine Fever & African Swine Fever)	सिरम	सिरम मायलमा राखी कुलबक्समा Ice pack सहित राखेर पठाउने
		मरेको बंगुरको लिम्फनोड, फियो, फोक्सो, कलेजो आदी	Sterile bottle वा Zip Lock bag मा राखी कुलबक्समा Ice pack सहित राखेर पठाउने ।
५	ब्लू टङ्ग (Blue Tongue)	सिरम	सिरम मायलमा राखी कुलबक्समा Ice pack सहित राखेर पठाउने
		मरेको पशुको फियो, लिम्फनोड, कलेजो आदी	Sterile bottle वा Zip Lock bag मा राखी कुलबक्समा Ice pack सहित राखेर पठाउने ।
६	पि.आर.आर.एस. (PPRS)	सिरम	सिरम मायलमा राखी कुलबक्समा Ice pack सहित राखेर पठाउने
७	बर्ड फ्लू (AI) र रानीखेत रोग (ND)	Tracheal Swab र Cloacal Swab (In wild birds fresh Faecal Swabs)	०.५-१.० मि.लि. पि.बि.एस. वा VTM मा राखेर कुलबक्समा Ice pack सहित राखेर पठाउने ।
		मरेको कुसुरा वा अन्य पखी	कुलबक्समा Ice pack सहित राखेर पठाउने ।
८	रेबिज (Rabies)	मरेको पशुको गिदी (Brain) वा टाउको	गिदीलाई Sterile bottle मा र टाउकोलाई प्लास्टिक व्यागमा प्याक गरी कुलबक्समा Ice pack सहित राखेर पठाउने ।
९	गल्यान्ड्स (Glanders)	घाउहरूबाट निस्कने पिप, स्वाब, तन्तु	Sterile bottle मा १.० मि.लि. पि.बि.एस.मा राखेर कुलबक्समा Ice pack सहित राखेर पठाउने ।
१०	भ्यागुने (HS)	रगतको स्मिचर	टिस्चु पेपर वा कागजमा बेरेर वा स्लाईड बक्समा राखेर पठाउने ।
		रगत	३ मि.लि. रगतको नमूना EDTA vial मा राखेर कुलबक्समा Ice pack सहित राखेर पठाउने ।
		मरेको पशुको लिम्फनोड, फियो, फोक्सो, कलेजो आदी	Sterile bottle वा Zip Lock bag मा राखी कुलबक्समा Ice pack सहित राखेर पठाउने ।
११	बरचरे (BQ)	सुनिनएको मित्री भागको स्मिचर	टिस्चु पेपर वा कागजमा बेरेर वा स्लाईड बक्समा राखेर पठाउने ।
		सुनिनएको भागको मासुको टुक्रा	Sterile bottle वा Zip Lock bag मा राखी कुलबक्समा Ice pack सहित राखेर पठाउने ।
१२	पटके (Anthrax)	कानको नशाबाट लिइएको रगतको स्मिचर	टिस्चु पेपर वा कागजमा बेरेर वा स्लाईड बक्समा राखेर पठाउने ।
१३	ब्रुसेल्लोसिस (Brucellosis)	Vaginal Swab After abortion, Aborted Fetus (Stomach Contents, Spleen, Lungs), Fetal Membranes, Placenta	Sterile Vial वा bottle मा राखि कुलबक्समा Ice pack सहित राखेर पठाउने ।
		पशु तुहाएको ३ हप्तापछिको सिरम	सिरम मायलमा राखी कुलबक्समा Ice pack सहित राखेर पठाउने ।
१४	क्षयरोग (TB)	सिरम	सिरम मायलमा राखी कुलबक्समा Ice pack सहित राखेर पठाउने ।
		प्रभावित अङ्गको पिप र अङ्गको टुक्रा	स्टेराइल बोतलमा राखी कुलबक्समा Ice pack सहित राखेर पठाउने ।

फोन नं: ०१-४३७०६५७, फ्याक्स नं: ०१-४३७२५७८, मोबाईल: ९८५१२२२७४९
Web Page: <http://nfmd.gov.np/>, | Email: nfmdnepal@gmail.com



FMD Vaccination Schedule



FMD Vaccination	Cattle, Buffalo, Sheep, Goat	Pig
1 st Vaccination	4 month old	2 month old
Booster vaccination	1 month after 1 st Vaccination	1 month after 1 st Vaccination
Re-vaccination	Every 6 month	Every 6 month
The vaccine should be administered deep I/M . Vaccine dosage should be followed as per the manufacturer's guidelines.		

Sample collection for laboratory diagnosis

Disease	Appropriate Sample	Collection and Dispatch
Foot and Mouth Disease (FMD)	Vesicular fluids, skin epithelia around ruptured vesicles on the mouth, tongue, gums, and interdigital space of hooves	50% Phosphate Buffer Glycerin media. Dispatched in Cool box with Ice packs
	Heart, Spleen, Lymph nodes etc from dead animal	In a sterile bottle or zip lock bag. Dispatched in Cool box with Ice packs
Classical Swine Fever (CSF)	Serum	In serum vial dispatched in a Cool box with Ice packs
	Lymph nodes, Spleen, Lungs, Liver etc from dead animal	In a sterile bottle or zip lock bag. Dispatched in a Cool box with Ice packs
Blue Tongue (BT)	Serum	In serum vial dispatched in a Cool box with Ice packs
	Lymph nodes, Spleen, Lungs, Liver etc from dead animal	In a sterile bottle or zip lock bag. Dispatched in a Cool box with Ice packs

CSF Vaccination Schedule

All pigs **above 6 weeks of age** should be vaccinated according to the dosage recommended by the manufacturer, and revaccination should be performed annually.

Services at FMD & TADs Investigation Laboratory

Molecular Detection

Real Time Multiplex Reverse Transcriptase PCR
Conventional Reverse Transcriptase PCR

FMD, CSF, BT diagnosis

Virology

FMD Ag Detection and Serotyping ELISA
CSFV Antigen ELISA

FMD and CSF diagnosis

Serology

FMD NSP ELISA
FMD SP ELISA
Classical Swine Fever Antibody ELISA
Blue Tongue Antibody ELISA

Serosurveillance of FMD
Seromonitoring of FMD
Serosurveillance and Seromonitoring of CSF
Serosurveillance of CSF

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