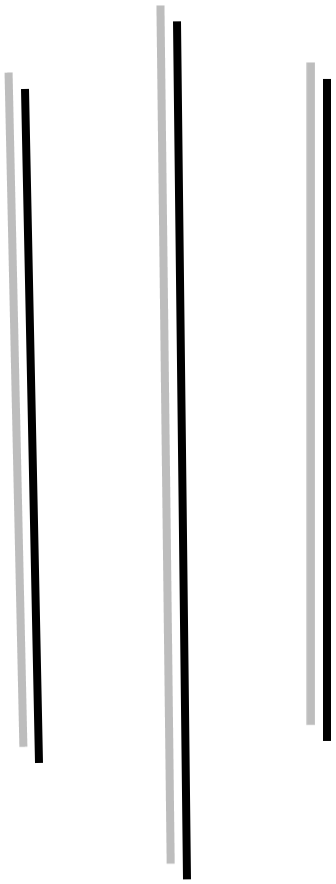
ANNUAL TECHNICAL REPORT

FISCAL YEAR 2075/76 (2018/19)



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Foreword

It is my pleasure to present this annual technical report of Central Veterinary Laboratory (CVL) for the fiscal year 2075/76 (2018/19). This issue includes activities and progress report of CVL, the five Veterinary Laboratories (VLs).

Diagnosis of diseases is a foundation for control, prevention and its eradication. Early and accurate diagnosis of diseases can only be assured in the laboratories which are fully equipped, that have a range of standardized diagnostic reagents and trained human resources.

Nepal being the member of World Trade Organization (WTO), since 2004, has to implement Sanitary and Phytosanitary (SPS) measures on scientific merit. Laboratory based diagnosis is of paramount importance in implementing the SPS measures in the territory. Therefore, the role of central and veterinary laboratories including basic laboratories situated in the local level is crucial in diagnosis of disease among major livestock species in the country. Yet, there is a scope in uplifting the standards and quality assurance of the laboratory diagnosis process conducted utilizing existing facilities.

With the establishment of molecular diagnostic techniques at the CVL, routine molecular diagnosis of Avian Influenza, ND, IBD, PPR and application multiplex PCR technology for the diagnosis of diseases of small ruminants and swine are being performed. Similarly, the ELISA, IFAT, HA/HI, AGPT, virus isolation and characterization and other routine diagnostic tests are used for the diagnosis of various livestock and poultry diseases. Apart from routine testing in the bacteriology, CVL has recently started the active Antimicrobial Resistance (AMR) surveillance program in collaboration with three other veterinary labs of Pokhara, Biratnagar, Chitwan with the logistic support from the Fleming Fund Country Grant, Nepal. Similarly, the program on the surveillance of ESBL E coli is on pipeline with the logistic support from WHO. In public health section of CVL, the surveillance of antibiotic residue in meat and milk of animals with the application of ELISA has been started since this fiscal year.

In meantime, we are putting our efforts to upgrade CVL, VLs and collaborate with National avian lab (NAL) to provide reliable and prompt diagnostic services all over the country. We already have good co-ordination among the veterinary laboratories, provincial veterinary offices and local units to ensure the quality sample flow for advance diagnosis up to CVL, it being a national reference laboratories in the nation.

I would like to extend my sincere thanks to Food and Agriculture Organization (FAO) for their support in laboratory diagnostic reagents, Australian Animal Health Laboratory (AAHAL) for their molecular characterization of different viruses, and International Atomic Energy Agency (IAEA) lab and for their support in proficiency testing and laboratory trainings. Sincere efforts of all VLs for providing information required for this publication is really appreciable. Finally, I would express my personal appreciation and sincere thanks to all the staffs of CVL who worked hard to give this annual technical report in a good shape.

Dr. Deker Dev Bhatt
Chief Veterinary Officer
Central Veterinary Laboratory
Tripureshwor, Kathmandu, Nepal

Abbreviations:

AI: Avian Influenza

ALC: Avian Leucosis Complex

AMR: Anti-Microbial Resistance

AST: Antibiotic Sensitivity Test

CFT: Complement Fixation Test

CMT: California Mastitis Test

CSF: Classical Swine Fever

CVL: Central Veterinary Laboratory

DLS: Department of Livestock Services

ELISA: Enzyme Linked Immune Sorbent Assay

EPG: Egg per Gram

EQA: External Quality Assurance

ESBL: Extended Spectrum Beta Lactamase

FAO: Food and Agriculture Organization.

FAT: Fluorescent Antibody Test

FMD: Foot and Mouth Disease

GLP: Good Laboratory Practice

HA: Haemagglutination

HI: Haemagglutination Inhibition

HPAI: Highly Pathogenic Avian Influenza

IB: Infectious Bronchitis

IBD: Infectious Bursal Disease

PPR: Pest des Pestes Ruminants

MoALD: Ministry of Agriculture and Livestock Development

NAL: National Avian Laboratory

ND: New Castle Disease

NPHL: National Public Health Laboratory

OIE: World Organization of Animal Health

rRT PCR: Real Time Reverse Transcriptase Polymerase Chain Reaction

SOP: Standard Operating Procedure

SPS: Sanitary and Phyto Sanitary Standard

UTI: Urinary Tract Infection

VLs: Veterinary Laboratories

WTO: World Trade Organization

CONTENTS

Table 1: List of Staffs working at CVL (At the end of F/Y 2075/76)

S.N.	Name	Position	Total Number	Full filled	Remarks
1	Dr. Diker Dev Bhatt	Chief Veterinary Officer	1	1	
2	Dr. Pragya Koirala	Senior Veterinary Officer	2	2	
3	Dr. Rajesh Yadav				
4	Mr. Purna Bahadur Budha	Veterinary Officer	7	7	2 Study Leave
5	Mr.Prakash Devkota				
6	Mr. Bal Bahadur Kunwar				
7	Dr. Tulsi Ram Gompo				
	Dr. Indresh Jha				
	Dr. Manju Maharjan				
8	Dr. Ram Chandra Sapkota				
	Dr. Luna Gongal				
11	Dr. Prativa Shrestha	Animal Health Technician	6	5	1 vacant 1 Study Leave
	Mr Krishna Mani Kafle				
12	Mr. Shyam Sundar Yadav				
14	Mr. Tul Bahadur Rai				
15	Mr.				
16	Ms. Kamal Kumari Niraula	Assistant Animal Health Technician	8	7	1 vacant
17	Mr. Bhimsen Adhikari				
18	Mr. Bal Kumar Rai				
19	Mr. Bhakta Bahadur Roka Magar				
20	Ms. Hima Basnet				
21	Mr. Dhan Bahadur Rawal				
22	Mr. Tula Bahadur Bohora				
19		Senior clerk (Typist)	1		1 vacant
20	Mr. Ramesh Prasad Niraula	Accountant	1	1	
21	Mr. Binod Raj Poudel	Clerk (Kharidar)	1	1	
22	Mr. Machakaji Maharjan	Driver	1	1	
22	Mrs. Bheema Acharya	Office Assistance	6	2	4 vacant
23	Mr. Chandra Bahadur Rana	,, ,,			
24	Mr. Dipesh Rana Magar	,, ,, (Contract)			
25	Mr. Jeevan Rai	,, ,, (Contract)			
26	Ms. Sarada Thapa	,, ,, (Contract)			
Total			34	27	7

Table 2: Annual program & progress report of CVL in the Fiscal Year 2075/76

S.N.	Activities	Unit	Target	Progress
1	**Parasitology**			
1.1	Fecal Examination	Number	300	1161
1.2	EPG counts of parasites	Number	120	155
1.3	Skin scrapping examination	Number	45	69
2	**Pathology**			
2.1	Clinical hematological examination	Number	300	669
2.2	Bio-Chemical examination	Number	120	149
2.3	Post-Mortem Examination	Number	1000	3686
2.4	Histopathological examination	Number	45	46
3	**Micro-Biology**			
3.1	**Bacteriology**			
3.1.1	Isolation and Identification of Bacteria	Number	900	1641
3.1.2	Sample collection, Isolation and Identification of Fungus	Number	90	118
3.2	**Virology**			
3.2.1	Sample collection of virological examination	Number	450	1306
3.2.2	Investigation of PPR outbreak	Times	60	65
3.2.3	PPR Diagnosis by ELISA and Pen site Test	Number	60	60
4	**Serology**			
4.1	PPR Sero-monitoring for National PPR control program	Times	60	60 (3130 Nos.)
4.2	Poultry sample collection and examination for salmonella and Mycoplasma	Number	150	152
5	**Molecular Diagnosis**			
5.1	Molecular Diagnostic examination for Bird-Flu	Number	150	952
5.2	Gene sequencer maintenance	Times	3	3
5.3	Dispatch of sample to international reference laboratories	Times	3	3
6	**Disease surveillance and investigation**			

S.N.	Activities	Unit	Target	Progress
6.1	Emergency disease investigation team (EDIT) deploying	Times	3	4
6.2	Sample collection and examination of PRRS disease in pig	Number	150	165
6.3	Investigation of livestock and poultry epidemics	Times	3	3
7	**Zoonotic disease Investigation**			
7.1	Sample collection and examination for Rabies	Number	60	62
7.2	Sample collection and examination for Brucella.	Number	150	351
8	**Staff Development**			
8.1	Laboratory Technology Transfer	Times	1	1
8.2	Laboratory Program Planning Workshop	Times	1	1
8.3	Advance Laboratory Technology Workshop	Times	2	2
8.4	Purchase of technical issues and journals	Times	1	1
9	**Laboratory Monitoring**			
9.1	Monitoring and evaluation of Regional and basic laboratories	Times	6	6
10	**Publications**			
10.1	Publication of Laboratory Technical Report	Times	1	1
11	**Laboratory Management**			
11.1	Health examination of staffs	Person	34	34
11.2	Teaching lab management	Times	12	12
11.3	Management of Serum Bank	Times	12	12
11.4	Lab animal management	Times	3	3

CENTRAL VETERINARY LABORATORY KATHMANDU

1. Introduction:

Central Veterinary Laboratory (CVL) focuses program with the objective of securing healthy national herd of livestock throughout the nation by mitigating the occurrence of diseases of livestock and poultry. CVL also works on epidemic investigation as well as surveillance and investigation on various diseases in its approved annual program. The direct benefit of the performance of various laboratories has been experienced in the field of veterinary medical care based on valid laboratory test results. To achieve these multidimensional activities, CVL works with a series of laboratory test procedures through its various laboratory sections; Pathology, Parasitology, Microbiology, Serology, Laboratory management and teaching labioratory and Molecular Biology with a considerable progress in the later. At present the molecular based diagnosis of avian influenza is in routine use.

CVL has Standard Operating Procedures, test protocols and quality guideline manual. CVL is gradually practicing the biosafety/ biosecurity measures so that Good Laboratory Practice is followed in our all the diagnostic laboratories. CVL has already been adopting test verification system through international reference laboratories which will help in the accreditation of CVL for international certification in near future. The newly constructed well equipped BSL2+ laboratory will certainly help to increase the standard of test results and accreditation process as well.

To provide diagnostic facilities throughout the country, CVL works through its five Veterinary Laboratories (VLs) located in different provinces of the nation; province no 1 Veterinary Laboratory (Biratnagar), province no. 2 Veterinary Laboratory (Janakpur), province no. 4 (Gandaki Pradesh) Veterinary Laboratory (Pokhara), Province no. 6 (Karnali Pradesh) Veterinary Laboratory (Surkhet) and Province no. 7 (Sudurpashim Pradesh) (Dhangadhi). Currently, Province no. 3 (Bagmati Pradesh) and 5 do not have veterinary laboratory as per new structure. However, diagnostic services and covered by the currently running laboratories. Specimens that cannot be processed in the aforementioned laboratories due to insufficient facilities and expertise or needed to be further tested for confirmation are referred to the CVL. Local level in coordination with Veterinary Diagnostic Laboratories also send samples to the CVL for confirmatory diagnosis. In this way, CVL works as a reference veterinary laboratory in Nepal.

2. Objectives:

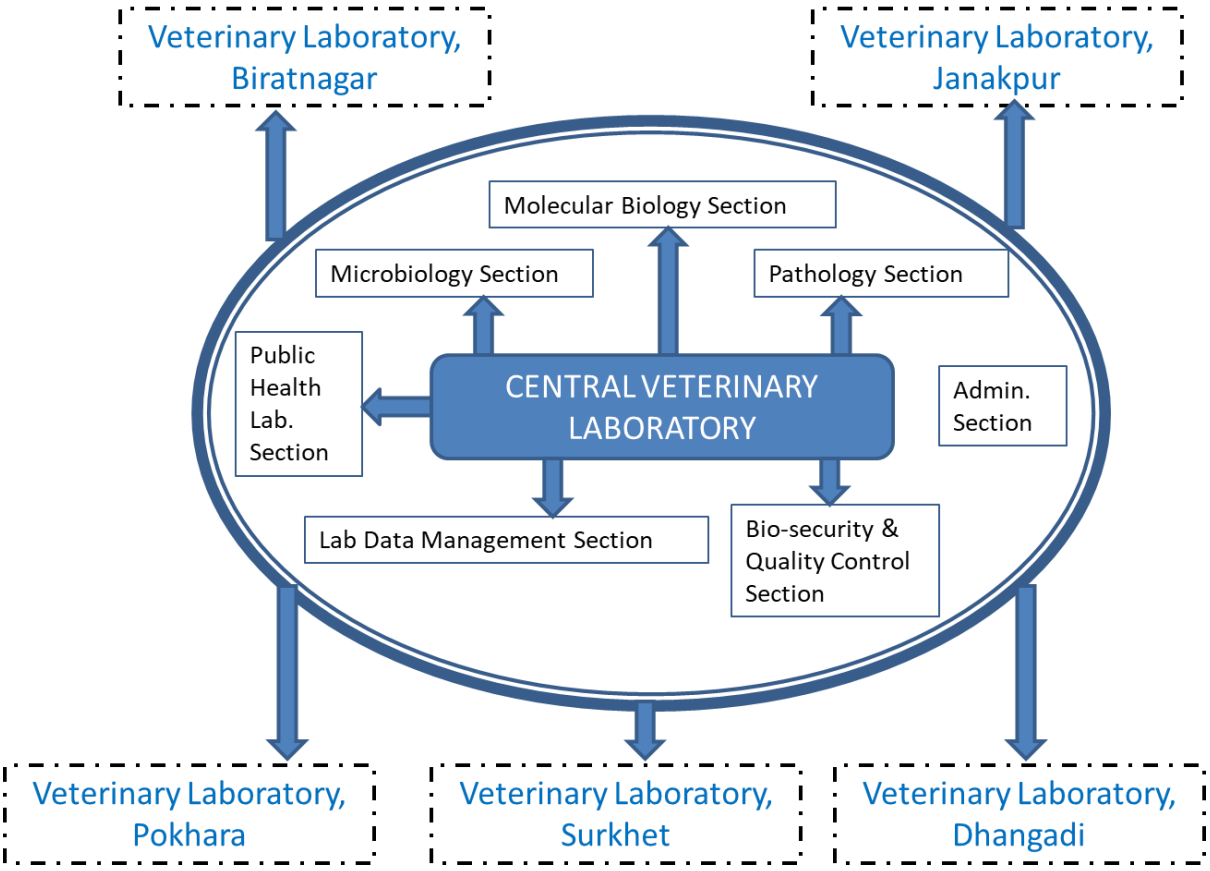
The role of veterinary laboratory system has become dynamic with advent of food safety issues, economic liberalization and trade globalization. Nepal joined as a WTO member in 2004. Therefore, Nepal follows the guidelines provided by Office International des Epizootics (OIE) for the provision of Sanitary and Phytosanitary (SPS) agreement under WTO that seeks scientific procedures and evidences in the course of disease diagnosis as well as production chain. The roles of veterinary diagnostic laboratories are now therefore expanded and challenging in the new context. Moreover, CVL works with the following objectives in the

country.

- Provide laboratory diagnostic services in the country in the area of animal health and veterinary public health.
- Acts as a national veterinary reference laboratory.
- Conduct epidemiological disease investigation & laboratory diagnosis of livestock and poultry disease.
- Support the national disease control and surveillance programs.
- Acquire, adopt, upgrade and disseminate different laboratory diagnostic test methodologies for Livestock and poultry diseases.
- Assist Department of Livestock Services (DLS) in the animal health policy development and formulation of animal disease control and eradication programs.
- Extend & disseminate information concerning livestock and poultry disease controls.
- Collaborate with international reference laboratories & institutions on veterinary laboratory diagnosis.
- Assist in implementation of national epidemic control strategies.
- Conduct laboratory diagnosis techniques training for the veterinarians and veterinary paraprofessionals.
- Strengthen and coordinate veterinary laboratories all across the nation.

To achieve the aforementioned objectives, there are a series of approved annual activities carried out by different laboratory sections of the CVL and five VLs.

3. **Organization Structure:**



4. Laboratory Services:

Virology unit:

This unit is responsible for the diagnosis of viral diseases. Most of the samples are submitted from the post mortem unit of CVL, Regional Veterinary Laboratories, National Avian Laboratory, Central Veterinary Hospital and District Livestock Service Offices. Samples are also submitted by quarantine check posts, private clinicians, farmers and staffs of CVL during disease outbreak investigations. The unit has a facilities for competitive ELISA, Fluorescent Antibody Test, Plate Agglutination Test and rapid antigen detection test. Mainly, Rapid antigen detection test is used for the initial diagnosis of Avian Influenza, New Castle Disease, Infectious Bursal Disease, Infectious Bronchitis and Rabies. For the further confirmative diagnosis of Avian Influenza the samples are sent to the Molecular Section. Likewise, for rabies the confirmative diagnosis is done through Fluorescent Antibody Test (FAT), histopathologial test (Negri body detection) and biological test.

CVL has a facility of rapid antigen detection test for most commonly occurring viral diseases (Avian Influenza, New castle disease, Infectious Bursal Disease and Infectious Bronchitis) for initial screening of disease. The rapid test positive AI samples are sent to the molecular section for the confirmatory diagnosis.

In the fiscal year 2075/76, a total of 1423 samples were tested by rapid test kit method.

Rapid test record-2075/76													
Month	ND			AI			IBD			IB			Total
	Pos	Neg	total	Pos	Neg	total	Pos	Neg	total	Pos	Neg	total	
Shrawan	2	16	18	1	22	23	16	20	36	6	11	17	94
Bhadra	6	17	23	0	15	15	6	12	18	10	24	34	90
Ashwin	2	2	4	0	3	3	2	4	6	3	8	11	24
Kartik	1	14	15	20	27	47	10	19	29	2	22	24	115
Mangsir	1	5	6	13	41	54	9	17	26	5	11	16	102
Poush	6	10	16	5	43	48	6	15	21	4	13	17	102
Magh	4	11	4	4	39	43	8	13	21	5	31	36	104
Falgun	18	20	38	16	48	64	10	28	38	1	9	10	150
Chaitra	23	32	55	31	56	87	26	13	39	1	14	15	196
Baisakh	17	31	48	5	48	53	9	8	17	2	17	19	137
Jestha	21	35	56	13	53	66	20	17	37	1	7	8	167
Ashad	7	35	42	5	47	52	16	16	32	2	4	6	132
Total	108	228	336	113	442	555	138	182	320	42	171	213	1413

Table: Rapid test kit record 2075/76

Rabies unit

In the fiscal year 2075/76, 62 rabies suspected samples were tested out of which 35 (56.45%) were found to be positive. Most of the samples received were of canine.

SPECIES WISE DISTRIBUTION OF RABIES TESTED IN CVL (2075/76)

Month	canine		Bovine		Caprine		Feline		Elephant		total cases reported	Tota positiv cases
	total	positive	total	positive	total	positive	total	positive	total	positive		
Shrawan	2	1	0	0	0	0	0	0	0	0	2	
Bhadra	1	0	1	1	0	0	0	0	0	0	2	
Ashwin	7	5	0	0	0	0	0	0	0	0	7	
Kartik	4	2	0	0	0	0	1	1	1	1	6	
Mangsir	10	5	2	2	0	0	0	0	0	0	12	
Poush	5	1	0	0	0	0	0	0	0	0	5	
Magh	4	3	0	0	1	0	0	0	0	0	5	
Falgun	5	1	1	0	0	0	1	0	0	0	7	
Chaitra	5	5	2	1	0	0	0	0	0	0	7	
Baisakh	5	4	0	0	0	0	0	0	0	0	5	
Jestha	1	0	1	1	0	0	0	0	0	0	0	
Ashad	1	0	1	1	0	0	0	0	0	0	0	
	50	27	8	6	1	0	2	1	1	1	62	

Table: Species wise distribution of Rabies Tested in CVL (2075/76)

DISTRICT WISE DISTRIBUTION OF RABIES RECORDED IN CVL (2075/76)

S.no.	Districts	Total cases reported	No. of positive cases
1	Kathmandu	37	22
2	Dolkha	1	0
3	Chitwan	6	4
4	Lalitpur	14	7
5	Ramechhap	1	1
6	Bhaktapur	2	0
7	India	1	1
		62	35

Table: District wise distribution of rabies recorded in CVL (2075/76)

Pathology Section

Post mortem examination, hematology, histopathology and clinical biochemistry are major areas under the pathology section in CVL. Samples are submitted either by Veterinary Laboratories, National Avian Laboratory, Central Referral Veterinary Hospital and Local level or they are brought directly by the veterinary practioners, livestock and poultry farms as well as by the farmers themselves.

Post mortem unit

Necropsy examination is the first step of disease diagnosis for morbid animals. The history, clinical findings, epidemiological surveillance information is also helps for the proper diagnosis of disease which is confirmed through various tests that are available in CVL.

During the fiscal year 2075/76 a total of 3686 carcasses were bought for necropsy examination at CVL. Detail month wise and species wise distribution is shown in the table below.

Table 4: Species wise distribution of pathological condition diagnosed in CVL (2075/76)

Species	Disease/Pathological condition	No. of cases reported
Bovine	Road traffic accident	1
Swine	Classical swine fever	4
	PRRS	2
	Pneumonia	3
Canine	UTI	1
	Pneumonia	1
Caprine	PPR	3
	Helminthiasis	1
	Pneumonia	2
	Enterotoxaemia	1
Rabbit	Coccisiosis	5
Poultry	Detail in table below	3662

Table 5: Monthwise distribution of pathological conditions of avian species diagnosed in CVL

S. no.	Disease/ Pathological conditions	Shrawan	Bhadra	Ashwin	Kartik	Mangsir	Poush	Magh	Falgun	Chaitra	Baisakh	Jestha	Ashad	Total
1	Colibacillosis	27	23	26	19	31	20	14	67	83	76	89	68	54
2	Coli Complex	16	19	13	15	8	5	7	38	47	32	36	29	26
3	Omplalitis	11	17	6	4	5	2	4	10	13	16	28	17	13
4	Egg peritonitis/Salpingitis	2	4	0	2	5	4	0	3	7	4	2	6	3
5	Pasteurellosis	0	0	0	0	0	2	0	0	6	0	6	4	1
6	Salmonellosis	1	2	2		3	2	4	6	5	8	4	8	4
7	Nephritis	4	8	5	10	28	17	23	37	48	41	44	38	30
8	Fatty Liver Syndrome	2	5	3	6	15	12	16	44	39	32	28	26	22
9	Necrotic Enteritis	0	4	0	2		1	0	5	9	6	7	4	3
10	Enteritis	0	3	6	3	4	3	8	13	17	14	13	6	9
11	Pneumonia	0	3	2	5	14	16	11	29	25	22	26	10	16
12	Immunosupression	4	0	4	3	2	0	0	24	31	29	22	18	13
13	CRD	11	7	8	18	38	22	26	53	46	42	48	39	35
14	CCRD	8	9	5	8	12	9	5	17	22	21	17	20	15
15	Ascites	4	14	9	12	23	18	21	42	38	26	32	30	26
16	Mycotoxicosis	9	22	12	6	8	6	10	27	26	21	28	22	19
17	Avian Influenza	4	7	0	8	4	5	3	9	7	8	10	6	7
18	New Castle Disease	6	9	3	2	2	3	4	21	14	12	14	18	10
19	Infectious Bursal Disease	4	6	2	5	7	4	2	18	16	15	12	16	10
20	Infectious Bronchitis	3	2	4	4	3	8	6	15	4	8	12	4	7
21	Hydropericardium Syndrome	0	0	0	3	0	0	0	4	6	5	4	8	3
22	Marek's Disease	2	3	2	0	2	0	2	6	2	1	0	2	2
23	Avian Leucosis	2	0	0	0	0	0	0	2	4	0	6	4	1
24	Fowl Pox	1	2	3	0	4	0	0	7	11	3	2	0	3
25	Egg drop syndrome	0	0	0	0	0	0	0	0	0	0	0	4	
26	Infectious Laryngotraechitis	0	0	0	0	0	0	0	0	3	0	0	0	
27	Avian Encephalomyelitis	0	0	0	0	0	0	0	2	0	0	0	0	
28	Coccidiosis	4	0	3	0	6	4	0	0	8	11	13	17	6
29	Gout	5	0	9	6	11	6	4	18	23	14	28	16	14
30	Duck Viral Enteritis	0	0	4	0	0	0	0	2	0	0	0	0	
	Total	130	169	131	141	235	169	170	519	560	467	531	440	366

Hematology and Biochemistry Unit:

A total of 708Blood samples were tested in F/Y 2075/76 for blood analysis. Out of 536 Cattle blood samples examined 102 were positive for *Babesia spp*., 19 for *Anaplasma spp*. 2 were found positive for Anthrax spp and rest were negative for any blood parasites .Similarly out of 3 Buffalo blood samples, 2 were positive for *Babesia spp*.and rest were found negative. Similarly, out of 145 blood samples of Dog, 9 were positive for *Babesia spp*., 4 *E-canis* and rest were negative for any blood parasites. Likewise, a total of 17 Goat and Sheep blood samples, 5 swine samples and 2 equine samples were all negative for any blood parasites.

Table 6: Total Blood samples received and analyzed in Hematology Unit F/Y 2075/76

Species	**PCV**	**HB**	**TLC**	**DLC**	**Blood protozoa positive**	**Total Sample**	**Remarks**
Cattle	536	536	536	536	102 Babesia spp, 19 Anaplasma spp, 2 Anthrax	536	
Buffaloes	3	3	3	3	2 Babesia spp	3	
Dog	145	145	145	145	9 babesia, 4 E-canis	145	
Horse	2	2	2	2	negative	2	
Goat/Sheep	17	17	17	17	negative	17	
Pig	5	5	5	5	negative	5	
Total Sample	708	708	708	708		708	

A total of 153 samples were tested for biochemical parameters in F/Y 2075/76. The result is show on table below:

Table 7: Total Biochemical Test performed of different species in F/Y 2075/76

Type of Sample tasted	Test Requested	Dog	Cattle	Goat	Total	Remarks
Urine	RME	2	4		6	
Serum	Calcium		15	17	32	
	Phosphorous		15	17	32	
	Magnesium		15	17	32	
	Glucose	9	15	17	41	
	Bilirubin	6			6	
	Protein	4			4	
Total		21	64	68	153	

Parasitology Unit:

The parasitology section is involved in routine examination of different types of internal and external parasites of animals and birds, besides this, the parasitology section is also involved in the investigations of adverse effect on domesticated animals and poultry health and production. For the investigation and diagnosis of parasites, fecal samples, and skin scrapings samples are collected and examined by adopting standard veterinary laboratory protocols. As a routine examination or diagnosis of parasites, direct smear method, sedimentation method and the floatation methods are commonly used as per the guidelines for detection of parasites.

Table 8: ***Parasites identified during the fiscal year 2075/76:***

Month	No. of Sample	No.of L.F	No.of Paranphistomum	No. of Strongyles	No.of Strongyloid	No.of Trichuris	No.of Ascaris	No.of Moniezea	No. Taeni
Shrawan	63	11	7	6	4	6	0	4	0
Bhadra	115	23	8	26	5	0	0	5	1
Ashwin	85	16	9	14	6	0	0	4	0
Kartik	45	3	2	3	4	0	0	0	0
Mangshir	118	18	13	18	10	0	2	0	1
Poush	82	14	6	13	4	0	0	2	0
Magh	85	28	9	5	4	3	0	0	0
Falgun	120	32	18	7	11	1	0	1	0
Chaitra	75	29	7			2	0	2	3
Baishakh	52	28	5	7	6	0	0	0	1
Jestha	60	12	11	6	3	1	3	0	0

Ashad	74	17	12	9	4	1	0	0	12
Total	974	231	107	114	61	14	5	18	18

Microbiology section:

Bacteriology and mycology unit:

The bacteriology unit, in fiscal year 2075/76, received altogether 1182 samples from various sources such as farmers, central veterinary referral hospital, private clinics, regional veterinary laboratories, veterinary hospital and livestock service expert centers and directly from the field collected during the periodic sampling. The sample received were mainly two types: i) the general samples that includes milk, urine, nasal swabs, ear swabs, skin scrapping of animals, tissues of animals collected during postmortem examination and the animal feed ii) the environment samples like water. Different bacterial isolates were isolated from the aforementioned specimens as shown in Table 1. Out of total 1182 samples only, 1001 (84.68%) produce bacteria after culture.

Table 1: The bacterial isolated in the laboratory in the F/Y 2075/76 from

S.N.	Bacterial species	Number isolated
1.	Escherichia coli	432
2.	Staphylococcus spp.	217
3.	Bacillus spp.	100
4.	Streptococcus spp.	92
5.	Klebsiella spp.	31
6.	Micrococcus	54
7.	Salmonella spp	36
8.	Proteus	11
9.	Pasteurella	10
10.	Enterobacter	9
11.	Pseudomonas	8
12.	Moraxella spp	1
	Total	1001

California Mastitis Test (CMT) and bacteriological test of milk samples:

A total of 393 bovine milk samples were received in the bacteriology unit for California Mastitis Test (CMT) Test and culture. Out of them, 341 (86.77%) were positive to CMT that were subjected to subsequent bacterial culture (Table 3).

Table 2: The bacterial species isolated in the milk samples of CMT positive cases in the F/Y 2075/76

S.N.	Bacterial species	Number of isolated
1.	Escherichia coli	102
2.	Bacillus spp.	36
3.	Staphylococcus spp.	115
4.	Streptococcus spp.	45
5.	Micrococcus	30
6.	Proteus	3
7.	Listeria	1
8.	Pseudomonas	1
9.	Klebsiella	7
10.	Moraxella	1
Total		341

Mycology

A total of 63 feed samples were received in mycological unit for fungal culture and among them only 59 samples were found positive to the fungal growth. One of the most common fungus isolated from the poultry feed were penicillum and aspergillus species (Table 2).

Table 3: The fungal species isolated in the laboratory in the F/Y 2075/76

S.N.	Fungal species	Number of isolated
1.	Penicillum	35
2.	Aspergillus	24
Total		59

Table 4: The bacterial species isolated in the general samples submitted during the F/Y 2075/76 at bacteriology unit.

S.N.	Bacterial species	Number of isolated
1.	Escherichia coli	330
2.	Bacillus spp.	64
3.	Klebsiella spp.	24
4.	Staphylococcus spp.	102
5.	Streptococcus spp.	47
6.	Proteus	8
7.	Micrococcus	24
8.	Pseudomonas	7
9.	Enterobacter	9
10.	Salmonella spp	36
11.	Pasteurella	10
12.	Yersinia	2

13.	Lactobacillus	1
14.	Acinetobacter	8
Total		672

Of the total 126 water samples received for bacterial culture, 69 (54.76%) samples produced bacteria after culture.

Antimicrobial Susceptibility Testing

All the bacteria isolated from the culture were tested for their antimicrobial susceptibility by disc diffusion methods. All the 1001 isolates were tested against various antibiotics. The antibiotics against each isolate was matched according to Clinical and Laboratory Standard Institute (CLSI) guidelines, 2018. Among the antibiotics, Gentamycin, Ceftriaxone, Ofloxacilin, Ciprofloxacillin have intermediate in action in most of the bacterial isolate. While, Imipenem, Gentamicin, Ceftriaxone were sensitive mostly to E. coli, Bacillus, Salmonella bacteria species. Amoxycillin has poor sensitivity against many bacterial isolates (Table 5)

Table 5: Antibiotic susceptibility test result against common bacterial isolated from general sample in the F/Y 2075/76

S.N.	**Bacterial species**	**Antibiotic sensitivity percentage (%)**											
		G	Imi	Cf/cip	Am	T	Ctr	A	Of	Cx	C	Cot	Cl
1.	Escherichia coli	63.6	33.7	52.1	15	27.6	88	5.5	61.7	52.8	61	0.29	55
2.	Bacillus spp.	85	78.4	61.25	27.3	21.87	79.6	NA	68.75	65	73.3	23.07	48
3.	Staphylococcus spp.	83.5	75.3	58.0	28.2	35.48	51.8	2.4	74.1	51.9	55.8	45.1	54.7
4.	Streptococcus spp.	38.2	65.8	48.7	22.8	30	81.8	NA	51.4	34.2	56.6	68.9	44.9
5.	Salmonella Spp	88.8	21.9	80	NA	37.5	66.6	NA	-	61.9	-	40	62.5
6.	Klebsiella	42.8	67.5	73.9	-	78.4	-	-	-	-	-	-	58.4
7.	Moraxella	66.6	-	50	50	NA	100	50	50	83.4	66.6	0	0
8.	Bacteroid	-	-	100	-	NA	100	-	-	-	-	-	38.5
9.	Pseudomonas	57.1	64.6	83.3	20	NA	54.7	0	33.3	76.3	34.6	20	20
10.	Enterobacter	80	67.8	75	0	20	66.6	14.28	63.1	-	40	20	71.4
11.	Pasteurella	-	86.9	82.5	0	NA	91.2	-	90.4	-	-	-	-
12.	Micrococcus	33.3	91.2	33.3	20	25	60	-	-	-	66.6	-	-
13.	Acinetobacter	10.3	54.3	46.3	-	-	45.7	-	64.7	-	98	79	-

Note:

G= Gentamycin, T=Tetracycline, Cip/Cf=Ciprofloxacin, A=Amoxycillin
Am=Ampicillin, C=Chloramphenicol, Cx= Cefoxitime, Imi-Imipenem, Cot = Cotrimoxasole,

Of= Ofloxacin, C=Colistin, ,Ctr=Cetriaxone , Cot=Cotrimoxazole
NA= Not applicable

Milk sample

393 milk sample were received in this fiscal year, out of this 341 milk samples were positive. The bacterial isolates from this positive samples were subjected to antibiotic sensitivity test. Among the antibiotics such as Gentamycin, Cetriaxone, Cotrimoxazole are sensitive for the treatment of Cattle in case of mastitis disease for the given organism.

Antibiotic susceptibility test against the bacterial isolated from milk sample isolated in F/Y 2075/76

S.N.	Bacterial species	Antibiotic sensitivity percentage												
		G	Imi	Cf/Cp	Am	T	cot	A	Ctr	C	Cx	Le	Of	Cl
1	Escherichia coli	91.3	92.8	93.3	28.5	33.3	78.5	20	95	80	42.8	91.3	97.3	0
2	Bacillus spp.	83.3	86.4	86	30	37.5	58.3	21.2	93.3	50	64.7	33.3	95.4	0
3	Klebsiella spp.	94.1	87.9	73.1	0	78.3	59.1	0	87.3	84.1	-	-	-	0
4	Staphylococcus spp.	98.9	92.1	95.1	75	53.1	68.7	84.4	96.7	91.5	78.9	57.1	82	35.7
5	Streptococcus spp.	79.3	0	90	0	79.2	31.5	79.5	83.1	-	93.1	-	-	-
6	Proteus	100	79.3	75	40	0	-	0	-	-	87.3	89.4	0	0
7	Micrococcus	100	100	38.9	20	50	100	0	49.8	100	0	-	-	0
8	Listeria	100	100	100	100	-	-	-	0	-	100	-	-	-
9	Pseudomonas	65.8	-	43.8	-	-	75.2	-	76.5	-	86.3	-	65.9	-

Note:

G= Gentamycin,T= Tetracycline,Cip= Ciprofloxacin,A=Amoxycillin, Ap=Ampicillin,Cx=Cefoxitime,C=Chloramphenicol , Imi=Imipenem, O=Orfloxacin,Cl=colistin, ,Ctr=Cetriaxone ,Le=Levofloxacin,Cot=Cotrimoxazole

Antimicrobial Resistance related Activity in Central Veterinary Laboratory

Antimicrobial resistance (AMR) is one of the major global challenges of both public and animal health. In Nepal, AMR surveillance program was first started in 1999 with the financial support from USAID and technical support of International Centre for Diarrheal Disease Research/Bangladesh (ICDDR, B).

Since 2004, Nepal Public Health Laboratory (NPHL), acted as a national coordinating laboratory for AMR surveillance program after financial support of WHO. As a coordinating laboratory, NPHL has formed national network of AMR surveillance presently with 18 other participatory laboratories in human health. Since 2012, CVL has coordinated with NPHL on AMR surveillance activity, in country, from the animal health part. As a participatory laboratory, there is coordination among with the veterinary laboratories and data dissemination of antimicrobial susceptibility through workshops and training yearly. As part of External Quality Assessment (EQA) Testing, CVL quarterly receives unknown bacterial strains from NPHL for isolation, identification and antimicrobial susceptibility testing. After this, CVL send back the report of the identified bacteria to NPHL for the feedback.

Organisms included in National AMR surveillance in Nepal

1.	Respiratory pathogens and agents of meningitis	*Streptococcus pneumonia* *Haemophilus influenzae*
2.	Sexually transmitted disease	*Neisseria gonorrhea*
3.	Gram positive cocci	*Staphylococcus aureus*, Methicillin Resistant *Staphylococcus aureus*
4.	pathogens of diarrhoeal diseases	Shigella spp., S.dysentriae, S.flexneri, S.boydii, *S.sonnei, Salmonella spp, Vibrio cholerae*
5.	Pathogens of blood	Salmonella enteric Typhi, Paratyphae
6.	Pathogens of community acquired UTI	Extended Spectrum Beta-lactamase Producing Escherichia coli

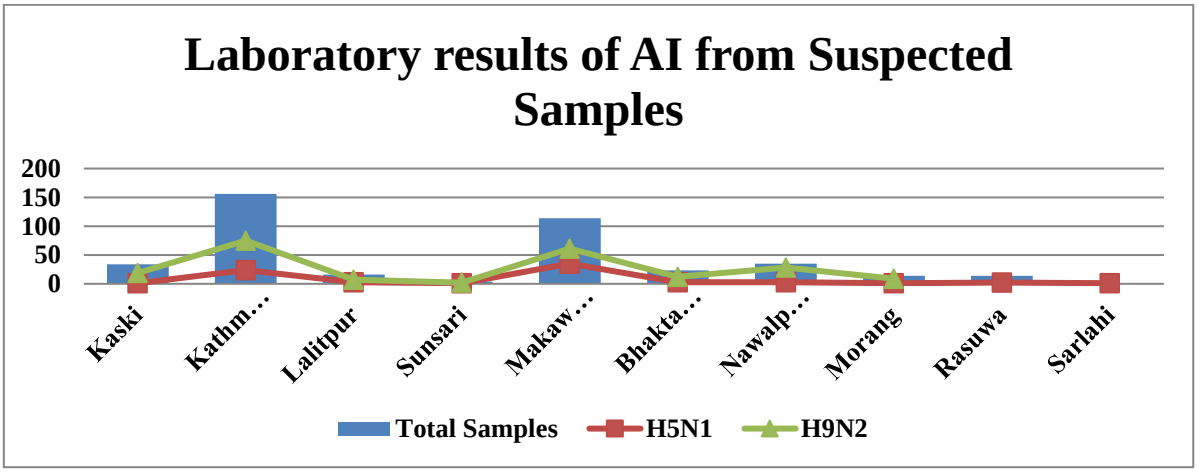
On the other hand, the country grant for Fleming Fund, Fleming Fund Country Grant Nepal (FFCGN) has been supporting CVL in capacity building through the human resources training, infrastructure development and support in building document like SOPs etc. The surveillance activity of AMR in live poultry birds is led by CVL with other three Veterinary Laboratories of Biratnagar, Pokhara and National Avian Laboratory. In the next year plan, ESBL project for AMR in Animal Health, supported by WHO is to be started at CVL.

Molecular Biology Section

A Molecular Biology Unit

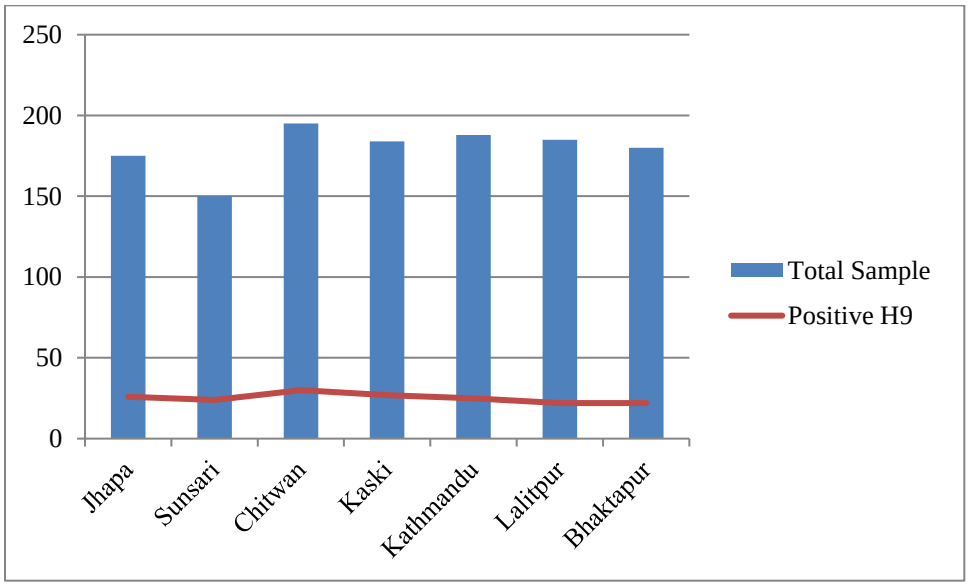
Molecular tools are increasingly important in modern animal disease research not only in other country but also in our country Nepal. In view of this, Central Veterinary Laboratory (CVL) has established molecular biology unit in 2003. Earlier this laboratory has started to diagnose disease especially avian influenza by using RT-PCR technique. Later CVL has started real time PCR for diagnose avian diseases. CVL also started multiplex for respiratory disease of small ruminant (PPR, MCCP, Capripox, Pasteurella) and swine diseases (African swine fever virus, Classical swine fever virus, Salmonella and Erysipela*)* since 2016.

In the Fiscal year 2075/76, a total of 669 swab samples of avian species suspected for avian influenza were received from thirty five districts. Those samples were tested by using Real Time Reverse Transcriptase Polymerase Chain Reaction (rRT PCR) for M-gene firstly. M-gene positive samples were further tested for individual sample to confirm subtype H9N2, H5N1, N6, N8 and H7N9. Out of those samples, 74 samples were found positive for subtype H5N1 and 422 samples were found positive for subtype H9N2. During this period, HPAI outbreak was occurred in ten districts (Kaski, Morang, Sunsari, Bhaktapur, Makawanpur, Nawalparasi, Rasuwa, Sarlahi, Kathmandu and Lalitpur) which were shown in Table…….

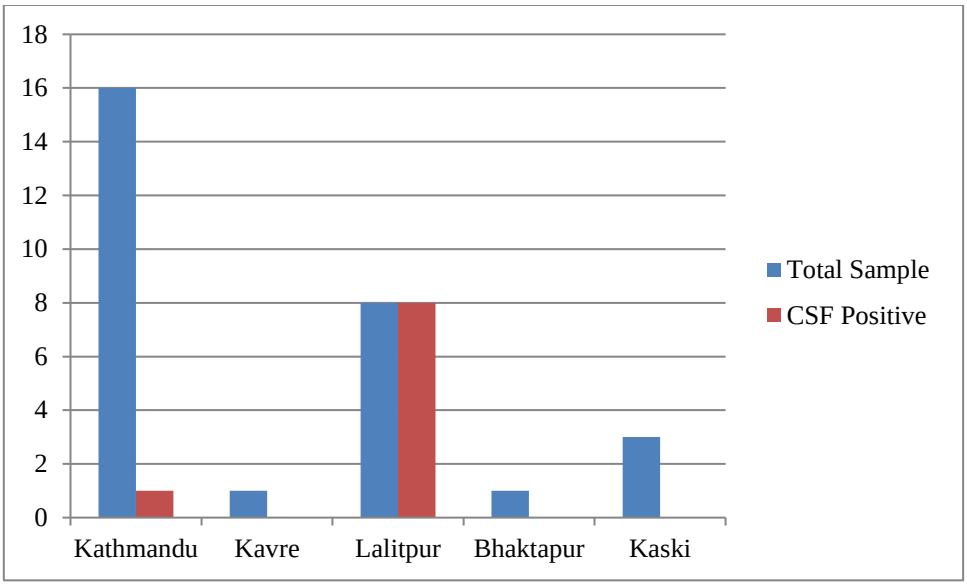


Most of the HPAI samples and few LPAI samples (tissues) were sent to OIE Ref Lab, AAHAL, Geelong Australia for further confirmation and gene sequencing. Out of those samples, 8 samples were confirmed for HPAI (H5N1) and remaining confirmed for H9N2. The clade **2.3.2.1a** of H5N1 virus was identified which was 98-99% Hemagglutinin and 97-98% Neuraminidase nucleotide sequence similarities to the recent human H5N1 virus isolate of Nepal. 99% BLASTn sequence similarities to A/duck/Bangladesh/34283/2017(H5N1)-like viruses. Similarly H9N2 viruses belong to the **G1- like H9N2 lineage** with closest relationship to other G1-like H9N2 viruses that circulate in the South Asian region

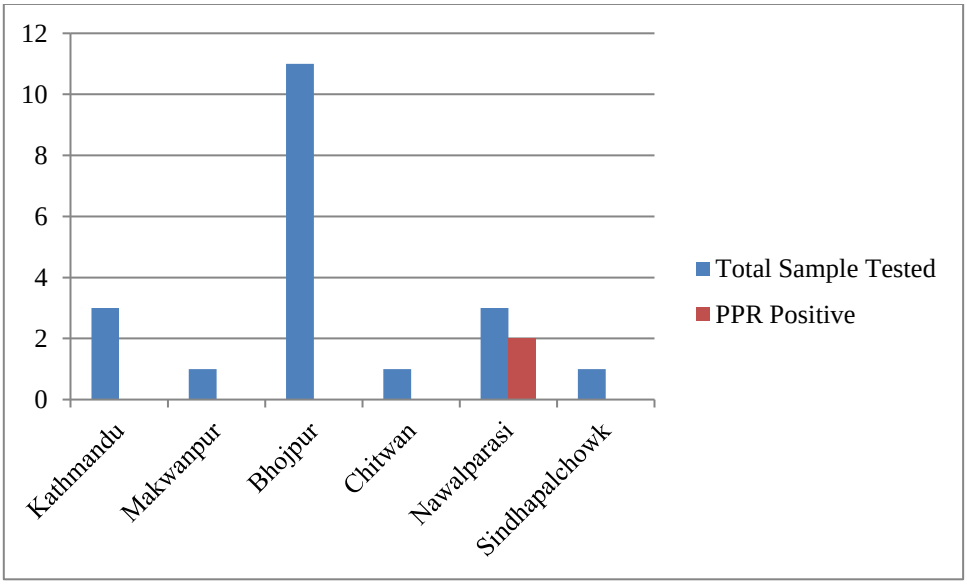
Central veterinary Laboratory (CVL) also received different types of bio-surveillance sample (TS/CS/ES/NS) for avian influenza from seven high risk districts. A total of **1257** samples were tested by using PCR method. Only 14% samples were positive for Subtype H9.



Likewise CVL received 29 tissue samples from five districts for swine diseases. Only 9 samples from Kathmandu and Lalitpur were found positive for CSF.



Likewise CVL received 20 samples from six districts for small ruminant respiratory diseases. Only 2 samples from Nawalparasi were found positive for PPR.

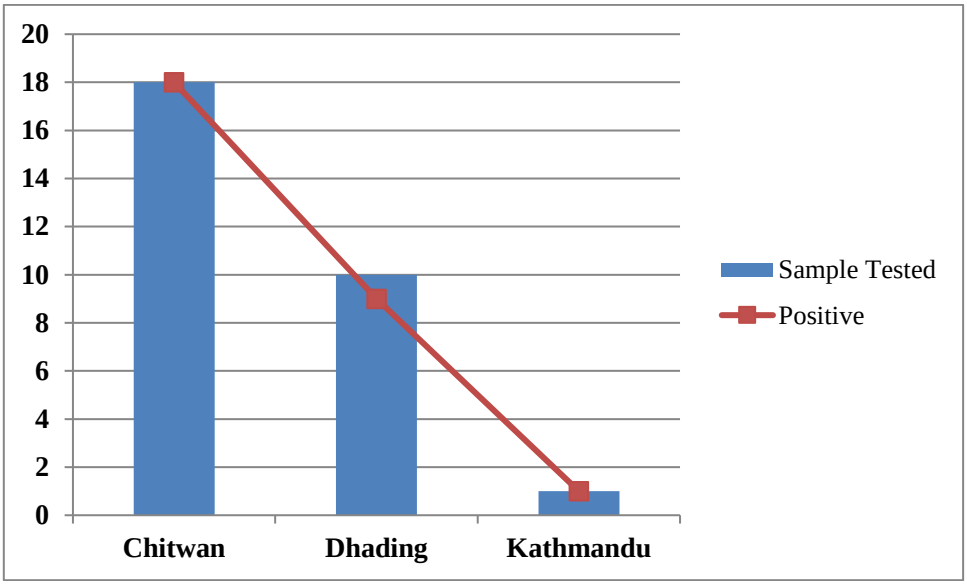


B Serology Unit

Serology section of CVL performs different serological tests for the diagnosis, monitoring and surveillance of animal diseases mainly associated with viral and bacterial infection. Most of the samples are submitted to this unit by Veterinary Laboratories, National Avian Disease Investigation Laboratory, District Offices, Quarantine Check-posts, private practitioner, farmers and staff of CVL during disease outbreak investigations, routine diagnosis well as sero-monitoring. This section possess capacity and facility of Competitive Enzyme Linked Immunosorbent Assay (ELISA), Immuno-capture ELISA, Indirect ELISA, Tube agglutination Test, Agar-Gel Immuno-Diffusion (AGID) test, Plate agglutination test and rapid tests.

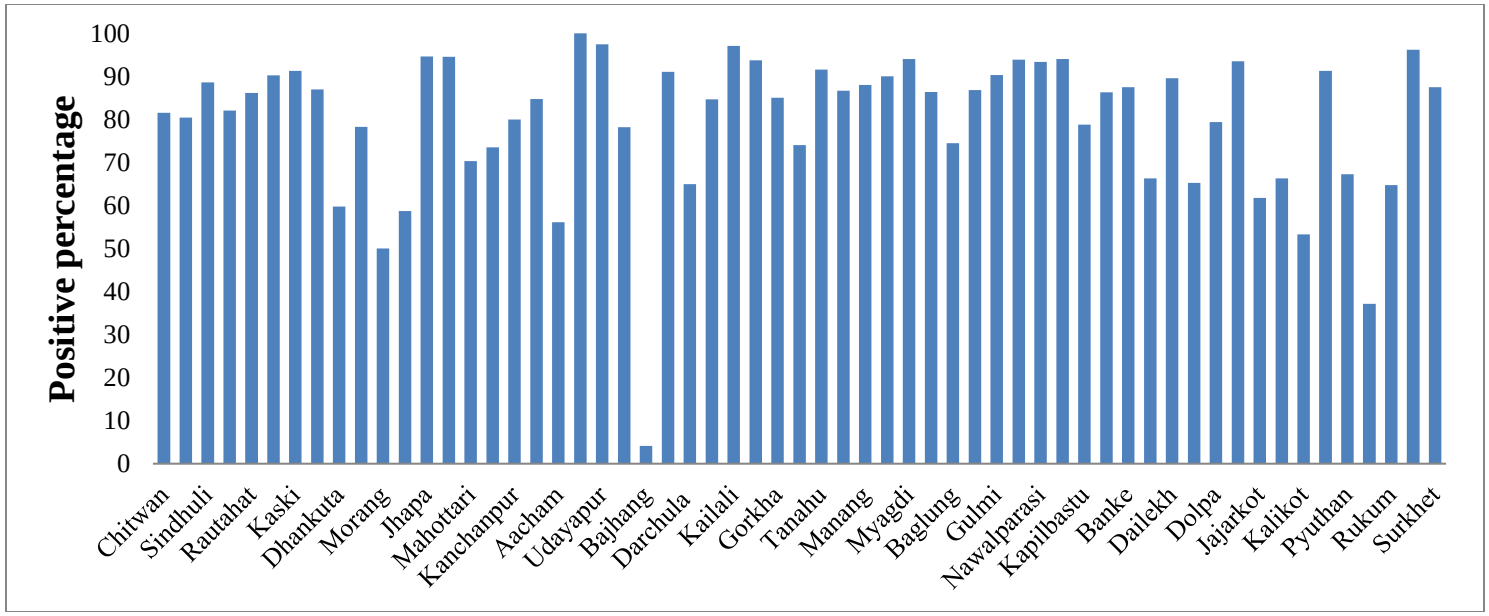
Serology Unit also participate in proficiency testing (PT) especially for PPR diagnosis by ELISA method and Brucellosis by PAT since 2016. Progress report of Serological investigation of various diseases in animals and birds during 2075/76 is as follows

Pic : Peste-des Petitis Ruminant (PPR), Test Results (Outbreak Samples)



A total of 29 serum samples of Goats were received from different outbreaks areas of three districts at different seasons. These samples were tested by ELISA method and 96.5 % samples were found positive for PPR.

Pic : Peste-des Petitis Ruminant (PPR) Seromonitoring C-ELISA Antibody Test Results



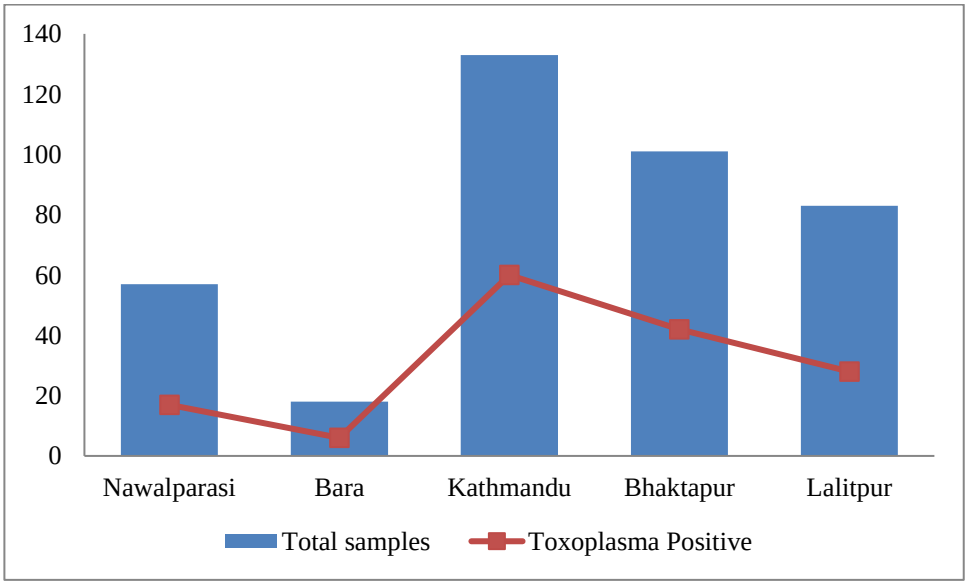
In case of sero-monitoring, sample collection was done in the end of 2074/75 but tested in 2075/76. CVL received serum samples from 59 districts. During 2075-76, a total 8862 serum samples of vaccinated Goats were tested. Out of those samples, 81.18% were found positive for PPR antibody. The result shows that the PPR antibody positive percentage was found highest (more than 90%) in twenty districts (Sarlahi, Kaski, Jhapa Saptari, Parbat etc.). The antibody positive percentage found in the serum samples of Rolpa and Bajhang (2 districts) were not satisfctory (below 50%). The antibody positive percentage between 50-89 found in remaining 37 districts (Kanchanpur, Bajura, Salyan, Kalikot, Dailekh, kaski, Sunsari, Lalitpur, Rasuwa, Dhadhing etc.) The low antibody positive percentage might be due to either sampling error or cold chain problem or the samples were collected earlier.

Table: Antibody Test Result of Brucellosis Antibody by ELISA /PAT

S.N	District	Species	Sample Tested	Results
1	Kathmandu	Bovine	22	All Negative
2	Nawalparasi	Bovine	44	
3	Chitwan	Bovine	71	
4	Lalitpur	Bovine	1	
5	Bhaktapur	Bovine	188	
6	Kaski	Bovine	27	
7	Dhanusha	Bovine	77	
8	Makwanpur	Caprine	44	
9	Bara	Caprine	18	
	Total		**492**	

A total of 492 serum samples from bovine and Caprine were tested for *Brucellosis* antibody by ELISA and PAT method and None of the samples were found positive for brucellosis. Like wise 207 milk samples from bovine were also tested for Burucellosis by Milk Ring test method. Only **7** samples form Chitwan was positive.

Pic : Toxoplasmosis Antibody Test Results



A total of 392 caprine serum samples from Nawalparasi, Bara, Bhaktapur, Kathmandu and Lalitpur were tested for antibody of Toxoplasma by ELISA method, 39.03 % samples were found positive for Toxoplasmosis.

Table: Antibody Test Results of *Salmonella pullorum* and *Mycoplasma gallisepticum* in poultry serum by using Plate Agglutination Test (PAT)

S.No.	Districts	*Salmonella pullorum* (PAT)			*Mycoplasma gallisepticum* (PAT)		
		Total Tested sample	Positive	Negative	Total Tested sample	Positive	Negative
1	Nawalparasi	24	0	24	24	0	24
2	Chitwan	1		1			
3	Dhading	16		16			
Total		**41**	**0**	**41**	**24**	**0**	**24**

A total 41 and 24number of poultry serum samples were tested for *Salmonella pullorum* and *Mycoplasma gallisepticum* antibody respectively by PAT method. All samples were found negative for *Salmonella pullorum* and *Mycoplasma gallisepticum* antibody.

For leptospirosis a total of 176 bovine samples from Bhaktapur district were tested during the year 2075/76 where 1.13% were found to be positive for *L. hardjo*.

Veterinary Laboratory
Biratnagar

Veterinary Laboratory (VL) previously named as Veterinary Laboratory (RVL) has been situated in sub-metropolitan city, Biratnagar-17, of eastern Nepal and was established in the fiscal year 1988/1989 AD. But until 1990/1991, the laboratory was not functional and could not perform its activities as per objectives due to lack of manpower, necessary equipment and frequent changes in organizational structure. From fiscal year 1991/19992, the VL has its separate identity. There was provision of manpower and other logistics and the program was launched as per objectives.

The working area of this VL Biratnagar is all districts of former Eastern Development Region (EDR). In this eastern region, there are three zones (Mechi, Koshi and Sagarmatha) and 16 districts. Geographically, the region is divided into three eco-zones (high hills, mid hills and terai).

High hills:
This eco- zones lies in the northern part of the region covering Taplejung district of Mechi zone, Sankhuwasabha district of Koshi zone and Solukhumbu district of Sagarmatha zone. Livestock rearing is the main occupation of the farmers in this region. Yak/Nak, chauri, Sheep and Goat are being reared in this region.

Mid-hills:
This region falls between high hills on its north and terai at the south. Panchthar, Illam, Dhankuta, Terahthum, Bhojpur, Okhaladhunga, Khotang, and Udaypur districts are under this eco-zone. Farmers follow mixed farming system and agro-based livestock industries are their main occupation. Cattle, Buffalo, swine, Goat are being reared in this region. Poultry and rabbit farming are also popular among the farmers.

Terai:
Jhapa, Morang, Sunsari, Saptari and Siraha districts of Nepal are under this eco-zone. Though traditional system of livestock rearing is followed in this region, in recent years, poultry, dairy industries and piggery are being commercialized especially in east-west highway corridor.
To provide proper laboratory diagnosis and improve in the quality of veterinary services, the government has established five regional laboratories, one in each development region of the country. Primary laboratories in 55 and basic laboratories in 15 districts have been established to improve and upgrade existing disease diagnosis system.

Objectives of Veterinary Laboratory

- To provide prompt and efficient disease diagnostic services to the farmers of the region.
- To investigate and diagnose the epidemics in the region.
- To assist and support VHLSECs & Local Authority in disease diagnosis and epidemic control.
- To supervise and assist in diagnostic services to basic and primary laboratories situated in VHLSECs & Local Authority of the region.
- To collect, analyze and predict the animal diseases prevailing in the region.
- To develop human resources for the field level veterinary services.
- To co-ordinate and support national animal disease control and eradication program.
- To support and facilitate the national veterinary regulatory services.
- To participate actively in collaborative and coordinated research program in animal health and production in the region.
- To support animal health and infertility camps in the region.

Annual Progress Report (F/Y 2075/2076)

Status of Veterinary Laboratory (2 dists of Province-2 &14 dists of Province-1)

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dfO{qmf]k]n]6 ;]s/ d]lg , kf]6 df6{d ;]6 vl/b	k6s	1	2.00	1	2.00	100
sDKo'6/ j fn t yf kmf]6Lu+	k|z=	100	5.00	1	4.98	!))
gof ej gsf] cw'/f] lgdf{0f k'/f ug{	k|z=	100	5.00	1	4.99	!))
cw'/f]/x]sf] j f]/xfp; lgdf{0f k'/f ug{	k6s	1	5.00	1	4.99	!))
xfn ; Dd klhut t kn{	**hDdf lj lgof]ht j h]6**		**18000000**		**17995081.99**	**99.97 %**

rfn' sfo{s|d tkm{sf] hDdf k|utL k|ltj]bg

c f=j =2075.076 r fn' t kms f]					
lj j /)f	Os fO{	j flif{s nI f		Jflif{s k|ult	
		kl/ df)f	ah]\ ? nfv df	kl/ df)f	kult k|t z t
k/lhlj LG{k+hL=u0fff	संख्या	150	0.12	158	100
An8 k|[6f]hf] f klxr fg- kz":j f:Yo _	संख्या	225	0.36	620	100
l:qmg :Sofldk+ kl/lf0f -kz":j f:Yo_	संख्या	36	0.09	39	100
lSnlgsn x]df6f]hf]hLkl/lf0f	संख्या	180	2.75	620	100
afofs]dsn kl/lf0f- Sofnl; od,kmkmf]; ,k|]6g, Un"sf]h cflb	संख्या	180	0.39	180	100
lk; fj kl/lf0f -kz":j f:Yo_	संख्या	90	0.10	90	100
kz'k+lsf]zj kl/lf0f -kz":j f:Yo_	संख्या	270	0.85	968	100
lhj f0f"sN/ klxr fg t yf PlG6j fof]6s ;]G;l6el6 kl/lf0f -kz":j f:Yo_	संख्या	270	0.62	310	100
9'" LsN/ / klxr fg -kz":j f:Yo_	संख्या	45	0.21	113	100

c f=j =2075.076 r fn' t kmf{ f]					
lj j /)f	Os fO{	j flif{s nIf		Jflif{s k|ult	Jflif{s k|ult k|t z t
		kl/ df)f	ah]6 ? nfv df	kl/ df)f	
kz'kl+flx?sf efQ{n /f]u kl/IfOf - /fgLvt] ,uDef/f]FleRg PCkmlPCbf_	संख्या	150	1.60	330	100
lk+lk=cf/=/f]u lgbfg -k[;fOG kl/IfOf_	k6s	6	0.30	6	100
:j fOglkmn/ /f]u lgbfg-NSP ELISA_	k6s	1	2.15	1	!))
kl+flx?df dfO{s]f{kf+bf kl/IfOf -kz":j f: Yo_	संख्या	150	0.45	195	100
kz'kl+fLdf ; fNdf]gf]nf kl/IfOf- kz":j f: Yo_	संख्या	150	0.45	203	100
vf]|t /f]u lgbfg -Pg=P; +k=PnfO{nf -kz":j f: Yo_	k6s	1	1.75	1	!))
kz'kl+fLsf lj leGg /f]ux?sf gdgf ; +ng t yf yk kl/IfOfsf f]nfuLs]Gb kbf{uzfnfdf ; Dkfl]fOf	संख्या	300	0.36	552	100
bWfn"ufO{x?df ; j lSnlgsn d:6fO{6; cGj]fOf	k6s	3	0.36	3	100
Ifq]Lo :t /sf]cfsl:ds /f]u cGj]fOf 6f]nL Jbj :yflkg	k6s	6	0.42	6	100

c f=j =2075.076 r fn' t kmf{ f]					
lj j /)f	Os fO{	j flif{s nIf		Xfn ; Dds f] k|ult	Xfn ; Dds f] k|ult k|t z t
		kl/ df)f	ah]6 ? nfv df	kl/ df)f	
Ifq]Lo :t /df kfyldstf kf|K /f]u klxr fg, clenv]s/Of t y l/kf]l6Ë -kz":j f: Yo_	k6s	3	0.45	3	100
kz'kl+fLdf dfxfdf/L/f]u cGj]fOf -kz":j f: Yo_	k6s	6	1.50	12	100
ufO{e}+Lsf]kz'":j f: Yo j f afemf]kg lgj f/Of lzlj /df gdgf ; +ng t yf kl/IfOf -cfGl/s ep|Of_	k6s	6	0.90	6	100
FleRg O{kmnOf /f]u kl/IfOf -/bflk8 6]6_kz":j f: Yo_	संख्या	45	0.45	328	100
kzX?df j |]hf kl/IfOf -kz":j f: Yo_	संख्या	150	0.30	273	100
kzX?df /]j h kl/IfOf -/bflk8 6]6_kz":j f: Yo_	संख्या	45	0.45	51	100
kz'kl+fL/f]u cGj]fOf ; DaGwL kf]j lws cG/q{mf-Ifq]Lo :t /_-kz":j f: Yo_	k6s	1	0.60	1	100
lhNnf :t l/o :ynut gdgf ; +ng t yf ; Dkfl]fOf kbf{uzfnf klj lwcG/q{mf -kz":j f: Yo_	k6s	6	1.93	6	100
kz'kl+fL/f]u cGj]fOf ; DaGwcG/q{mf -kflj lws / s[fs :t /_ -kz":j f: Yo_	k6s	6	1.93	6	100

cf=j =2075.076 -r fn' t kmu[a f]_					
lj j /)f	Os fO{	j flif{s nIf		Xfn ; Dd s f] kµlt	Xfn ; Dd s f] kµlt k|t z t
		kl/ df)f	ah]^ ? nfv df	kl/ df)f	
cw{ flif{s Ol{k8]dnf]hsn a'n]6g k|s fzg-kz":j f: Yo_	k6s	2	0.20	2	k|ft t yf :yflgo t x j f6 l/kf]6{ u|s f] cef j
{ flif{s Ol{k8]dnf]hsn a'n]6g k|s fzg-kz":j f: Yo_	k6s	1	0.15	1	
aflif{s k|lj lws kl'.t s f nfuL; fdu|L t of/ u/Lk7fpg] -kz":j f: Yo_	k6s	1	0.15	1	100
cw{ flif{s k|bf]uz fnf cG|]fO{ k|t j]bg t of/ u/Lle=O{; = df k7fpg] -kz":j f: Yo_	k6s	2	0.10	2	100
sd{ f/Lx?s f] PFG6/lj h vf]k nufpg]-kz":j f: Yo_	hgf	14	0.42	14	100
sd{ f/Lx?s f]:j f: Yo kl/IfO{ -kz":j f: Yo_	hgf	14	0.42	14	100
Ifo|Lo :t / /lj h, lk+lk=cf/=t yf vf/]t EofIS; g a}\ Jbj :yflkg -kz":j f: Yo_	k6s	3	0.45	3	100
/fli6«o lk+lk=cf/=, vf/]t , :j fO{glkmn/ t yf /fgLv]t /f]u lgoGq|0f sfo{qmd cG/ut l; /f]lg6l/Ës f]nfuLgdbgf ; +ng t yf k|]fO{ -kz":j f: Yo_	lhNnf	16	2.10	15	62.5
kz xf6ahf/df uQ{:j f: Yo kl/IfO{ t yf gdbgf ; +ng t yf kl/IfO{	k6s	6	0.50	6	100

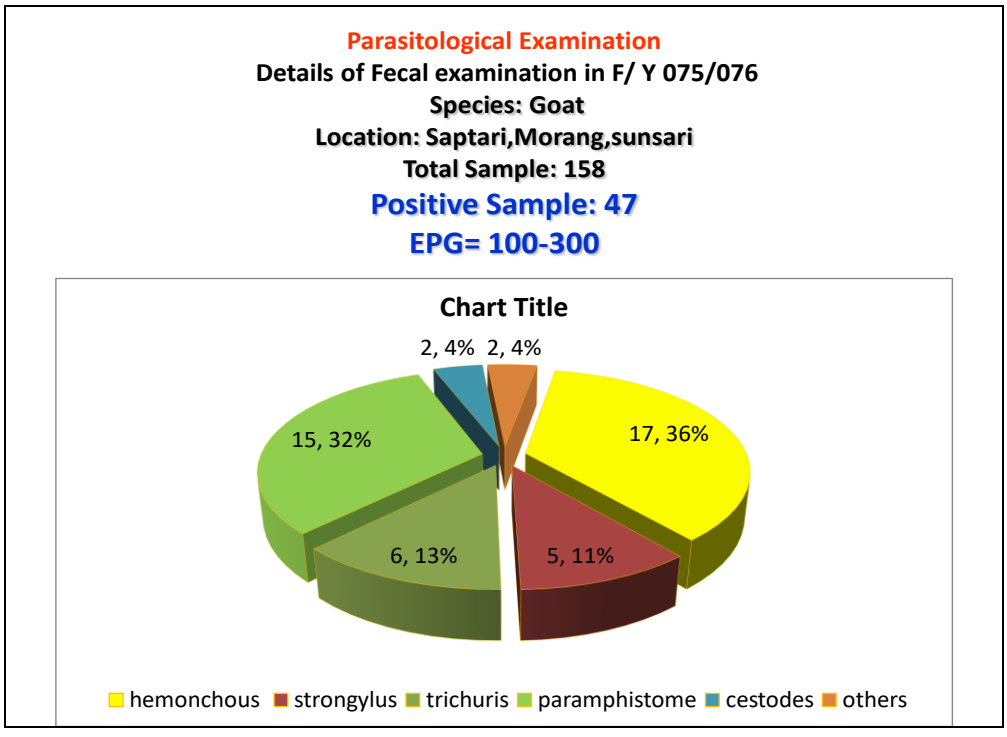
cf=j =2075.076 r fn' t kmu[a f]					
lj j /)f	Os fO{	j flif{s nIf		Xfn ; Dd s f] kµlt	Xfn ; Dd s f] kµlt k|t z t
		kl/ df)f	ah]^ ? nfv df	kl/ df)f	
bwt yf df; df PG6Lafof]l6s kl/IfO{	; Vof	4 5	0.62	4 6	100
ufO{e}+; df Ifo/f]u kl/IfO{	; Vof	4 5	0.4 5	51	100
l6kfgf] f]dPl; ; s f] ; e[n[G,/f]s yfd t yf lgoGq|0f sfo{|d	lhNnf	2	0.60	2	100
xfn ; Dd r fn t kmu[af]vr {	hDdf lj lgoflht j hf6		1264 7200	12265140. 98	96.98

Laboratory Services:

The routine laboratory works of VL, Biratnagar, involve examination of fecal samples, CMT and MWT tests of milk samples. Cultural examination of mastitis positive milk samples are done to isolate and identiF/Y the bacteria responsible for this disease. Blood samples are received here, particularly for 22 hematological parameters including Hb, PCV, TC, DLC tests, Ca,Ph,total protein ,Glucose and blood protozoa identification. Serum samples are used to estimate Ca and P level in the blood of animal. Similarly, serological test is done to screen brucella affected animal and salmonella and mycoplasma affected poultry in this region. Hypersensitivity test (tuberculin test) and Rapid kit Test are done to isolate tuberculosis affected animal. Examination of skin scraping and urine samples is frequently done in VL, Biratnagar.

Parasitological examination

In this examination, both internal and external parasites are identified from the samples. For internal parasites, fecal examination of Goat is done routinely. The fecal samples are received mainly from commercial Goat farms, VHLSECs and also collected from field during investigation programs.



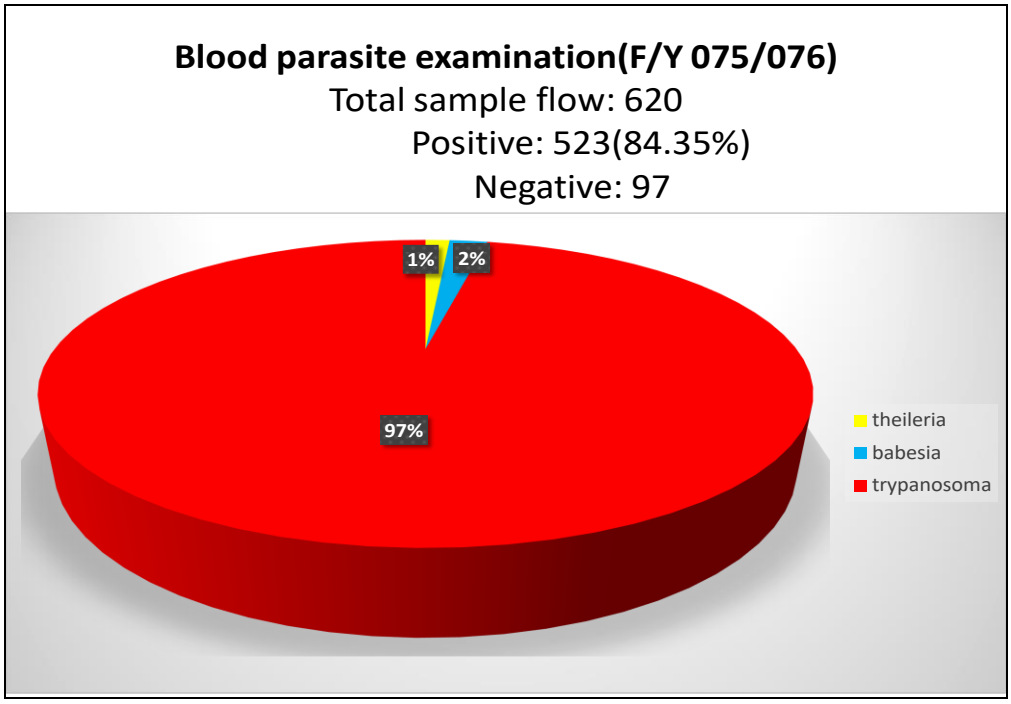
Most frequently the fecal examination is done by sedimentation and floatation techniques to identiF/Y the gastro-intestinal parasites. However, in certain cases, Mc Master Technique is followed to quantiF/Y the eggs per gram (EPG) in feces.

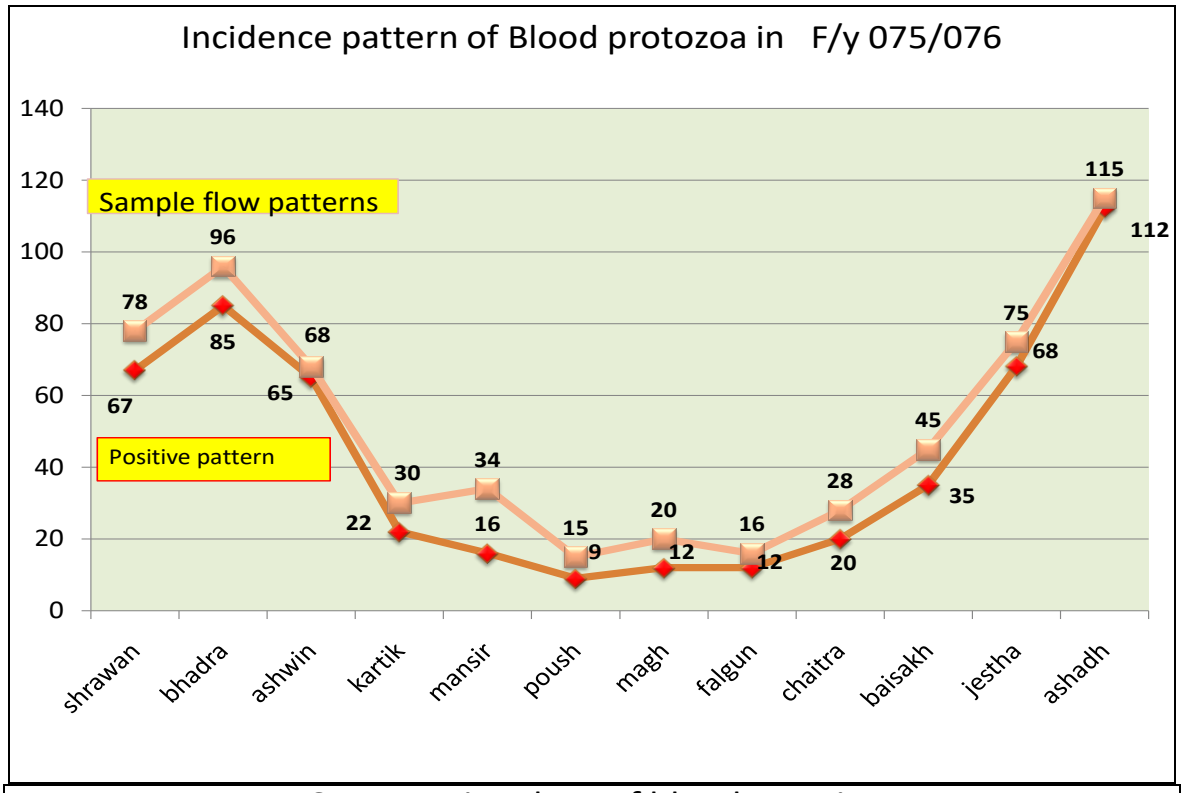
In the fiscal year 2075/76, altogether 158 fecal samples from different districts were received and examined. Among 158 samples, 47samples (29.74%) were positive. The result of fecal test revealed that Hemonchus (36%) is the most prevalent parasitic infestation followed by paramphistomum (32 %), Trichuris (13%) Strongylus (11%) Cestodes (4%) and others (4%).

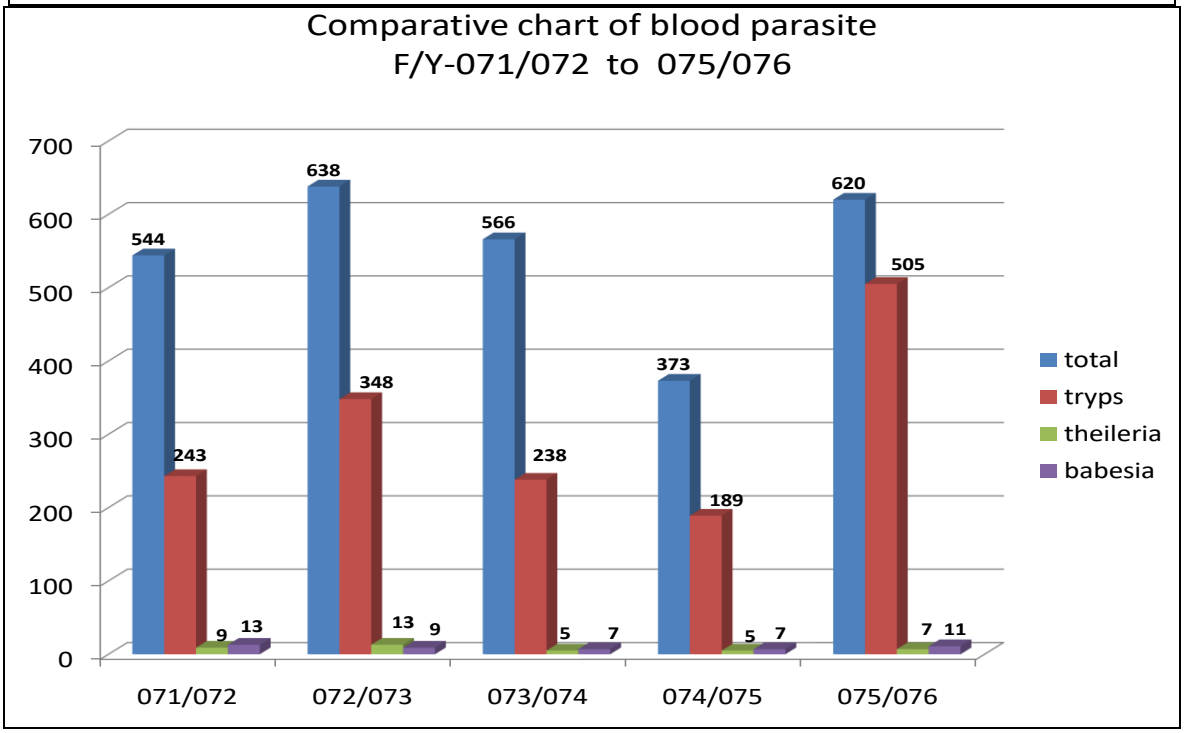
Haematological examination:

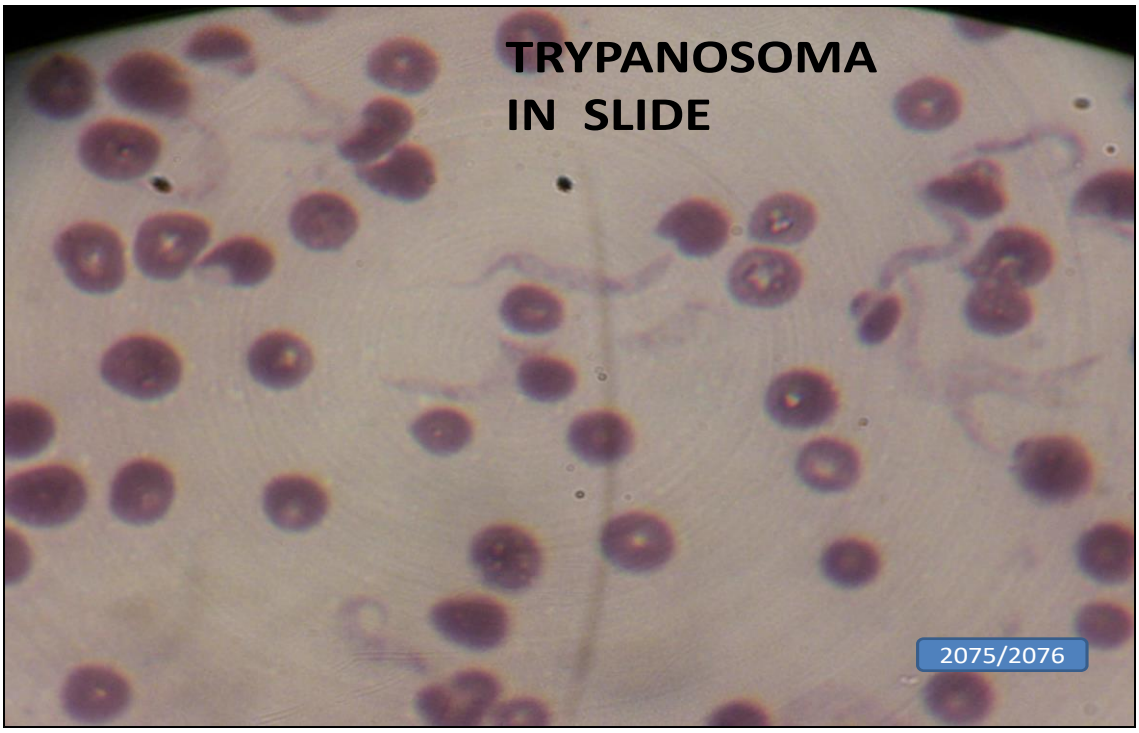
Under haematological examination 22 hematological parameters are diagnosed including TLC, TEC, DLC, PCV and Hb by Hematoanalyzer in this laboratory. Hb estimation is done also by Sahli's haemoglobinometer, PCV by microhaematocrit method, total count of RBC and WBC by haemocytometer. For DLC, blood samples are stained with Giemsa.

Blood samples received from different districts of eastern region were examined for blood parasites. A total number of 620 samples were examined for blood parasites. Out of them, 523 (84.35%) samples were positive in which Trypanosoma was dominant having 97 % positive samples. Rest 1 % samples were of Theileriosis & 2 % positive samples were of Babesiosis brought here in this fiscal year as presented in pie chart below.



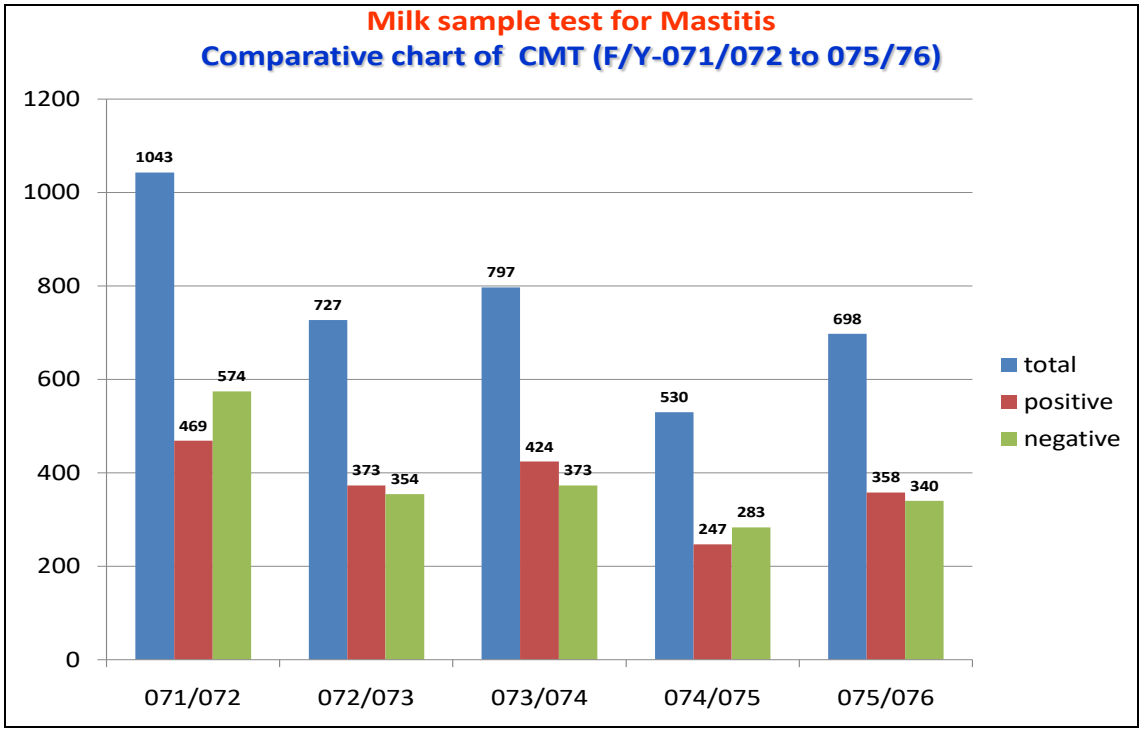

Incidence pattern of Blood protozoa in F/y 075/076
Sample flow patterns
Positive pattern
140
120
100
80
60
40
20
0
shrawan
bhadra
ashwin
kartik
mansir
poush
magh
falgun
chaitra
baisakh
jestha
ashadh
78
96
67
85
65
68
22
30
16
34
9
15
12
20
12
16
20
28
35
45
68
75
112
115


Comparative chart of blood parasite
F/Y-071/072 to 075/076
700
600
500
400
300
200
100
0
071/072
072/073
073/074
074/075
075/076
544
243
9
13
638
348
13
9
566
238
5
7
373
189
5
7
620
505
7
11
total
tryps
theileria
babesia

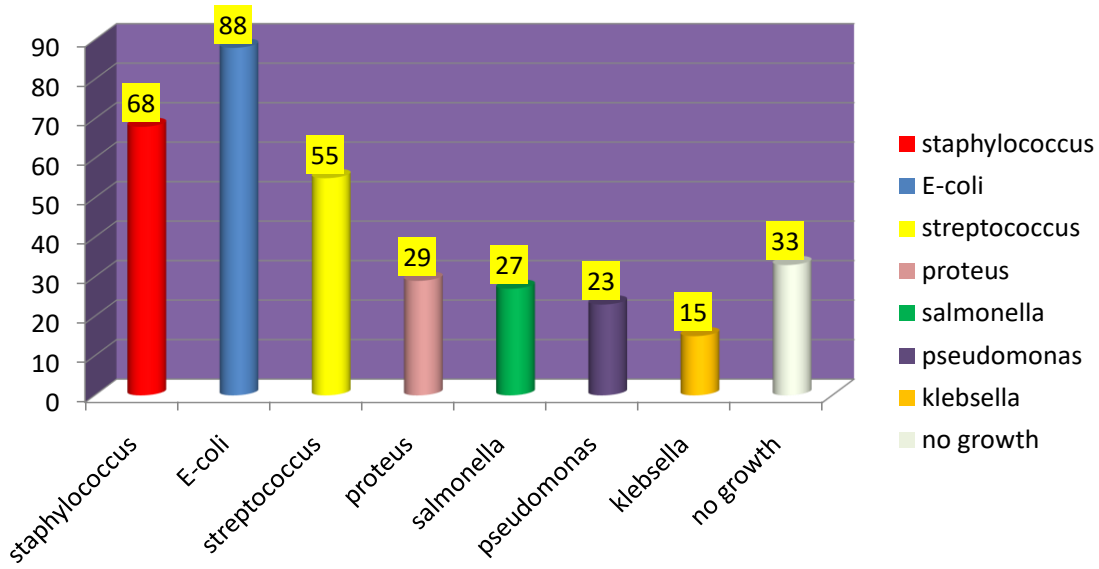

TRYPANOSOMA
IN SLIDE
2075/2076

Microbiological examination:

Altogether 698 milk samples were registered in this laboratory in the fiscal year 2075/76. Out of them 358 samples were positive for CMT and MWT tests. The most prevalent bacteria isolated from these positive milk samples were *E. coli, Staphylococcus, Streptococcus, Klebsiella, salmonella,Pseudomonas, Enterobacter etc.*



Bacterial isolates from milk and meat samples:
till date F/Y: 075/076)



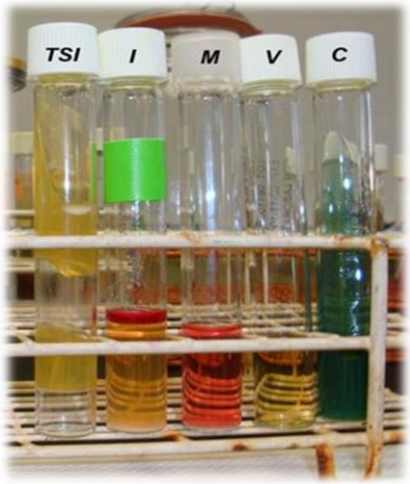
E.Coli Biochemical Characters

Triple sugar iron agar (TSI)

- **Glucose, Lactose, Sucrose fermented with Acid/Gas**

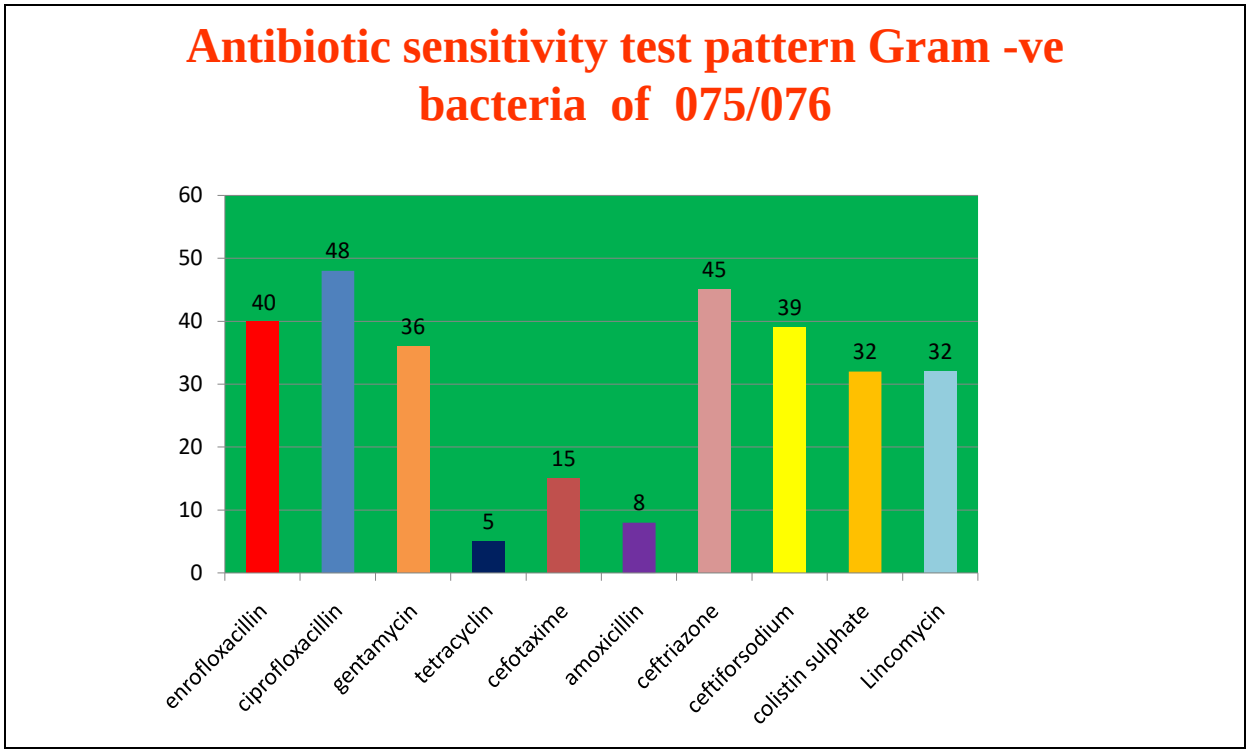
I,M,Vi,C tests

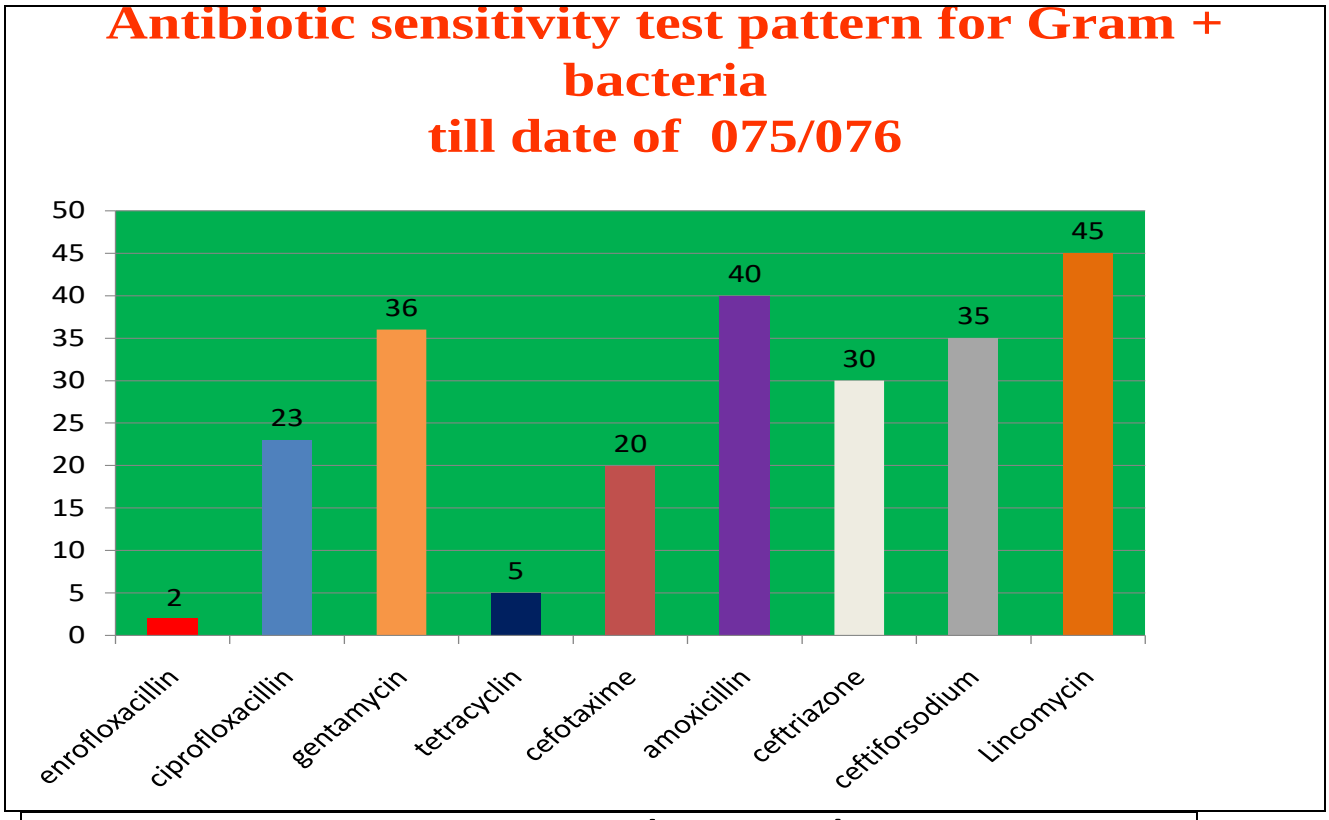
- **Indole +**
- **Methyl Red +**
- **Voges Proskauer – ve**
- **Citrate –ve**
- **Urease not produced.**



Dr.T.V.Rao MD

Antibiotic sensitivity Test:

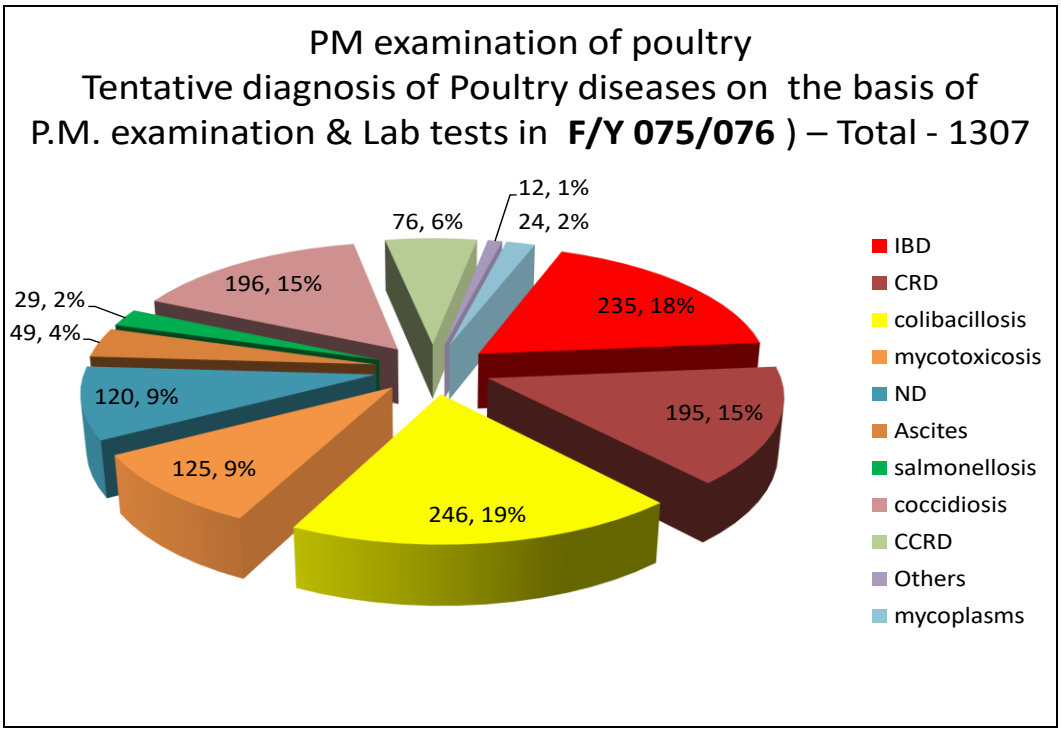




A SCM Study Result

SN	districts	No.of Animals sampled	no.of quarters sampled for SCM				Positive no. of animals for SCM	No.of quaeter found +ve for SCM by CMT Methods				Prevalence rate of SCM
			LF	RF	LH	RH		LF	RF	LH	RH	
1	Saptari	34	34	34	31	32	22	12	10	7	14	64.7 %
2	sunsari	50	50	50	50	50	9	1	1	4	3	18%
3	morang	46	46	46	46	46	15	5	7	5	4	32.6 %
		130	130	130	127	128	46	18	18	16	21	35.38%
Quarter wise prevalence rate of SCM								13.84%	13.84%	12.60%	16.40%	

Pathological Examination:-



Mostly postmortem examinations of dead birds and occasionally of dead animals are done in the laboratory. During PM examination impression smears, swab, tissues are collected for required tests. Altogether 1307 dead birds were received in the laboratory. On the basis of PM examination, Rapid tests and culture, disease diagnosis is carried out. Out of 1307 samples, collibacillosis (19%) had higher incidence followed by IBD (18%), CRD & Coccidiosis (15%).

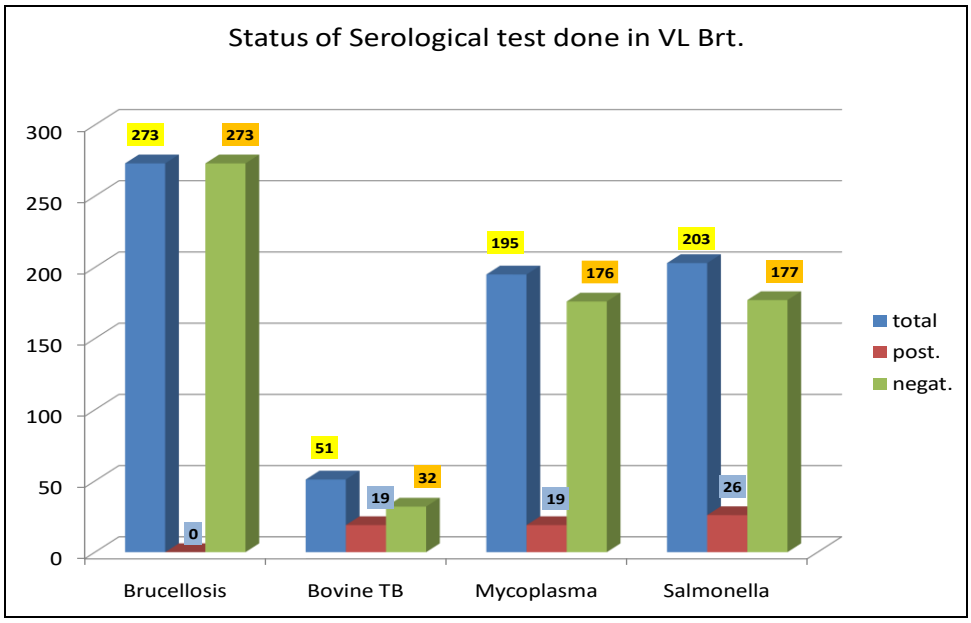
Biochemical examination:

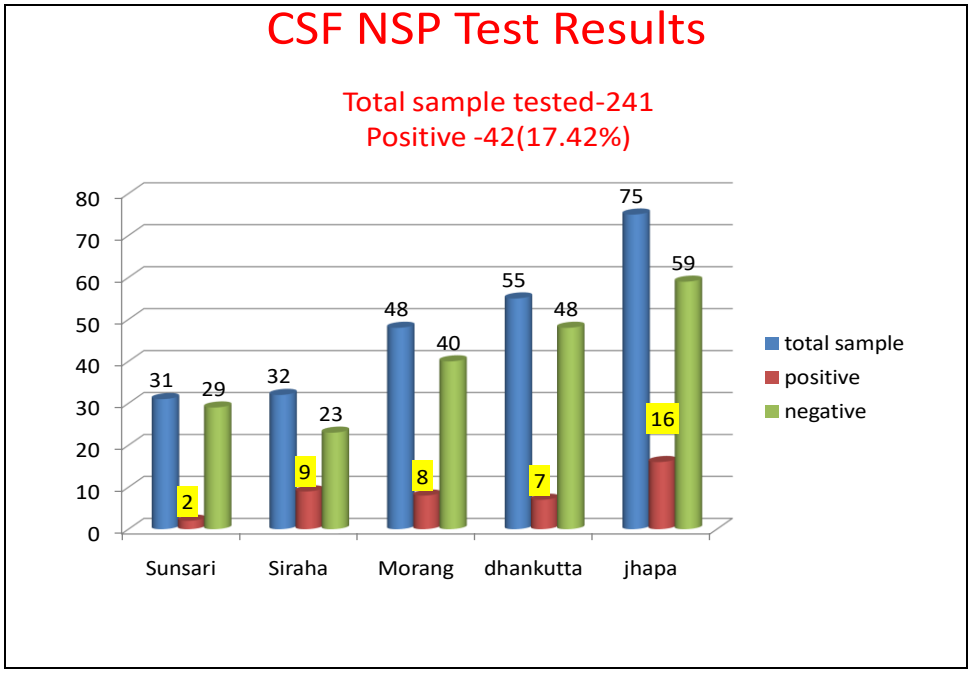
Examination of urine and analysis of blood is routinely done to assess the different conditions of urine and blood constituents. Serum samples are collected from farmers, sites of investigation program, etc. More than 3550 serum samples were collected and 180 samples were analyzed in the fiscal year 2075/76 for the estimation of Calcium, Phosphorus, Total protein, Glucose, using specific kits. 90 urine samples were tested by using dipsticks (multisticks) as well as biochemical methods. Examination of urine was done for specific gravity, pH, sugar, albumin, ketone bodies, urobilinogen etc. Mostly Rothera's test and Robert's test were done to detect ketone bodies and protein respectively.

Serological Examination:

Serological examination is done mainly for Salmonellosis, Mycoplasmosis, Bovine TB and Brucellosis in this laboratory. In fiscal year 2075/76 altogether 203 samples were tested for Pullorum disease by Plate agglutination method (PAT) out of which 26 samples were found to be positive. Similarly, Rose Bengal plate test (RBPT) is done for screening the Brucella positive

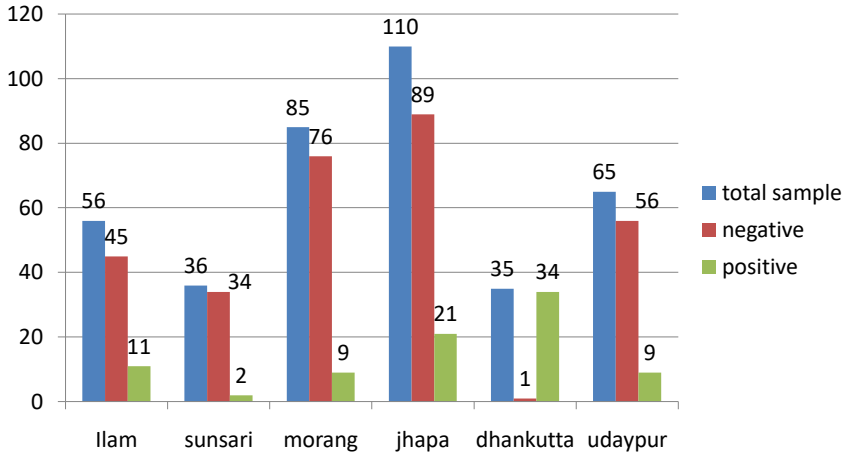
animals. Total 273 samples were tested for Brucella, out of which, none were found positive. Similarly, out of 195 sample, 19 were found to be positive for mycoplasma and total of 51 serum samples of Cattle 19 were found positive for Bovine TB.



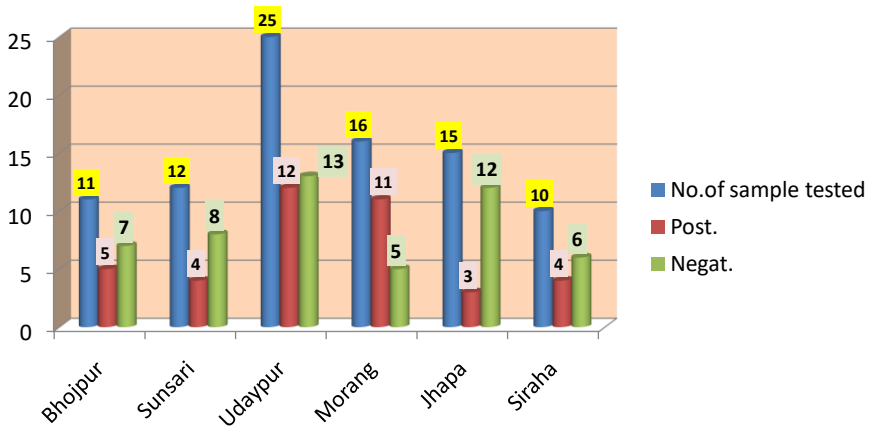


FMD,NSP Results

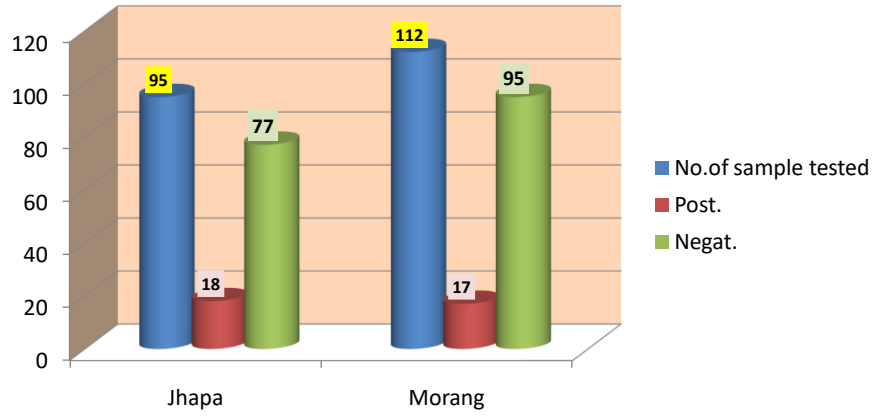
Total sample tested-387
Positive-86(22.22%)



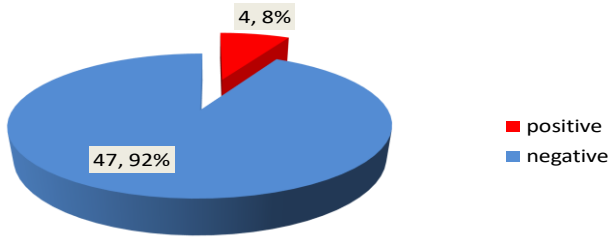
PPR Pen site Test Results



Trypanosomes Surveillance Results



Rabies test results



AI Type A Infuenza Test Result

SN	Type of farm/places	Types of Samples	Tested By VL Brt. By Rapid test method			Tested By CVL By RT-PCR		
			No.of Samples	+ve for AI Type A Influenza	-ve	No.of Samples	+ve for AI Type A Influenza	-ve
1	AQO Kakarvitta(CB Farm)	TS	263	17	246	54	7+ve for H9N2	47
2	Siraha	TS	81	1	80	Not Send to CVL		
3	saptari	TS	30	0	30	Not Send to CVL		
4	Sunsari(local Birds farm)	TS/DB-2	108	15	93	DB-2	2+ve for H5N1	0
5	morang	TS/DB	200	12	188	Trachea-2,+ve H5N1 &H9N2		

AI Type A Infuenza Test Result

SN	Type of farm/places	Types of Samples	Tested By VL Brt. By Rapid test method			Tested By CVL By RT-PCR			
			No.of Samples	+ve for AI Type A Influenza	-ve	No.of Samples	+ve for AI Type A Influenza	-ve	
6	jhapa	TS	TS-217 Serum-40	0	257	40	0	-ve	
7	dhankutta	TS	TS-29 Serum-13	0	29	13 serum sample		-ve	
8	sankhuwa	TS	162	0	162	Not send to CVL			
9	AQO Brt.	TS/DB-2	150	0	150	0	0	0	

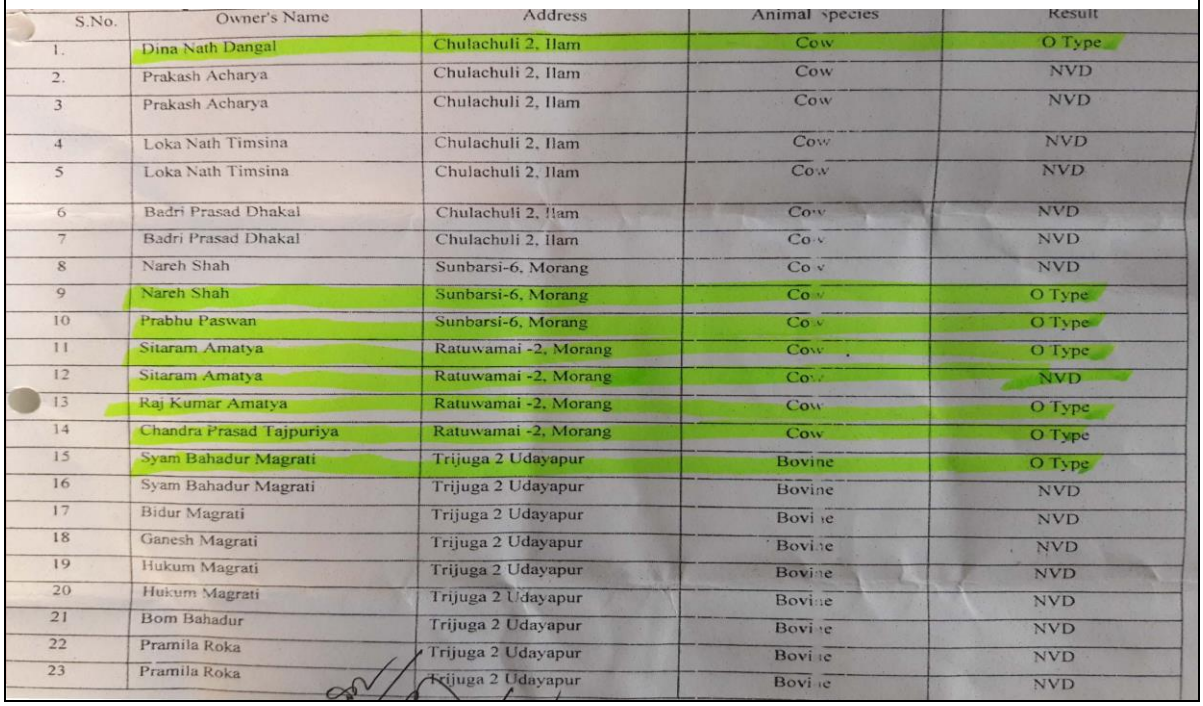
Status of Major Livestock Diseases in 075/076

FMD Outbreak		
SN	Districts	Date
1.	Ratuwamai,Morang	075/04/15
2.	ChishankhuGadhi-Ga.Pa.,Okhaldhunga	075/04/29
3.	UdaypurGadhi-Ga.Pa., Udaypur	075/05/04
4.	Chulachuli ,Ilam	075/05/07
5.	Gauriganj,Jhapa	075/05/12
6.	Sunbarsi,Morang	075/05/17
7.	Ratuwamai,Morang	075/05/24
8.	Birtamod Jhapa	075/05/29
9.	Damak,Jhapa	075/06/05

Status of Major Livestock Diseases in 075/076

FMD Outbreak		
SN	Districts	Date
10.	Hanumannagr Kankalini,Saptari-Anthrax/PPR	075/06/09
11.	Mangsebung Gapa,Ilam	075/06/10
12	Gauradah,Jhapa	075/06/12
13	Deumai,Ilam	075/07/08
14	Triyuga ,Udaypur	075/07/30
15	Rajgadh Gapa,Saptari	075/08/03
15	Mainagarpalika,Ilam	075/08/05
16	Chaudandigadhi,Udaypur	075/08/07
17	Deumai,Ilam	075/08/10

Type of FMD virus Diagnose in EDR in 075/076



S.No.	Owner's Name	Address	Animal Species	Result
1.	Dina Nath Dangal	Chulachuli 2, Ilam	Cow	O Type
2.	Prakash Acharya	Chulachuli 2, Ilam	Cow	NVD
3	Prakash Acharya	Chulachuli 2, Ilam	Cow	NVD
4	Loka Nath Timsina	Chulachuli 2, Ilam	Cow	NVD
5	Loka Nath Timsina	Chulachuli 2, Ilam	Cow	NVD
6	Badri Prasad Dhakal	Chulachuli 2, Ilam	Cow	NVD
7	Badri Prasad Dhakal	Chulachuli 2, Ilam	Cow	NVD
8	Nareh Shah	Sunbarsi-6, Morang	Cow	NVD
9	Nareh Shah	Sunbarsi-6, Morang	Cow	O Type
10	Prabhu Paswan	Sunbarsi-6, Morang	Cow	O Type
11	Sitaram Amatya	Ratuwamai -2, Morang	Cow	O Type
12	Sitaram Amatya	Ratuwamai -2, Morang	Cow	NVD
13	Raj Kumar Amatya	Ratuwamai -2, Morang	Cow	O Type
14	Chandra Prasad Tajpuriya	Ratuwamai -2, Morang	Cow	O Type
15	Syam Bahadur Magrati	Trijuga 2 Udayapur	Bovine	O Type
16	Syam Bahadur Magrati	Trijuga 2 Udayapur	Bovine	NVD
17	Bidur Magrati	Trijuga 2 Udayapur	Bovine	NVD
18	Ganesh Magrati	Trijuga 2 Udayapur	Bovine	NVD
19	Hukum Magrati	Trijuga 2 Udayapur	Bovine	NVD
20	Hukum Magrati	Trijuga 2 Udayapur	Bovine	NVD
21	Bom Bahadur	Trijuga 2 Udayapur	Bovine	NVD
22	Pramila Roka	Trijuga 2 Udayapur	Bovine	NVD
23	Pramila Roka	Trijuga 2 Udayapur	Bovine	NVD

PPR Outbreak Status of EDR in 075/076

SN	Districts	Date
1.	Lahan,Siraha	075/06/12
2.	Arun Gapa,Bhojpur	075/07/11
3.	Jahada Gapa,Morang	075/08/06
5.	Itahari Sunsari	075/08/16
6.	Barahchhetra,Sunsari	075/08/16
7.	Belka Municipality ,Udaypur	075/08/23
7.	Dharan,Sunsari	075/09/01
8	Shibshatakshi,Jhapa	075/10/21

Status of Anti-Rabies Vaccines

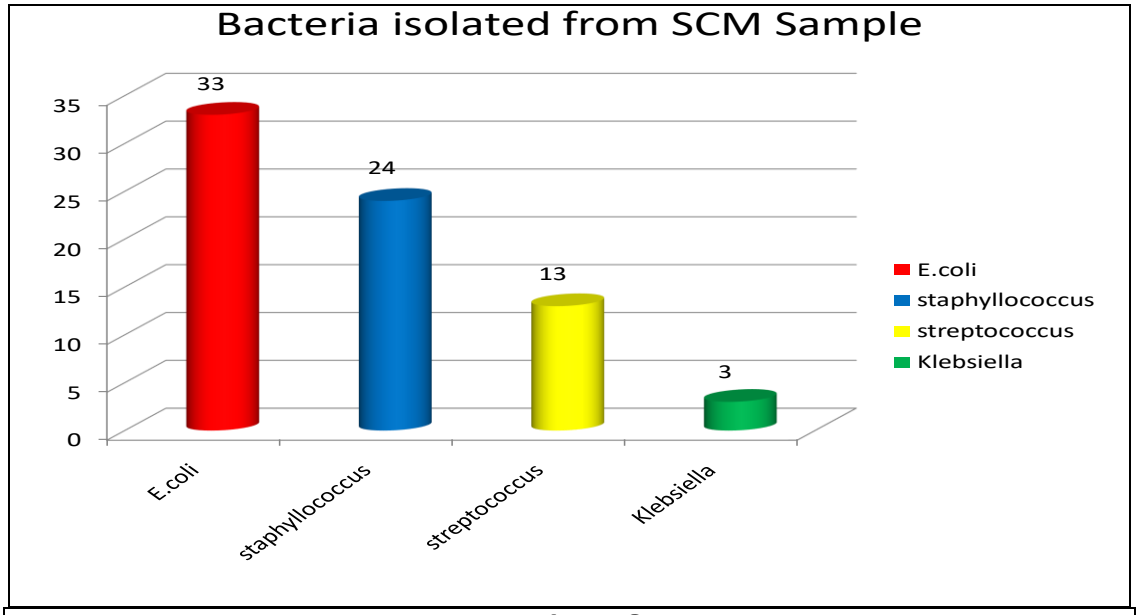
In Start of F/Y 075/076 ,Availabilty of Anti-Rabies vaccines at VL Biratnagar was 5000		
SN	Diistributed to Districts as Post bite Vaccination	Doses of Vaccines
1	Sankhuwasava	100
2	panchthar	500
3	Jhapa	300
4	Sapatari	30
5	Morang	590
6	udaypur	200
7	Sunsari	250
Total doses of Anti-Rabies Vaccines distributed till the date		1970
Remaining Doses of Anti-Rabies Vaccines at VL brt.		3030

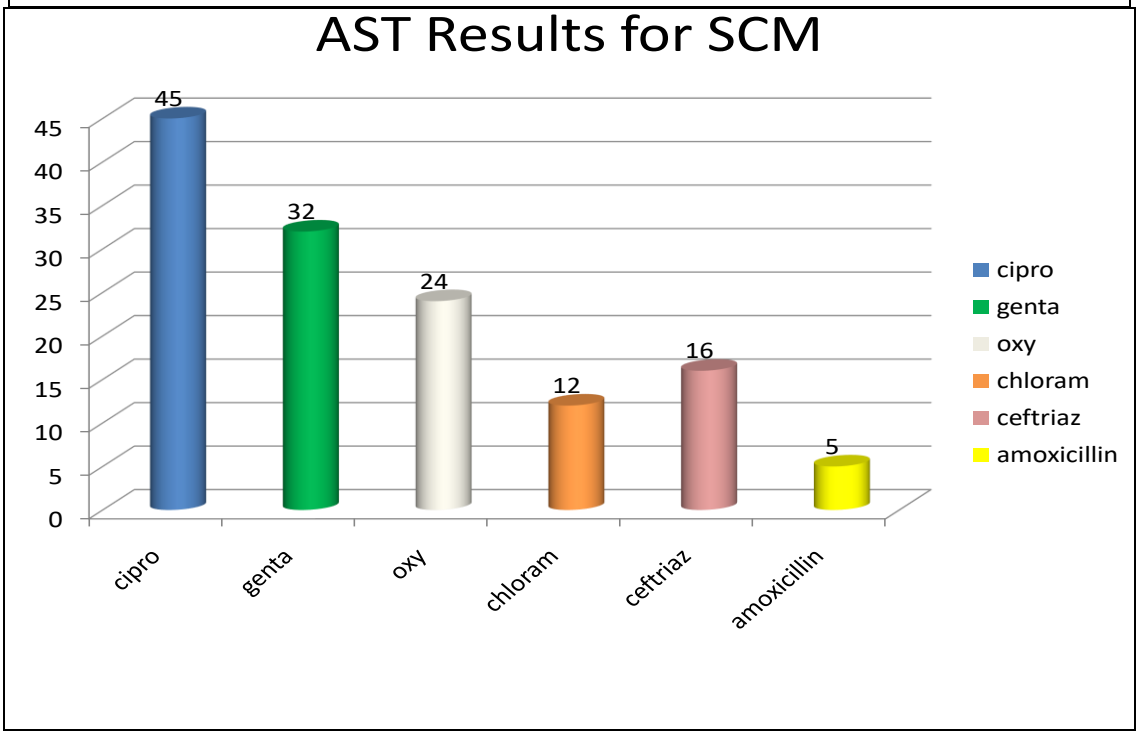
Under National Vaccination program provided n regulated by DLS for F/Y 075/076

SN	Districts	PPR	FMD		FMD	Remarks
			For F/Y 075-076		For F/Y 076-077	
1	Morang	190000	125000	80000	170000	Distributed by VL/NVPL Biratnagar
2	Sunsari	160000	100000	75000	125000	"
3	jhapa	170000	117500	75000	160000	"
4	dhankutta	120000	20000	20000	20000	"
5	panchthar	0	20000	20000	20000	"
6	ilam	100000	34000	30000	38000	"
7	bhojpur	66000	0		0	"
8	udaypur	170000	40000	40000	40000	"
9	solu	56000	0		0	"
Total		1032000	456000	340000	573000	
10	saptari	140000	100000	80000	120000	Distributed by VL Janakppur
11	sirha	150000	53500	50000	57000	

Under National Vaccination program provided n regulated by DLS for F/Y 075/076

SN	Districts	HS/BQ	CSF	RD
1	Taplej.		15000 doses	25000 doses
2	panchthar		25000 doses	
3	Ilam			25000 doses
4	jhapa	25000 doses	45000 doses	
5	morang	20000 doses	25000 doses	
6	sunsari	20000 doses	35000 doses	
7	dhankutta		15000 doses	25000 doses
8	Terrah			25000 doses
9	sankhuwa		15000 doses	25000 doses
10	bhojpur		25000 doses	25000 doses
11	solu			25000 doses
12	okhaldhu		20000 doses	25000 doses
13	khotang		25000 doses	
Total doses		65000 doses	245000 doses	200000 doses


Bacteria isolated from SCM Sample
35
30
25
20
15
10
5
0
33
24
13
3
E.coli
staphyllococcus
streptococcus
Klebsiella
E.coli
staphyllococcus
streptococcus
Klebsiella


AST Results for SCM
45
40
35
30
25
20
15
10
5
0
45
32
24
12
16
5
cipro
genta
oxy
chloram
ceftriaz
amoxicillin
cipro
genta
oxy
chloram
ceftriaz
amoxicillin

Control n containment activities of Birdflu outbreak in Sunsari & Morang in 075/076

hgz lt mlj j /)f

l; =g=	kb	:j Lsl[b/aGbL	kbklt{	l/tm	s}lkmot
1	a=k=lr	1	1	0	
2	k=lr =	3	2	1	
3	k=;j f=kf=	3	3	0	]
4	nl}/fkfn	1	1	0	
5	vl/bf/	1	1	0	
7	gf=k=:j =kf=	2	2	0	
8	x=; =r f=	1	1	0	s/f/ ;] fdf
9	sf=; =	2	2	0	
	sh	14	14	0	

2075/76 sf] ciff(dlxgf tyf jflif{s cfly{s laj/)F

laj/)f			s}lkmot
of] dlxgfsf]	rfn' lgsf;f	2538440.15	
	rfn' vr{	2,538,440.15	
	/fhZj	16,205.00	
	w/f}^L	287789.00	
	a]?h'	0	
	k'+lhut lgsf;f	9,453,836.00	
	k'+lhut vr{	9,453,836.00	
xfn ;Ddsf]	rfn' lgsf;f	12265140.98	
	rfn' vr{	12265140.98	
	/fhZj	148,460.00	
	w/f}^L	1,052,647.00	
	a]?h'	12853.00	
	k'+lhut lgsf;f	17995081.99	
	k'+lhut vr{	17995081.99	
rfn' vr{ af½sL		382059.02	
k'+lhut vr{ af+sL		4918.01	

Veterinary Laboratory
Janakpur

Introduction:

Veterinary Laboratory of the province no 2 is situated in Janakpur. The area covered to provide diagnostic services to all the 19 districts of former central development region of Nepal. Various disease diagnosed at the laboratory having several units i.e. Pathology, Parasitology, Microbiology, Hematology, Serology, Biochemistry and Sterilization. Histopathological Laboratory test results are obtained by dispatching the relevant specimens to CVL, as these diagnostic facilities are not available in veterinary laboratory, Janakpur at present.

The working areas of this veterinary laboratory, Janakpur is all district of central region but mainly focused on surrounding district like Dhanusha, Mahottari, Sarlahi, Rauthat Bara, Parsa, and Sinduli which are situated around Janakpur. In this Central Region there are 3 zones and 19 districts geographically the region is divided in to 3 Eco-zones, Mountain, Hill & Terai.

Mountain:

This eco-zone lies on the northern part of the region covering Rasua, Sindhupalchok of Bagmati zone. Livestock rearing is the main occupation of the farmers in this region Yak, Nak, Chauri, Sheep & Goat are being reared.

Hills:

Kathmandu, Bhaktapur, Lalitpur, Dhading, Ramechap, Dolkha, Makawanpur, Sindhuli are under this region. Farmers follow mixed farming system and agro-based livestock industries are their main occupation Cattle Buffalo, Pig, Poultry & Goat are being reared in this region poultry farming are also popular among the farmers.

Terai:

Dhanusha, Mohottari, Sarlahi, Bara, Parsa, Rauthat & Chitwan are under this terai region. Through traditional system of livestock farming followed in this region poultry, dairy & piggery are being Commercialized especially in east-west high way and its vicinity.

Objectives of VL Janakpur:

- To provide disease diagnostic to the Farmers.
- To investigation & diagnose the epidemics in the region.
- To assist & support in disease diagnosis and epidemic control in the region.
- To support animal health and Infertility camps in the region.
- To supervise basic laboratory runs in this region.

- Disease Monitoring, Sample Collection & Diagnosis.
- Sero-monitoring on vaccinated animal & poultry
- Zoonotic Disease Investigation & Control
- Epidemiological Report Recording & Risk Analysis
- Vaccine Bank Storage & Distribution

Staff of VL Janakpur

(At the end of F/Y 2075/76)

S.N.	Name of staff	Post	Work of Responsible
1.	Dr. Rakesh Mahoan Singh	S.V.O.	Chief
2.	Mr. Ram Ashish Sah	V.O.	Laboratory quality management & Planning
3.	Dr. Mukesh Nayak	V.O.	Micribiology, Postmortem Serology & Epidemiology
4.	Mr. Rakesh Kumar Sah	J.T.	Sterilization & Parasitology
5.	Mr. Jeet Narayan Bhagat	J.T.	Pathology & Parasitology
6.	Mr. Anirudh Sah	J.T.	Microbiology, Postmotem, Help desk
7.	Mr. Rajkumar Sah	J.T.	Haematology & Serology Administration, Store
8.	Mr. Jagdish Sah	Accountant	Financial
9.	Mr. Kula Nand Jha	Driver	Driving
10.	Mr. Surndra Mishra	Office assistant	Office guard
11.	Mr. Dinesh Datta	Office assistant	Office Attendant
12.	Mr. Bhakti Nath Jha	Computer Operator	Computer

Annual Progress Report (2075/76)

S.N.	Programmers	Unit	Annual Target	Annual Progress	Annual Weightage	Progress %
A	**Pujigat Karch Karyakram**					
8.3.1.335	Purchasing of furniture set	Set	1	1	16.41	100%
8.5.1.1609	Purchasing & installation of Transformer	Nos.	1	1	2.46	100%
8.5.1.1602	Purchasing of Biochemical analyzer	Nos.	1	1	4.92	100%
8.5.1.1605	Purchasing of Desktop computer & printer set	Nos.	1	1	0.3	100%
8.5.1.164	Purchasing of Laptop	Nos.	2	2	0.49	100%

8.5.1.1612	Purchasing of Micro centrifuge machine	Nos	1	1	0.1	100%
8.5.1.1620	Purchasing & installation of A C	Nos	7	7	4.79	100%
8.5.1.1627	Purchasing of freeze & deep freeze	Nos	2	2	0.49	100%
8.5.1.1629	Purchasing of Microscope	Nos.	3	3	0.69	100%
8.5.1.1626	Purchasing & installation of CCTV	Set	1	1	0.49	100%
8.5.1.1628	Purchasing & installation of solar panel	Set	1	1	4.92	100%
8.5.1.1621	Purchasing of ELISA reader and washer	Set	1	1	3.94	100%
8.5.1.1630	Purchasing of centrifuge machine	Nos.	1	1	0.1	100%
8.5.1.1632	Purchasing of water bath	Nos.	1	1	0.16	100%
8.5.1.1631	Purchasing of incubator	Nos.	1	1	0.1	100%
8.6.21.49	Construction of compound	Times	1	1	1.64	100%
8.6.36.5	Building reconstruction	Times	1	1	9.19	100%
8.6.42.646	Construction of ceiling on BSL machine	Times	1	1	1.64	100%
8.6.42.650	Construction of footpath way in official area	Times	1	1	1.64	100%
8.6.42.651	Lamination of tiles in official area	Times	1	1	4.59	100%
Pujigat kharch karyakram Total=					59.06	

Chaalu kharcha karyakram						
1.1.1.4	Ra.Pa. Ditiya (Technical)	Person	1	1	1.8	100%
1.1.1.6	Ra.Pa.Tritiya (Technical)	Person	3	3	4.85	100%
1.1.1.9	Ra.An,Pratham (Technical)	Person	3	3	3.8	100%
1.1.1.11	Ra.An. Ditiya (Technical)	Person	1	1	1.2	100%
1.1.1.12	Ra.Pa.An. Ditiya (Technical)	Person	2	2	2.41	100%
1.1.1.45	Karyalay sahayogi	Person	2	2	2.1	100%
1.1.1.136	Lekhapal	Person	1	1	1.27	100%
1.1.1.191	Halka sabari chalak	Person	1	1	1.48	100%
1.2.2.1	Cost increment allowance	Person	14	14	0.55	100%
1.3.1.17	Uniform allowance for staff	Person	14	14	0.34	100%
2.1.1.16	Tap water bill payment	Unit	12	12	0.59	100%
2.1.1.19	Drinking water bill payment	Times	12	12	0.04	100%
2.1.2.1	Electricity bill payment	Unit	12	12	0.19	100%
2.2.1.1	Telephone bill payment	Month	12	12	0.11	100%
2.2.2.1	Email/internet/website	Month	12	12	0.13	100%
2.4.1.158	Diesel for generator	Liter	2004	2004	0.62	100%
2.4.1.166	Fuel for vehicle	Liter	1260	1260	0.39	100%
2.4.1.167	Fuel for motorcycle	Liter	840	840	0.3	100%
2.5.1.3	Vehicle repairing	Nos.	1	1	0.85	100%
2.5.1.66	Motorcycle repairing	Nos.	3	3	0.23	100%
2.5.2.1	Machineries & equipment repairing	Nos.	3	3	0.23	100%

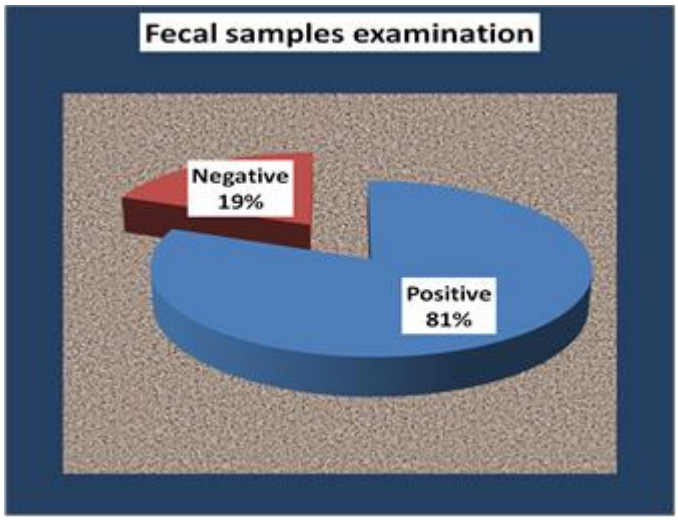
2.5.3.2	Furniture repairing	Times	3	3	0.3	100%
2.6.3.11	Vehicle insurance & tax	Times	10	10	0.25	100%
2.7.1.63	Office operating expenses	Times	3	3	1.48	100%
2.8.1.29	Management of lab animal	Times	12	12	0.1	100%
2.9.1.1	Purchasing of newspaper & books	Times	12	12	0.05	100%
2.10.1.44	Fuel for other uses	Times	12	12	0.1	100%
2.13.1.25	Person for daily wise	Times	3	3	1.67	100%
2.13.1.82	Installation & repairing of machineries	Person	3	3	0.16	100%
2.15.19.647	E.P.G. count	Nos.	300	300	0.2	100%
2.15.19.648	Examination of blood protozoa	Nos	300	300	0.2	100%
2.15.19.649	Examination of skin scraping	Nos.	90	90	0.15	100%
2.15.19.650	Clinical hematological examination	Nos.	200	200	0.2	100%
2.15.19.651	Biochemical examination	Nos.	100	100	0.26	100%
2.15.19.652	Examination of urine	Nos.	100	100	0.15	100%
2.15.19.653	Postmortem examination	Nos.	200	200	0.49	100%
2.15.19.654	Bacterial culture, identification & antibiotics sensitivity test	Nos.	200	200	0.23	100%
2.15.19.655	Fungal culture & identification	Nos.	200	200	0.1	100%
2.15.19.656	Examination of viral diseases	Nos.	200	200	0.3	100%
2.15.19.657	PPR Pen side Examination	Times	3	3	0.2	100%
2.15.19.658	Swine fever Pen side Examination	Times	3	3	0.3	100%
2.15.19.659	Mycoplasma Identification	Nos.	150	150	0.25	100%
2.15.19.661	FMD NSP Elisa Examination	Times	3	3	0.66	100%
2.15.19.662	Sample Collation & dispatch to CVL	Nos.	400	400	0.23	100%
2.15.19.663	Investigation of Sub Clinical Mastitis Test & repotting	Times	3	3	0.37	100%
2.15.19.664	Emergency disease investigation team management (Province level)	Times	3	3	0.39	100%
2.15.19.665	Province level prioritized disease identification & reporting	Times	3	3	0.15	100%
2.15.19.666	Investigation of Epidemic Disease	Times	3	3	0.39	100%
2.15.19.667	Sample Collection & Examination in Infertility Treatment Camp	Times	2	2	0.13	100%
2.15.19.668	Avian influenza Rapid test	Nos.	450	450	0.49	100%
2.15.19.669	Brucella examination	Nos.	150	150	0.25	100%
2.15.19.670	Rabies examination	Nos.	30	30	0.39	100%

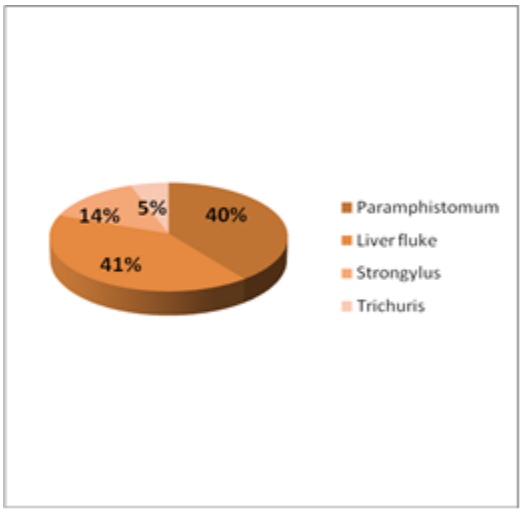
2.15.19.671	Workshop on veterinary disease investigation (Province level)	Times	3	3	0.98	100%
2.15.19.674	Publication of Half yearly Epidemiological Bulletin	Times	2	0	0.07	100%
2.15.19.675	Publication of Yearly Epidemiological Bulletin	Times	1	0	0.05	100%
2.15.19.676	Preparation of Records for yearly publication	Times	1	1	0.05	100%
2.15.19.677	Half yearly Veterinary Investigation report sand to VEC	Times	2	2	0.03	100%
2.15.19.678	Anti rabies vaccination for staffs	Times	12	12	0.12	100%
2.15.19.679	Health check for Laboratory staff	Person	12	12	0.12	100%
2.15.19.680	Vaccine bank management for Rabies, PPR & FMD (Province level)	Times	3	3	0.08	100%
2.15.19.681	Sero monitoring on national control program for PPR, FMD, Swine fever and NDV (Animal health)	District	8	8	0.57	100%
2.15.19.686	Web site renewal and upgrade	Times	1	1	0.16	100%
2.15.19.687	HAHI test (NDV, AIV)	Times	3	3	0.49	100%
2.18.1.44	Disease prevention, control and treatment (Purchasing of medicine)	Times	1	1		100%
2.18.1.54	Investigation of Epidemic Disease (Purchasing of medicine)	Times	3	3	0.14	100%
2.18.1.55	Sero-monitoring on national control program for PPR, FMD, Swine fever and NDV (Purchasing of medicine)	District	8	8	2.18	100%
2.18.1.56	Province level emergency disease investigation team management (Purchasing of medicine)	Times	3	3	0.19	100%
2.19.2.6	TADA expenses					
2.19.2.713	Sample Collation & dispatch to CVL (TADA)	Nos.	400	400	0.3	100%
2.19.2.715	Emergency disease investigation team management (Province level)-TADA	Times	3	3	0.39	100%
2.19.2.717	Investigation of Epidemic Disease (TADA)	Times	6	6	0.39	100%

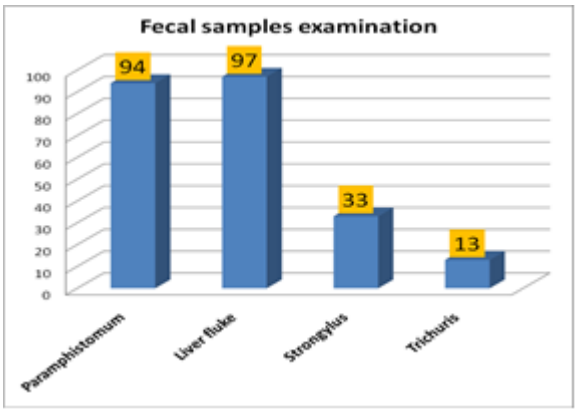
2.19.2.718	Sample Collection & Examination in Infertility Treatment Camp (TADA)	Times	3	3	0.39	100%
2.19.2.719	Planning, Budget & Progress report Workshop for TADA	Times	3	3	0.49	100%
2.19.2.720	Sero-monitoring for PPR, FMD, Swinfevar & NDV (TADA)	District	8	8	1.31	100%
2.20.3.1	Delay Expense on tea & Coffee and Emergency need	Times	12	12	0.25	100%
Total expenses on running program					**40.90**	
Total expenses					**100**	

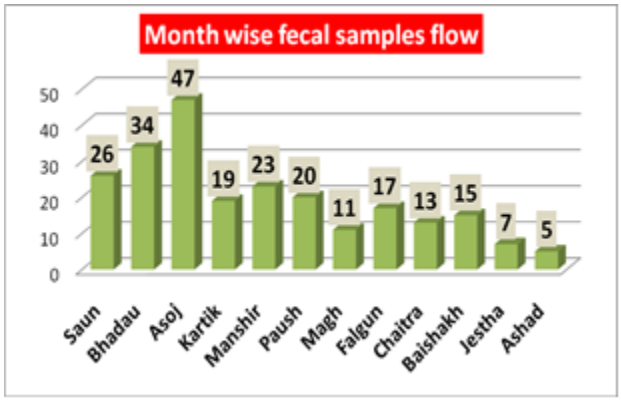
Laboratory Service:

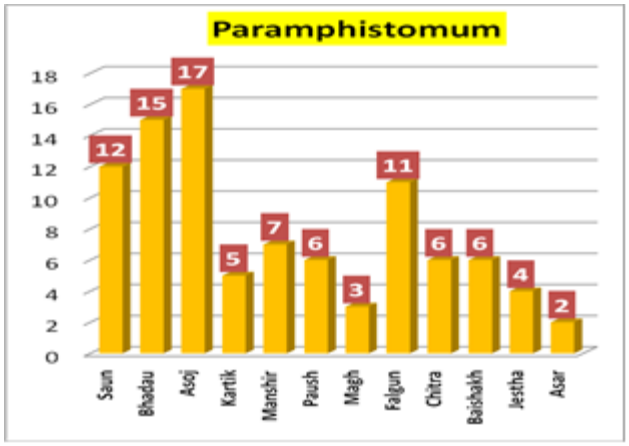
The routine Laboratory works of veterinary laboratory Janakpur, mainly involves examination of fecal Sample, Postmortem Examination, Sero-Surveillance, CMT test of milk samples and culture examination of mastitis. Positive milk samples were carried to isolate and identiF/Y the bacteria responsible for this diseases. Blood samples brought here from different districts of surroundings particularly for HB, PCV, TC, DLC and blood protozoa identification. Blood serum samples were examined for total protein, calcium, phosphorus, glucose, magnesium, brucellosis, etc. Examination of skin scraping & Urine test was frequently conducted in VL Janakpur. Drug sensitivity test are in regular basis after bacterial culture of positive sample.

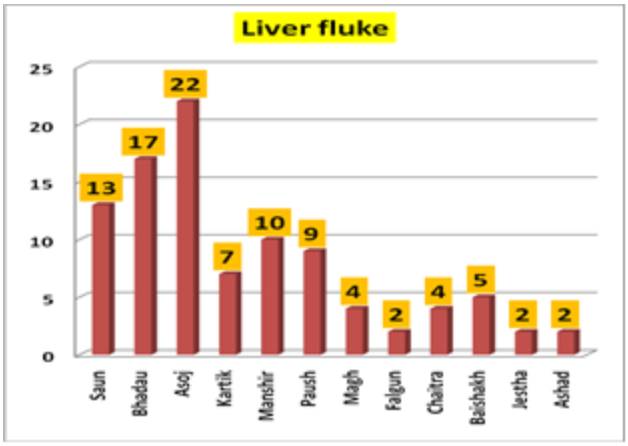


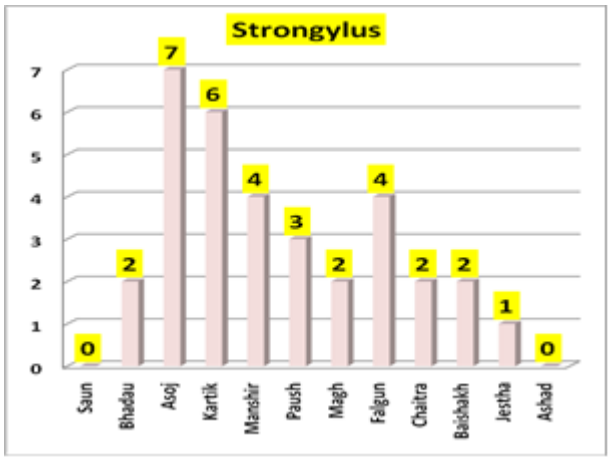


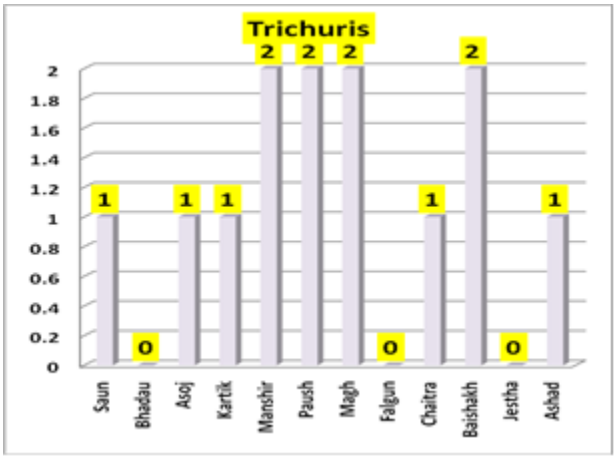

Fecal samples examination
94
97
33
13
Paramphistomum
Liver fluke
Strongylus
Trichuris


Month wise fecal samples flow
26
34
47
19
23
20
11
17
13
15
7
5
Saun
Bhadau
Asoj
Kartik
Manshir
Paush
Magh
Falgun
Chaitra
Baishakh
Jestha
Ashad


Paramphistomum
12
15
17
5
7
6
3
11
6
6
4
2
Saun
Bhadau
Asoj
Kartik
Manshir
Paush
Magh
Falgun
Chitra
Baishakh
Jestha
Asar


Liver fluke
13
17
22
7
10
9
4
2
4
5
2
2
Saun
Bhadau
Asoj
Kartik
Manshir
Paush
Magh
Falgun
Chaitra
Baishakh
Jestha
Ashad


Strongylus
0
2
7
6
4
3
2
4
2
2
1
0
Saun
Bhadau
Asoj
Kartik
Manshir
Paush
Magh
Falgun
Chaitra
Baishakh
Jestha
Ashad


Trichuris
1
0
1
1
2
2
2
0
1
2
0
1
Saun
Bhadau
Asoj
Kartik
Manshir
Paush
Magh
Falgun
Chaitra
Baishakh
Jestha
Ashad

Parasitological Examination:

Parasitological examination (Internal & external), fecal examination of different animals has been done routinely. The fecal sample are received mainly from farmers directly or referred by province veterinary hospitals and also collected from Dhanusha, Mahottari, Sarlahi, Sinnduli, Rauthat and Bara, field area during surveillance and investigation program. For the gastro intestinal parasites, Mc'master technique is followed to quantity the eggs per gram (EPG) in feces.

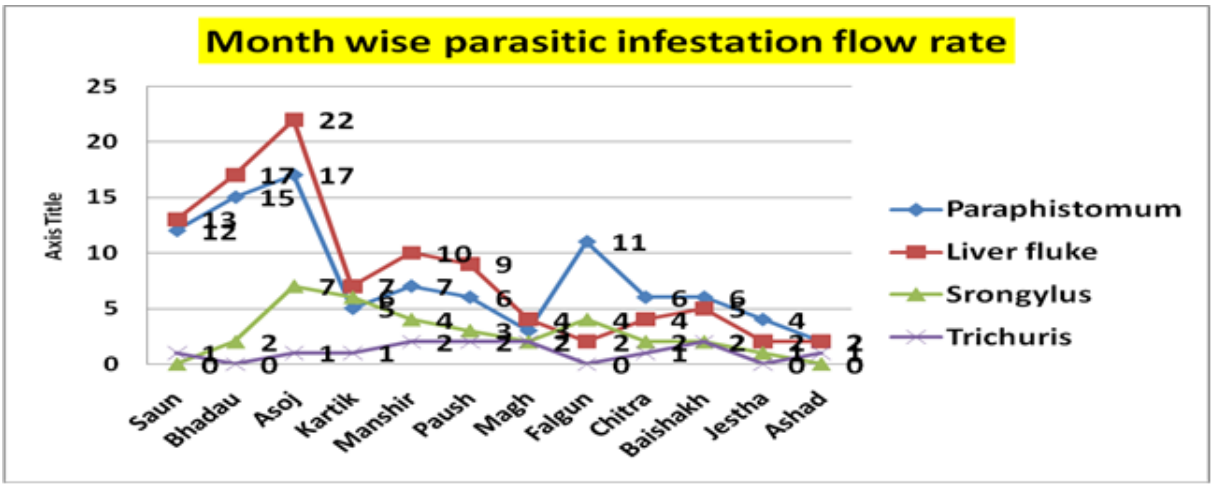
In the F/Y 2075/76 total 293 fecal samples were received among them 257 from Cattle and 36 from Goat & examined. Among these samples 237 samples (80.88%) were positive result and 56 samples (19.11%) showed negative results. The results of fecal test revealed that Liver fluke (37.74%), Paramphistomum (36.57%), Strongylus (12.84),Trichuris (5.05%).

Figures of fecal sample examined and types of parasites found

Month	No. of Sample	Fasciola	Param Phistomum	Stronggles	Trichuris	-Ve	+Ve
Srawan	32	13	12	0	1	6	26
Bhadra	41	17	15	2	0	7	34
Asoj	53	22	17	7	1	6	47
Kartik	23	7	5	6	1	4	19
Manshir	27	10	7	4	2	4	23
Poush	26	9	6	3	2	6	20
Magh	17	4	3	2	2	6	11
Falgun	21	2	11	4	0	4	17
Chaitra	16	4	6	2	1	3	13
Baisakh	19	5	6	2	2	4	15
Jestha	10	2	4	1	0	3	7
Asadh	8	2	2	0	1	3	5
Total	**293**	**97**	**94**	**33**	**13**	**56**	**237**

TREMATODES			
Species	Mild Infection	Moderate Infection	Severe Infection
	50-100	100-200	200-400
Cattle/ Buffalo	23	73	94
	50-100	100-200	300-600
Sheep/ Goat	4	9	2

NEMATODES			
Species	Mild Infection	Moderate Infection	Severe Infection
	100-300	300-600	600-800
Cattle/ Buffalo	3	13	6
	300-500	1000-1500	2000-3000
Sheep/ Goat	2	7	1



Haematological examination :

Haematological examination TLC, TEC, DLC, PCV, & HB test are done in this laboratory. Total count of RBC, WBC by haemocytometer for DLC blood sample were stained with Giemsa blood samples received from different district of central region.

Total 256 Blood sample were examined for different blood parameters as well as for blood parasites. Among them 245 samples were found negative for any blood parasites & rest 11 were found positive for different blood parasites.

Figures of blood sample examined and types of parasites found

Month	No. of Sample	Anaplasma	Babesia	Theileria	Tryps	Other	-Ve	+Ve
Srawan	18	-	-	-	-	-	18	
Bhadra	23	2	-	-	-	-	21	2
Asoj	17	-	2	-	-	-	15	2
Kartik	19	1	-	-	-	-	18	1
Manshir	22	-	1	1	-	-	20	2
Poush	26	-	-	-	-	-	26	
Magh	14	-	-	-	-	-	14	
Falgun	18	1	2	-	-	-	15	3
Chaitra	23	-	-	-	-	-	23	
Baisakh	28	-	-	-	-	-	28	
Jestha	22	-	1	-	-	-	21	1
Asadh	26	-	-	-	-	-	26	
Total	256	4	6	1	-	-	245	11

Pathological Examination:

The pathological examination includes mostly post mortem examination of the dead birds received from commercial poultry farms Most of the cases were from Dhanusha & Mahottari district and sometimes from Sindhuli, Sarlahi, Rauthat and Sirha district. A total 531 cases of post mortem examination were presented during the F/Y 2075/76 all the case received were birds. No cases of other species of animals were received. The status of poultry disease in the area is shown in Table.

Month wise postmortem case flow rate at veterinary laboratory Janakpur

Poultry diseases found at Veterinary Laboratory Janakpur

Trend of disease occurrence in poultry

S.N.	Tentative Diagnosis	Total Cases	
		Number	Percent
1.	Gout	63	11.86
2.	Ascites	54	10.16
3.	Colibacillosis	104	19.58
4.	CRD	34	6.40
5.	Coccidiosis	52	9.79
6.	Infectious Bursal Disease	47	8.85
7.	New Castle Disease	33	6.21
8.	Salmonellosis	48	9.03
9.	Mycotoxicosis	85	16.00
10.	Ascariasis	11	2.07
11.	Avian Influenza	0	00
	Total	**531**	**100**

Microbiological Examination:

Clinical mastitis:

The samples were received from farmers at veterinary laboratory Janakpur For the bacterial identification of cow & Buffalo milk total of 238 (Cattle-131 & Buffalo-107) milk sample collected from the following district & Sample were tested for the presence of bacteria in milk. The most prevalent bacteria isolated show staphylococcus, Streptococcus & E. ccoli etc.

S.N.	District	Tested No. of Sample	Resulat
1.	Dhanusha	112	staplylococcus, Streptococcus & E. ccoli
2.	Mohattari	94	staplylococcus, Streptococcus & E. ccoli
3.	Sindhuli	13	staplylococcus, Streptococcus & E. ccoli
4.	Sarlahi	8	staplylococcus, Streptococcus & E. ccoli
5.	Bara	7	staplylococcus, Streptococcus & E. ccoli
6.	Parsa	4	staplylococcus, Streptococcus & E. ccoli

Antibiotic Sensitivity Test Results:

Antibiotics Used	Percent Efficacy
Ciproflaxacin	Sensitive
Ampicloxacillin	Sensitive
Tetracyclin	Sensitive

Enrofloxacin	Sensitive
Gentamycin	Low Sensitive

Serological Examination:

Total of 137 samples were tested for mycoplasma among them 52 found +ve & rest found negative, for salmonella 78 samples tested 36 were +ve & rest found negative and for Brucella 314 sample tested all are found negative.

Biochemical Examination:

Type of animal	Number of Sample	Calcium gm/100ml Normal Value	Calcium gm/100ml Normal Result	Phosphors gm/100ml Normal Value	Phosphors gm/100ml Normal Result
Cow	61	9-12	7-9	4-7	3-6
Buffalo	73	9-12	7-10	4-7	3-6
Goat	49	10-11	9-10	3-11	4-8
Poultry	21	9-12	10-12	4-8	4-7
Total	204				

Sample send to CVL for further Investigation in F/Y 2075/76:

Veterinary Laboratory, Janakpur is not well equipped with the modern equipment. The sample are sent to CVL for diagnosis of the disease & Sometimes reconfirmation of the different types of diseases. FMD suspected samples sent to FMD laboratory Budhanilkanth, Kathmandu In total 338 Samples dispatched to CVL as well as 87 samples to FMD laboratory.

S.N.	Types of Samples	Number
1.	Poultry blood serum	97
2.	Tracheal swab	38
3.	Clocal swab	30
4.	Whole body carcass (Poultry)	0
5.	Blood serum for PPR	138
6.	Blood serum for FMD	87
	Total	**390**

National PPR,Swine fever & Ranikhet Programme
Sero-Surveillance
F/Y 2075/76

S.N.	Name of District	Samples collected (Animal Spp.)	Sero-monitoring for	Serum to be collated (No.)
1.	Dhanusha	Goat	PPR	250
2.	Mahottari	Goat	PPR	250
3.	Sarlahi	Goat	PPR	250
4.	Bara	Goat	PPR	200

5.	Parsa	Goat	PPR	200
6.	Chitwan	Goat	PPR	250
7.	Sindhuli	Pig	Swine fever	50
8.	Makwanpur	Pig	Swine fever	50
9.	Rauthat	Pig	Swine fever	50
10.	Bara	Pig	Swine fever	50
11.	Makwanpur	Poultry	Ranikhet	25
12.	Rauthat	Poultry	Ranikhet	25
13.	Sirha	Cattle	FMD	356
14.	Saptari	Cattle	FMD	302
	Total			**2308**

Bird flu Surveillance in Central Development Region, VL Janakpur
(F/Y 2075/76)

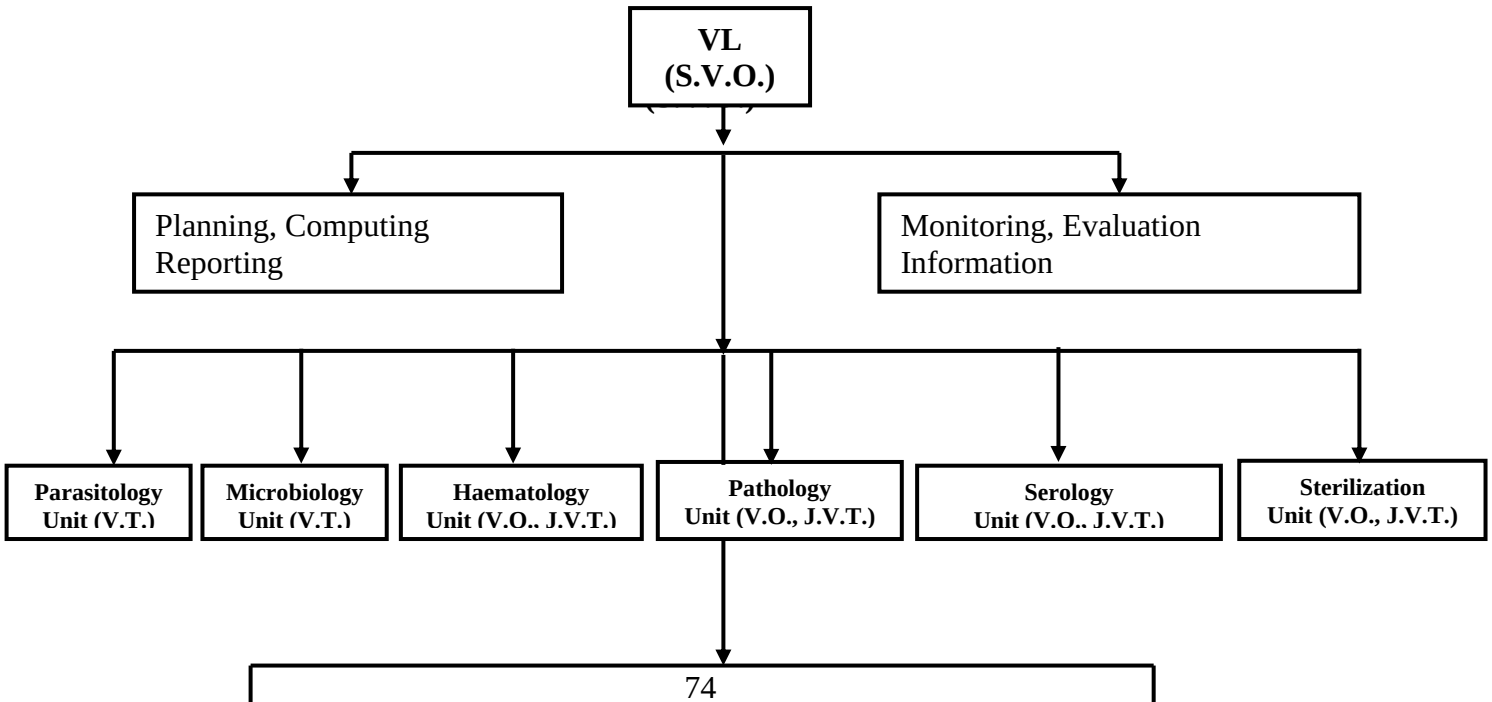
S.N.	District	Types of birds	Type of farming	Types of sample collected		Total	Test Result
				TS	CS		
1.	Dhanusha	Poultry,	CB	82	52	135	-ve
		Duck	CB	22	27	55	-ve
2.	Mahottari	Poultry	CB	28	33	55	-ve
3.	Sarlahi	Poultry	CB	23	24	45	-ve
4.	Sindhuli	Poultry	CB	26	28	44	-ve
5.	Bara	Poultry	CB	21	22	34	-ve
6.	Parsa	Poultry	CB	38	32	53	-ve
7.	Rauthat	Poultry,	CB	72	64	179	-ve
		Duck		36	28		
Total				**348**	**310**	**658**	

One health approach is our opportunity in this globalization era however is not easy to maintain it. In this era of globalization we are in continuous threat from different animal diseases, most of which are zoonotic and of economic concern. To cope up with the situation, Nepalese veterinary service is doing its level best to manage the situation. We have been successful in controlling many diseases of global concern and are targeting our activities towards same. We are ready to cope up for new emergency diseases & conditions too. We need to broaden our horizon and act more strongly in a collaborative way to handle other diseases & conditions. Finally we requested humbly to our working patterns, related district & veterinary laboratory itself have a good opportunity to maintain haggard less & healthy Society.

List of Vaccines distributed to outbreak area:

Date	Office	Vaccine type & doses		
		PPR	FMD	Rabies
2075/05/08	Jay Hanuman Bakhra farm, Sarlahi	100		
2075/05/31	Hariwon Na.Pa., Sarlahi	4500		
2075/06/08	Sirha Na.Pa.	5000		
2075/06/10	Veterinary hospital and expert center, Dhanusha			200
2075/06/11	Nepal veterinary association, Janakpur			50
2075/06/18	Krishi Prabidhik Sichalay, Bardibas	400	400	50
2075/06/21	Vangha Na.Pa., Mahottari	2000		
2075/07/16	Dhanushadham Na.Pa. Dhanusha	3000		
2075/07/20	Sonma Ga.Pa., Mahottari	100		
2075/08/23	Veterinary hospital and expert center, Rauthat		1000	
2075/09/01	Orahi Na.Pa., Mahottari	300		
2075/09/13	Jeetpur simara Up.Na.Pa.,Bara	1300		
2075/09/27	Sabila Na.Pa., Dhanusha		100	
2075/09/27	Veterinary hospital and expert center, Rauthat		5000	
2075/10/04	Pashu sewa sakha, Bardibash		1000	
2075/10/24	Orahi Na.Pa., Mahottari	300		
2075/10/25	Pachrauta Na.Pa., Rauthat	15000		
2075/10/25	Gajura Na.Pa., Rauthat	1000		
2075/10/28	Sabaila Na.Pa., Dhanusha	1000		
2075/10/28	Kharihani Rupaila Na.Pa., Danusha		100	
2075/10/29	Khadak Na.Pa., Saptari	200		
2075/11/01	Udaypur katari Na.Pa.	1000		
2075/11/01	Katari Na.Pa.			30
2075/11/02	Veterinary hospital and expert center, Siraha	4000		
2075/11/07	Jeetpur simara Up.Na.Pa.,Bara	1000		

2075/11/14	Veterinary hospital and expert center, Mahottari	5000	1000	
2075/11/30	Harpur Parsa Na.Pa.		1000	
2075/11/30	Sonma Na.Pa., Mahottari			50
2075/12/04	Dhanushadham Na.Pa., Dhanusha	5000		
2075/12/04	Sabaila Na.Pa., Dhanusha		2500	
2075/12/12	Sabaila Na.Pa.-4, Paterwa		2500	
2075/12/12	Hanspur Na.Pa., Dhanusha	2000		
2076/01/11	Parsagadhi Na.Pa.,Harpur		2500	
2076/02/01	Gashala Na.Pa.-3, Mahottari		200	
2076/02/03	Jeetpur samara Na.Pa., Bara		1000	
2076/02/13	Veterinary hospital and expert center, Dhanusha		2000	
2076/02/13	Veterinary hospital and expert center, Dhanusha		1000	
Total		**52200**	**21300**	**380**



Note -

- S.V.O. :- Senior Veterinary Officer
- V.O. :- Veterinary Officer
- V.T. :- Veterinary Technician
- J.V.T. :- Junior Veterinary Technician

VETERINARY LABORATORY

POKHARA

1. Introduction

Western Development Region (WDR) is situated between 82º 30' to 85º 15' east longitude and from 27º 15' to 29º 30' north latitude. It occupies about 20% (29355 Sq. Km.) of total areas of Nepal. The region shares boundaries with Uttar Pradesh of India in the south and Tibet of China in the north. The region is bulging between Central and Mid-western development regions of Nepal in the east and west respectively. Geographically, WDR is divided into the following three main domains:

Himalayan region:

Himalayan region is located in the northern part of the WDR, covering Mustang, Manang and upper belt of Gorkha districts. Yak/Nak, Sheep, alpine Goats (Chyangra) and mule rearing formed the way of life of the people in this region.

Hilly region:

Hilly region lies in between the Himalayan and Terai regions. This region comprised of Arghakhanchi, Gulmi, Palpa, Shyanga, Kaski, Tanahu, Lamjung, and lower belt of Gorkha, Parwat, Baglung and Myagdi districts. People of divergent ethnic groups, casts and cultures share their common way of living. Agro-based livestock industry in this region is the main source of income of the people. Poultry farming, Goat rearing and dairy industries are becoming familiar near the cities/towns and in the areas where market is accessible.

Terai region:

Terai region covers Nawalparasi, Rupandehi and Kapilbastu districts. This plain extends from east to west of the region and stretched from 15 to 40 Kilometers in width. Sediments and silt are main constituents of soil deposited by rivers making it more fertile and this belt supplies the food and fibers to other regions of the country. Compared to mountains and hilly regions, this region has relatively better infrastructure and market accessibility. People of this region are motivated to adopt livestock farming in commercial scale.

The population of livestock in the region is very high as compared to their production. Though many factors are contributory, the health of animal plays a vital role to increase the production and productivity of animal. Every year, several diseases and parasitic problems attribute a considerable amount of economic loss to livestock rearing farmers of the country warranting switching on a massive disease control program. Major economically important diseases of Cattle and Buffaloes are Foot and mouth disease (FMD), Haemorrhagic septicemia (HS), Helminthiosis, infertility, mastitis and blood protozoan diseases whereas PPR, Gastrointestinal nematodosis and Clostridial diseases in Sheep and Goats. Swine fever and FMD in Pigs and Avian Influenza, New Castle disease (ND), Infectious bursal disease (IBD), Coccidiosis, Hemorrhegic Enteritis and Mycotoxicosis in chickens are major disease problems.

2. Mission of the Veterinary Laboratory, Pokhara:

The mission of the Regional Veterinary Laboratory, Pokhara is to promote the health of livestock, poultry and companion animals and to ensure safe animal products for the consumer by assisting Veterinary Hospital and Livestock Service Expert Centers (VHLSEC), veterinarians, clients, and others responsible for animal health in the detection and prevention of disease by conducting responsible investigation on animal diseases and providing accessible, accountable, timely, and accurate diagnostic services.

3. Objectives of Veterinary Laboratory, Pokhara

- To provide accessible, timely and accurate diagnostic services to the livestock and poultry farmers and to veterinarians, veterinary technicians and their owners in the region.
- To conduct diagnostic examinations, record results, report information and assist in the interpretation of results to submitting VHLSECs, Veterinarians, and veterinary technicians.
- To investigate the animal disease epidemics in the region and assist, advice and support VHLSECs to control them.
- To prepare epidemiological profile of livestock and poultry diseases and maintain and disseminate the regional epidemiological information database on animal health in the regional as well as in the national networks.
- To investigate relatively important livestock diseases in the region and formulate control measures for the same with wider consultation to the experts.
- To monitor and report the incidence and threat of animal diseases, as well as diseases that are transmissible form animal to humans.
- To supervise and assist in diagnostic services to basic and primary laboratories based at local level.
- To conduct and support the laboratory and animal health related training programs for the Para vets in the region.
- To coordinate national disease control and eradication programs in the region.

These objectives are accomplished by the application of different diagnostic assays, interpretation of diagnostic procedures, consultation with animal health professionals of the Department of Livestock Services and training and continuing education of persons responsible for delivering animal health care services.

4. Major Laboratory Tests Facilities of Veterinary Laboratory, Pokhara:

Veterinary Laboratory, Pokhara, located at Pokhara-10, Ramghat, the center of Pokhara city, provides diversified veterinary Laboratory test facilities for the farmers, private veterinary practitioners, VHLSECs and local levels of the western development region. It mainly tests the following categories of the samples:

a. Parasitological Unit:

Parasitological unit tests for external parasites the parasitology unit performs microscopic examination of skin scrapings for the identification of mange mite species. It conducts blood parasite test using blood smear examination and for the blood filaria examination using Knot's method.

b. Microbiological Unit:

Microbiology unit tests diversified samples like milk, tissues, blood, aspirated fluids and tissues etc. Both aerobic and anaerobic culture facilities are available. It also performs identification of the Bacterial and fungal organisms using various biochemical tests, staining, morphology etc. The microbiology unit also performs antibiotic susceptibility test and advice for the appropriate antibiotic for the treatments.

c. Pathology Unit:

Pathology unit mainly perform Post mortem examination of various species of animals and collect appropriate samples for the histopathological examination and dispatched to the histopathology unit of Central Veterinary Laboratory for the examination. The unit perform annual necropsy of different animal species and birds mostly poultry birds.

d. Serology Unit:

Serology unit of Veterinary Laboratory, Pokhara mainly perform Brucellosis test using RBPT antigen, Mycoplasmosis and Pullorum disease of poultry using Mycoplasma gallisepticum and Salmonella pullorum antigen by Plate agglutination test.

e. Biochemistry Unit:

Biochemistry unit analyze mainly serum for the estimation of Calcium, Phosphorus, Magnesium and total proteins as well as different biochemical profile of different animals. It is performing the Urine tests by estimating Albumine, Bilirubin, and Urobilinogen using dipstik test kit.

f. Hematology Unit:

The Hematology Unit of Veterinary Laboratory, Pokhara is providing routine hematological parameters of all the animals and Poultry.

5. Laboratory Services

5.1 Parasitological Examination

Parasitological Examination include the examination of intestinal scrappings for eimeria identification, skin scrapping examination, egg per gram (EPG) of feces determination and Blood Protozoa identification. A total of 2614 intestinal scrapings of poultry were examined and 364 (13.92%) were found to be positive for presence of coccidial parasites. Similarly, 25 skin scrapings were taken from Dog, Goat, Cow and Buffalo and 3 sample were found positive for the Demodex in dog and 2 samples from Buffalo were positive for fungus in the year 2075/76. A total of 300 fecal samples were collected from different animals (Cow, Buffalo, Sheep and Goat) 163 (54.33%) samples were found to be infested with internal parasites (*Strongyles, Paramphistomum, Fasciola* etc) during 2075/76.

5.2 Microbiological Examinations

Microbiological examinations include the isolation and identification of bacteria and fungi from the pathological samples received in the laboratory. Bacteriological culture, Fungus Culture and antibiotic sensitivity tests were performed of the samples received for microbiological investigation. During 2075/76 a total of 621 samples were examined for bacterial culture and identification and 37 samples were examined for fungus culture and isolation in microbiology unit of the laboratory.

5.3 Pathological Examinations

Pathological examinations mostly consisted of necropsy examination of carcasses presented in the laboratory where poultry dominates all. In the pathology unit, the cause of death of chickens presented was generally drawn on the basis of both the post mortem lesions observed and laboratory investigation of samples collected during necropsy examinations. A total of 3925 were subjected to post-mortem examination in veterinary laboratory, Pokhara in the fiscal year 2075/76. Post mortem and lab diagnosed poultry diseases of F/Y 2075/76 is presented below.

Table 1: Diseases of chickens diagnosed in the F/Y 2075/76

Disease	Number of Cases	Percentage (%)
Colibacilosis	1051	27.86
Coccidiosis	364	9.64

Salmonellosis	121	3.21
Ascites syndrome	606	16.07
Gumboro	59	1.56
Hepatitis	27	0.71
CRD	418	11.07
CCRD	215	5.71
ND	121	3.21
Immunosuppression	94	2.50
MT	148	3.93
Enteritis	108	2.86
Omphalitis	283	7.50
Others	162	4.29
Total Cases (n)= 3777		

It can be seen during the F/Y 2075/76 Colibacillosis was the most prevalent poultry disease followed by Ascites Syndrome and CRD (Chronic respiratory disease). There was increase in the cases of Colibacillosis, which might be due to the increased number of farming and poor management condition of the farming system.

5.4 Serological examinations

Serological examinations mainly consisted of plate agglutination test of chicken serum to detect antibody against *Mycoplasma gallisepticum* and *Salmonella pullorum* organisms. Similarly, serum samples from Cattle, Buffalo, Sheep, Goats and dogs were tested for brucella antibodies using Rose Bengal Plate Agglutination Test (RBPT). During the fiscal year 2075/76, the serum samples tested and their results are presented as follows:

Table 2: Serological Test Result in VL, Pokhara in F/Y 2075/76

Species	Number of Serum	Tested For	Test Method Applied	Results
Cattle	79	Brucellosis	RBPT	All Negative
Buffalo	24	Brucellosis	RBPT	All Negative
Dog	4	Brucellosis	RBPT	All Negative
Goat	63	Brucellosis	RBPT	All Negative
Poultry	474	Salmonellosis	PAT	120 +ve
Poultry	474	Mycoplasmosis	PAT	43 +ve

Table 3: Virology test results of samples of different species in F/Y 2075/76

Species	Number of Sample	Tested For	Test Method Applied	Results
Goats	58	PPR	Pen side test	44 +ve
Dog/Buffalo/ Mongoose	21	Rabies	Rapid test	1 +ve Buffalo 1 +ve Dog 19: Negative

Poultry	87	IBD	IBDV rapid test	59 +ve
Poultry	54	Newcastle d/s	NDV rapid test	8 +ve
Poultry	464	Avian Influenza	AIV rapid test	15 +ve 13 H9 /2 H5

H5 Avian Influenza Outbreak was seen in Madi-03, Yangjakot, Kaski and Madhyabindu-02, Nawalparasi.

5.5 Haematological Examinations

Hematological unit of the laboratory is well equipped to determine a range of hematological parameters such as Total Erythrocyte Count (TEC) and Total Leukocyte Count (TLC), Differential Leucocytes Counts (DLC), Erythrocyte Sedimentation Rate (ESR), determination of hemoglobin (HB) and Packed Cell Volume (PCV) and staining of blood smears for blood protozoa and bacteria. A total of 111 blood samples from animals were examined for different hematological parameters.

5.6 Biochemical examinations

Biochemical examinations included biochemistry of serum and routine and microscopic examination of urine. 333 serum samples were examined biochemically in the year 2075/76. Multistick strip was used for routine urine analysis and total of 50 urine samples were examined. Microscopic examination of urine was done after centrifugation of the urine samples.

6. Avian Influenza Surveillance (Laboratory Surveillance)

The annual avian influenza surveillance programme had been continuing in the laboratory and it was successful in the detection of flu A cases. During this fiscal year 2075/76 altogether 15 flu A cases were identified out of 464 cases registered for the disease diagnosis. 2 out of 15 flu A case were confirmed as H5 by CVL.

7. Annual progress summary

The annual progress summary of veterinary laboratory, Pokhara is presented in the table as follows:

Table 4: Annual progress summary of achievements Veterinary Laboratory, Pokhara (for fiscal year 2075/76 & Budget No: 3271013 and 3271014)

Program	Budget head	ANNUAL Budget (Lakhs)	Annual Progress	
			Weightage Progress (%)	Financial Progress (%)
Recurrent	3271013	124.82	98.90	95.34%
Capital	3271014	180	100%	93.73%

Screening of Sub- clinical mastitis of commercial cattle farm of Rupandehi District

Objective:

- To screen the lactating animals for possible mastitis
- To study the quality of milk produced
- To find out the causative organisms and their sensitivity pattern to different ABs

Team Members:

- Dr. Kedar Raj Pande
- Dr. Bharat Regmi
- BishnuKumariKafle
- ShyamBdr. Adhikari
- Anupa Tiwari, Vet Intern

Visit Site: Commercial cattle farm of Siddharthanagarminucipality, Rupandhai District

Methodology:

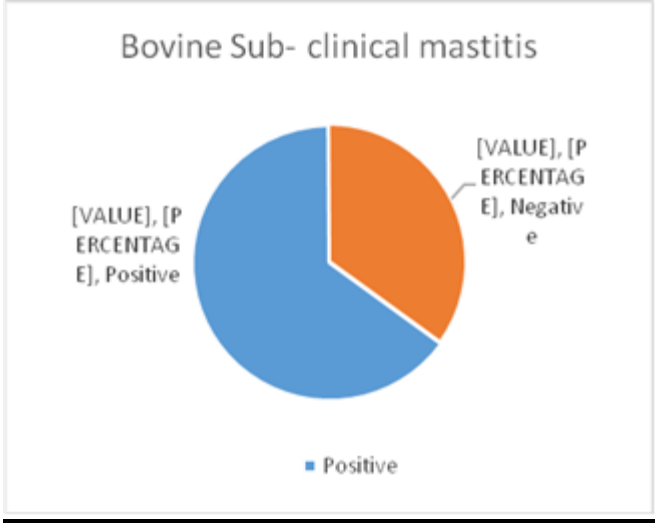
5 commercial cattle farms were randomly selected and visited for screening the sub- clinically infected cattle for possible mastitis infection. Strict biosecurity measures were followed during the farm visit and experimentation. A questionnaire form was designed and asked to the farm owner to find out the possible risk factors of mastitis. SLST reagent was to find out the milk infected with mastitis by using CMT paddle.

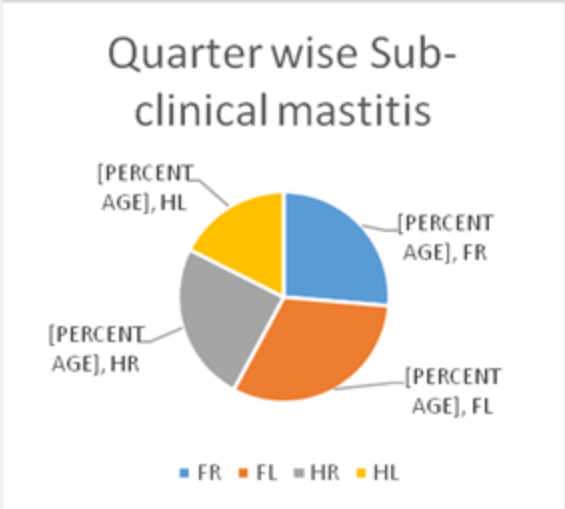
Result:

Husbandry Practices followed by farm owners

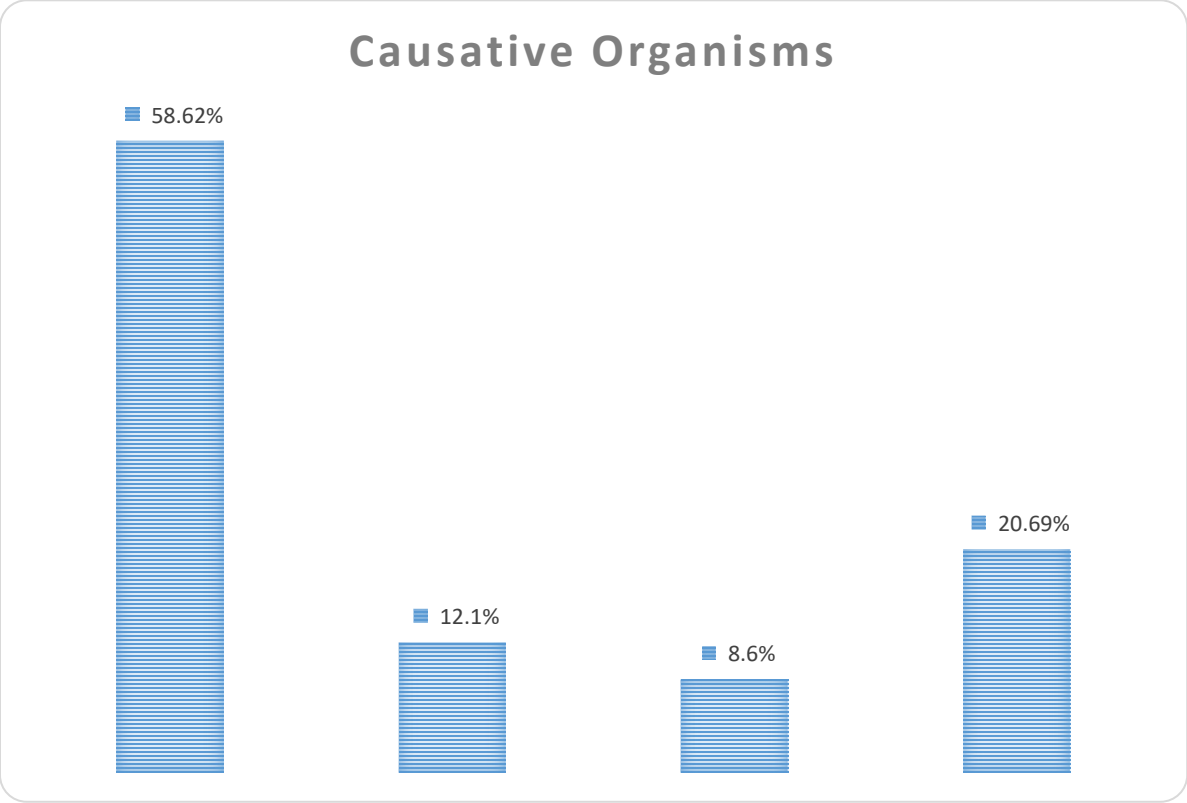
- Out of 5 commercial farm one was found to follow biosecurity measures in his farm.
- All the farms floor was made of concrete floor and one with mattress also to prevent slippage.
- 4 farms was not using bedding and one was found to use straw
- The owners were using disinfectants in 3 farms
- Out of 5 farms, we found calf suckling in 3 farms and occasionally in 2 farms.
- Milking order was found to be strictly followed in 3 farms
- Out of 5 farms, teat dipping is found to be followed only in 3 farms. Two owners were using teat dipping in infected animals and one was not using yet.

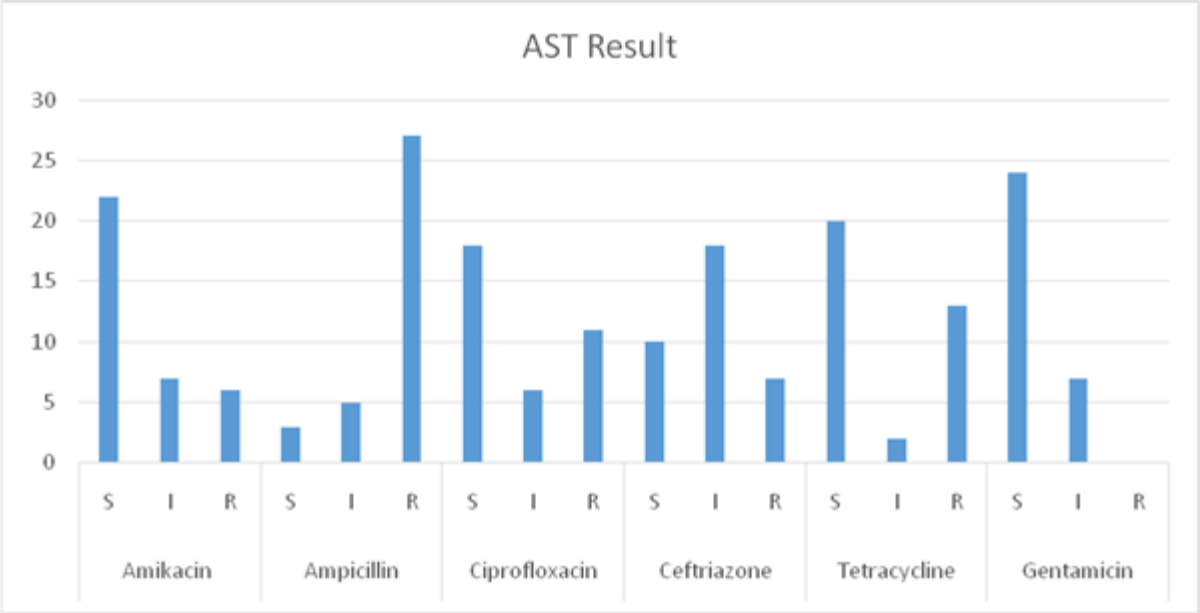
Screening Result:





Culture and AST Result:





Conclusion:

- Poor husbandry practices is one of major factor responsible for Sub- clinical mastitis.
- 65% clinically healthy animals were found to be sub clinically infected with mastitis.
- RL (32%) quarter is mostly affected followed by FR (26%), HR (25%) and HL (17%).
- 59% causative organisms were found to be E. coli followed by Staphylococcus and Streptococcus.
- Gentamicin and Amikacin were found to be more sensitive followed by Tetracyclinand Ciprofloxacin.

Recommendations:

- Good husbandry and milking practices is mandatory to prevent milking animals from mastitis.
- Judicious and wise use of AB is of utmost importance.
- Further comprehensive study is needed.

Some glimpse of work Activities

VETERINARY LABORATORY

SURKHET

1. Introduction

Veterinary Laboratory, Surkhet of the Karnali Province is situated in Birendranagar Municipality-7, Surkhet and was established in F/Y 1988/1989 AD. It provides laboratory diagnostic services to 10 districts of Karnali Province and 6 districts of Province 5 altogether 16 districts. To provide the diagnostic livestock services smoothly, three districts (Banke, Dang and Jumla) have established basic laboratories. They perform parasitological examinations, microbiological culture and antibiotic sensitivity test.

The mission of the VL, Surkhet is to promote the health of livestock, poultry and ensure safe animal products for consumer by assisting VHLSECs, veterinarians, animal health workers, and others who are responsible for animal health in detection and prevention of animal diseases.

2. Objectives

- To provide animal disease laboratory diagnostic services to the farmers of the region.
- To investigate the animal disease epidemics in the region.
- To support Veterinary Hospital and Livestock Service Expert Center in disease diagnosis and epidemic control.
- To investigate important livestock diseases in the region & assist to formulate disease control measures.
- To monitor and report the incidence and threat of animal disease as well as zoonotic disease
- To supervise diagnostic service at Veterinary Hospital and Livestock Service Expert Centers of the region and onsite coaching.
- To conduct and support the laboratory and animal health related training activities/programs for the veterinary paraprofessionals in the region.
- To assist in the national disease control and eradication programs in the region.

3. Progress Report of Fiscal Year 2075/76

The annual program and the summary of the progress report are presented in the following table.

Table 1: Annual work program and summary of achievements (F/Y 2075/76)

S. N.	Activities	Unit	Annual		Progress %
			Target	Progress	
	Under the capital expenditure program				
1.1	Purchase of Furniture for Office	Time	1	1	100
1.2	Purchase of Furniture for BSL lab	Time	1	1	100

1.3	Purchase of Furniture for official Purpose	Time	1	1	100
1.4	Purchase of Machinery Equipment.	Time	1	1	100
1.5	Purchase of Single Channel Pipette	Quantity	2	1	100
1.6	Purchase of Computer and printer	Quantity	2	1	100
1.7	Purchase of Washing Machine	Quantity	1	1	100
1.8	Purchase of Multi-Channel Pipette	Quantity	2	1	100
1.9	Purchase of laptop	Quantity	1	1	100
2.0	Purchase of Biochemical Analyser	Set	1	1	100
2.1	Purchase of Vertex shaker 1, Touchdown centrifuge2 , Eyewasher2	Quantity	5	5	100
2.2	Purchase of Double door freeze	Quantity	5	5	100
2.3	Purchase of Simple deep freeze	Quantity	3	3	100
2.4	Purchase of Laboratory Refrigerator	Quantity	1	1	100
2.5	Purchase of Binocular Microscope	Quantity	4	4	100
2.6	Purchase of Microhematocrit centrifuge	Quantity	1	1	100
2.7	Purchase of Stabilizer and UPS for computer	Times	1	1	100
2.6	Purchase of Microcentrifuge	Quantity	1	1	100
2.9	Purchase of sample passing box and fitting	Quantity	1	1	100
3.0	Purchase of Microplate shaker and postmortem table	Times	1	1	100
3.1	Purchase of Ultrasound Machine	Quantity	1	1	100
3.2	Purchase of Elisa Reader and Washer	Times	1	1	100
3.3	Purchase of Shoe cover	Quantity	2	2	100
3.4	Purchase of Deep freeze minus80C	Quantity	1	1	100
3.5	Purchase of Ac and fitting	Quantity	4	4	100
3.6	Purchase of UPS for PCR Machine	Quantity	1	1	100
3.7	Purchase of Solar Battery	Times	1	1	100
3.8	Purchase of Biosaftey Cabinate class2	Quantity	1	1	100
3.9	Purchase of other laboratory equipment	Times	1	1	100
4.0	Purchase of PCR hood	Quantity	1	1	100
4.1	Purchase of Refrigerated centrifuge	Quantity	1	1	100
	Under Technical program				
5.1	EPG Count, Larvae Culture Identification and Treatment	Quantity	200	695	100
5.2	Blood Protozoa Identification	Quantity	100	135	100
5.3	Skin Scrapping	Quantity	30	33	100
5.4	Clinical Hematological Examination	Quantity	120	157	100
5.5	Biochemical Test (Calcium, Phosphorus, Total protein, Glucose, Copper, Iron)	Quantity	100	42	42
5.6	Urine Test	Quantity	30	31	100
5.7	Post Mortem	Quantity	700	1185	100

5.8	Bacteria culture, identification and Antibiotic sensitivity test	Quantity	120	270	100
5.9	Viral disease Examination of animals	Times	200	1701	100
6.0	PPR Penside Test	Quantity	2	58	100
6.1	Mycoplasma Examination in poultry	Quantity	100	443	100
6.2	Salmonella Examination in poultry	Quantity	100	443	100
6.3	Sample collection and to dispatch CVL for further laboratory examination.	Quantity	200	336	100
6.4	Mastitis test for Milch Animal	Times	1	72	100
6.7	Regional level emergency Disease investigation team mobilization	Times	3	3	100
6.8	Epidemic Disease Investigation of Animal Disease.	Times	3	5	100
6.9	Avian influenza examination	Quantity	100	548	100
7.0	Brucella examination in animal	Quantity	100	229	100
7.1	Rabies examination	Quantity	3	14	100
7.2	Province level technical interaction about Disease diagnosis in Laboratory.	Times	2	2	100
7.3	Half yearly epidemiological bulletin publication	Times	2	2	100
7.4	Yearly epidemiological bulletin publication	Times	1	1	100
7.5	Material preparation and dispatch to publication the Annual Technical Bulletin	Times	1	1	100
7.6	Staffs Health Checkup	Person	14	14	100
7.7	Sero-Monitoring Program of National PPR, FMD, Swine Fever, Ranikhet disease under the national disease control program.	District	15	15	100
7.8	HA/HI Examination	Times	3	3	100
7.9	Commercial Poultry Farmer and Technicians interaction about Biosecurity in Farm.	Times	3	3	100
8.0	Examination of Drugs Residue in Animal product	Times	1	2	100
8.1	Examination of animal disease using PCR Technique	Times	2	2	100
8.2	Surveillance of AI, ND and IB disease in Poultry	Times	1	500	100
8.3	Surveillance of PPR Disease	Times	1	1	100
8.4	Surveillance of FMD Disease	Times	2	2	100
8.5	Investigation of Egg Production Decreasing Disease in Layers	Times	2	2	100
8.6	Investigation and Surveillance of parasite of Sheep and Goat	Times	1	1	100

8.7	Interaction program about Sample collection, preservation dispatch at Veterinary Hospital and livestock service expert center.	Times	6	6	100
8.9	Disease outbreak and monthly Epidemiological Reporting interaction program at Local Level.	Times	3	3	100
9.0	Purchase of Medicine for treatment and control of epidemic Disease	Times	2	2	100
9.1	Purchase of medicine for Investigation of epidemic disease	Times	2	2	100
9.2	Purchase of medicine for Surveillance of epidemic disease	Times	2	2	100

4. Laboratory Services

4.1 Parasitological examination

Parasitological unit examines fecal samples of various species using different methods as direct smear, sedimentation, and floatation methods. Parasitological unit not only identiF/Y the parasites but also quantiF/Y the parasitic burden of the nematode, trematode and cestode by Mc-Master method. In this fiscal year 2075/76, total 695 faecal samples were examined and 452 were found positive for various internal parasites. Among them Fasciola, Coccidia, Haemonchus, Strongylus, Paramphistomum, Trichuris, were found major internal parasites identified. Result of faecal examination is presented in table and figure below.

Table 2: Fecal examination result different animal conducted at VL, Surkhet (F/Y 2075/76)

Parasites	2075/76	Percentage
Fasciola	145	20.8
Paramphistomum	34	4.9
Ascaris	122	17.5
Trichuris	29	4.18
Strongylus	61	8.7
Monezia	3	0.43
Toxocara	3	0.43
Negative	298	42.8
Total	**695**	**100**

Figure 1. Parasitic species isolated from faecal examination.

4.2 Microbiological examination

Microbiological examinations include the isolation and identification of organisms from the pathological samples. Bacteriological culture and antibiotic sensitivity test is conducted for microbiological investigation. The samples were milk, urine, tissue, skin scrapings etc. The organisms shown in the culture were subjected to sensitivity test. Antibiotic sensitivity test conducted at VL Surkhet, during 2075/76 the test result is given below. Total 264 sample were processed for bacterial and fungal culture among them 190 samples had growth of bacteria and 5sample had growth of fungus.

SN	Sample Type	Number
1	Tissue	207
2	Milk	50
3	Water	10
4	Fish	3
Total		**270**

SN	Name of Bacteria Isolated Spp	No of Isolates
1	E. coli	86
2	Salmonella	4
3	Streptococcus	23
4	Staphylococcus	32
5	Pseudomonas	12
6	Proteus	19
7	Bacillus	9
8	Klebsiella	4
9	Shigella	0
10	Fungus	29
11	No Growth	52
	Total	**270**

4.3 California Mastitis Test Result

California mastitis test was used to diagnose clinical and sub clinical mastitis of animal in laboratory as well as in field level. Total 72 milk samples were tested. Among them 50 samples were positive and further for treatment microbial culture, isolation and Antibiotic Sensitivity test were performed.

CMT Test	Positive	Negative	Total
No of Sample	50	22	72

4.4 Antibiotic Sensitivity

Table: Antibiotic sensitivity test result of VL, Surkhet (F/Y 2075/76)

SN	Antibiotic Name	Sensitivity %	Intermediate %	Resistance %
1	Amikacin	55	27	18
1	Amoxycillin	12	65	23
2	Cephalexin	61	32	7

3	Ciprofloxacin	40	25	35
4	Cloramphenicol	41	46	13
5	Cloxacillin	23	43	34
6	Colistin	9	48	43
7	Enrofloxacin	13	54	33
8	Erythromicin	34	48	18
9	Gentamicin	40	39	21
10	Levofloxacin	34	38	28
11	Tetracycline	27	57	16

4.5 Antibiotic Residue:

A total of 116 samples milk and meat were processed for antibiotic residue

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4.6 Pathological examination:

The pathological examination includes mostly post mortem examination of poultry received from commercial poultry farms. Most of the cases were brought from Birendranagar Municipality and surrounding Rural Municipalities and Municipality like as Lekbesi, Simta, Bheriganga, Gurbakot, Barahatal and some Municipality and rural Municipality of Banke, Bardiya and Dang District for pathological examination. The status of poultry diseases according to post-mortem examination is shown in Table below.

Table: Poultry diseases identified in post-mortem

Postmortem	Shawan	Bhadra	Ashwin	Kartic	Mansir	Poush	Magh	Fagun	Chaitra	Baishak	Jestha	Ashar	Total

Colibacillosis	20	9	28	33	42	38	15	13	25	56	28	22	329
CRD	12	0	18	16	14	34	10	15	8	8	16	7	158
IBD	16	12	16	5	16	12	18	3	12	10	17	19	156
ND	2	4	3	1	1	7	10	4	12	10	17	8	79
Ascities	2	1	10	12	23	18	14	27	3	2	2	2	116
Gout	2	8	19	29	4	2	1	2	3	0	5	17	92
Mycotoxicity	13	22	27	18	36	20	5	9	10	5	6	8	179
Other	0	0	1	3	0	2	8	5	19	13	16	9	76
Total	**67**	**56**	**122**	**117**	**136**	**133**	**81**	**78**	**92**	**104**	**107**	**92**	**1185**

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4.7 Virological examination

A total of 144 samples of different domestic animal were collected from the different field of VL, Surkhet for virological analysis of different zoonotic and other disease through rapid test Kit. All 144 sample were tested. The results of the test are presented in the table below.

RAPID Test	Positive	Negative	Total
AI	6	52	58
IBD	7	22	29
ND	1	38	39
IB	0	3	3
Rabies	10	5	15
Total	24	120	144

4.8 Serological examination

A total of 1001serum samples of different domestic animal were collected from the different field of VL, Surkhet for serological analysis of different zoonotic and other disease. All 1001 sample were tested. The results of the test are presented in the table below.

Table 3: Result of plate agglutination test different Diseases (F/Y 2075/76)

S.N.	Conducted Test	Total Sample Tested	No of Positive Sample	Positive %
1	Rose Bengal Plate	229	-	-
2	Salmonella Plate	443	212	47.86
3	Mycoplasma Plate	443	146	32.96

4	PPR Penside Test	58	35	60.34
5	Total	1173	393	33.50

5. National PPR Program

Under the National PPR Control program, Department of Livestock Services had provided 10,35,000 doses of PPR vaccine for 14 districts of this region except Mugu & Dolpa. Vet Lab Surkhet supported the program by sero-monitoring. District-wise collection of serum sample and laboratory result is presented in the table below.

Table: PPR Sero-Monitoring test result of VL, Surkhet (F/Y 2075/76)

S.N	Name of District	Target of Sample	Collected Sample	Test Sample	Positive	Negative	Positive Percent	Remarks
1	Banke	350	357	184	170	14	92.4	
2	Bardiya	350	315	92	84	8	91.3	
3	Dailekh	325	184	92	84	8	91.3	
4	Dang	405	409	184	158	26	85.9	
5	Humla	130	130	92	91	1	98.9	
6	Jajarkot	195	202	92	79	13	85.9	
7	Jumla	170	177	92	64	28	69.6	
8	Kalikot	125	130	92	88	4	95.7	
9	Pyuthan	225	226	92	79	13	85.9	
11	Rolpa	230	198	92	77	15	83.7	
12	Rukum Paschim	125	137	92	90	2	97.8	
13	Rukum Purba	113	113	92	57	35	62.0	
13	Salyan	313	318	92	86	6	93.5	
14	Surkhet	425	428	184	168	16	91.3	
	Total	3481	3324	1564	1375	189	87.9	

6. Swine Fever Sero-monitoring Program

The total number of swine fever Vaccines distributed from Directorate of Animal Health was 45,000 doses under the national swine fever vaccine program for 3 districts for this region. VL, Surkhet supported the program by sero-monitoring. The table below shows district -wise collection of serum sample.

Table: Swine Fever Sero-Monitoring test result of VL, Surkhet (F/Y 2075/76)

S. N.	District	Sample Collected	Serum collection		
			Test Sample	Positive	Positive%
1	Banke	71	60	20	33.33
2	Bardiya	77	60	52	86.66
3	Dange	75	64	42	65.62
	Total	**223**	**184**	**114**	**61.95**

7. FMD Sero-monitoring Program

The total number of FMD Vaccines distributed from DLS was 1,10,000 doses under the national FMD vaccination program for 3 districts for this region. VL, Surkhet supported the program by sero-monitoring. The table below shows district -wise collection of serum sample.

Table: FMD Sero-Monitoring test result of VL, Surkhet (F/Y 2075/76)

SN	District	Sample Collected	Sero-monitoring Results		
			Total Sample tested	Positive	Positive %
1.	Bardiya	152	57	51	89.47
2.	Banke	125	92	64	69.56
3	Dang	127	127	97	76.37
	Total	**404**	**276**	**212**	**76.81**

9. List of designations.

Table : List of designations in Veterinary Laboratory, Surkhet

S. N.	Designation	Class	Number of Post	Fulfilled	Remarks
1	Senior Veterinary Officer	Gaz.2	1	1	
2	Veterinary Officer	Gaz.3	3	2	1 Vacant
3	Animal Health Technician	Non.Gaz.1	3	3	
4	Asst. Animal Health Technician	Non.Gaz.2	2	2	

5	Accountant	Non.Gaz.1	1	1	
6	Kharidar	Non.Gaz.2	1	1	
7	Driver	Class less	1	1	
8	Office Helper	Class less	2	2	
	Total		**14**	**14**	

10. Problems of Veterinary Laboratory, Surkhet

- Geographical difficulty for early detection and rapid response in remote villages.
- Limited budgets on logistics and program implementation in rural mountain areas.
- Lack of staffs (especially technical staffs) and laboratory equipment to provide the emergency services.
- Inadequate rooms to perform post-mortem of small and large animals as well as staffs units.
- Lack of Laboratory training and refreshment training for staffs.

Thank you

Veterinary Laboratory
Dhangadi

Introduction:

Veterinary Laboratory is situated in Dhangadhi Sub-Metropolitan City of Sudurpaschim Province of Nepal. This laboratory was established in F/Y 2049/50 as the reference laboratory of the Far western region with its service area covering the nine districts. Geographically the province is divided into three parts namely, Mountains, Hills and Terai. The mountainous districts of the province comprises of Bajura, Bhajhang, and Darchula, Likewise hilly districts are Baitadi, Dadeldhura, Acchamm, & Doti. Kailali and Kanchanpur are the Terai districts of the Sudurpaschim province. All districts have a high potentiality for the development of livestock industry viz Cattle, Buffalo, Sheep, Goat, pig, poultry, duck, etc.

Goat, pig and poultry farming in this province has a tendency towards commercialization, but poultry farming is rapidly gaining popularity among the farming communities.

Now a day's layer and broiler are raised at commercial scale in Kailali and Kanchanpur districts. Recently some farmers of Dadeldhura, Baitadi and Doti are showing interest in poultry farming, and they have started to keep poultry in number of few hundreds. A few economically important diseases of poultry in this province are New Castle, Infectious Bursal Disease, Coccidiosis, Chronic Respiratory Disease (CRD), Infectious Bronchitis, Collibacillosis, etc. However, the disease diagnosis is still not based fully on the laboratory findings. It is most of the times based on the history, statements put forward by the farmers, and the clinical findings of the animal on examination.

The main objective of Veterinary Laboratory, Dhangadi

- To conduct the Livestock and Poultry disease investigation work.
- To investigate animal disease epidemics in the province and assist Veterinary Hospital and Livestock Services Expert Centre (VHLSEC) and local level Livestock Services section to control animal and poultry diseases.
- Prepare Epidemiological profile of livestock and poultry in the province.
- Supervise & assist in diagnosis to basic and primary laboratories at VHLSEC.
- Support to conduct the Laboratory trainings for vet. Technicians.
- Coordinate and assist in national disease control and eradication programs.
- Monitor and report the diseases of public health importance in the province.

Laboratory Services

- Parasitological Examination
- Serology
- Haematology
- Pathology
- Microbiology
- Biochemical
- Investigation program
- Disease Surveillance & Control
- Vaccine Management

Staffing of Veterinary Laboratory Dhangadi

S.N.	Type of post	Class	Number	fulfilled	vacant	Remark
1	Senior vet officer	G.II	1	1	0	
2	Vet officer	G.III	3	3	0	
3	AH Techenician	NG.I	3	3	0	
4	AAH Tech	NGII	2	2	0	
5	Accountant	NGI	1	1	0	
6	Kharidar	NG2	1	1	0	
7	Driver		1	1	0	Contract
8	Office helper	No class	2	2	0	

Summary of Achievement in F/Y 2075/76 is presented in Table below1:

S.N.	Programs and Activities	Unit	Annual Progress		Percentage
			Target	Progress	
A.	Fixed cost activities				
1.	Warehouse completion	%	100	100	100%
2.	Furniture and fixer(Lab. and Office furniture)	Time	1	1	100%
3.	Lab. Machinery and Instruments	%	100	100	100%
4.	Renovation of toilets and bath rooms in Lab.	%	100	100	100%
5.	Motor garage construction and renovation	Time	1	1	100%
6.	Lab. Premises renovation	Time	1	1	100%
B.	**Laboratory Service programme-**				
1.	Identification of parasites and EPG Count	No.	100	126	100%
2.	Identification of blood protozoa	No.	100	114	100%
3.	Skin scraping Test	No.	30	36	100%
4.	Clinical hematological examination	No.	100	114	100%
5.	Biochemical examination	No.	100	126	100%
6.	Urine Test	No.	50	54	100%
7.	Postmortem examination	No.	500	1133	100%
8.	Microbiological culture & DST	No.	100	133	100%
9.	Fungus culture& Identification	No.	30	110	100%
10.	Viral diseases examination of Birds(ND/IBD/AI) examination	No.	100	554	100%
11.	Salmonellosis examination (PAT)	No.	500	850	100%

12.	Pullorum examination(PAT)	No.			
13.	Sample collection test & Dispatch	No.	300	600	100%
14.	Sub clinical mastitis investigation in cow & Buffalo	No.	2	2	100%
C.	**Investigation, Study and Treatment program**				
1.	Provincial level Investigation of Emergency Diseases Team management	Time	1	1	100%
2.	Investigation of Kumri in Goat	Time	2	2	100%
3.	Prevention Khari disease	Time	2	2	100%
4.	Babesiosis disease study and treatment	Time	2	2	100%
D.	**Zoonotic disease investigation programs**				
1.	Avian Influenja Rapid Test	No.	150	298	100%
2.	Brucella test	No.	50	71	100%
3.	Rabies test	No.	10	6	60%
E.	**Workshop/Gosti**				
1.	Orientation on biosecurity to commercial farmers	Time	2	2	100%
2.	Workshop on disease outbreak and epidemiological reporting with local level technicians	Time	6	6	100%
3.	Interaction on sample collection, storage and dispatch with field Technicians	Time	2	2	100%
F.	**Disease prevention and control program**				
1.	Vaccine Bank Management PPR, FMD & Rabies	Time	3	3	100%
2.	Sero-monitoring- Sample collection and Dispatch(PPR, FMD, CSF, ND)	District No.	9	9	100%
3.	Poultry disease control	Time	3	3	100%
4.	Cattle and Buffalo disease control	Time	3	3	100%
5.	PPR disease control	Time	2	2	100%
6.	FMD surveillance	Time	3	3	100%
7.	Animal health campaign & sample collection	Time	3	3	100%
	Publication and others Programme:				
1.	Haf Yearly Epidemiological bulletin publication	Time	2	2	100%
2.	Yearly Epidemiological Bulletin publication	Time	1	0	0

3.	Annual Technical Book material Preparation	Time	1	1	100%
4.	Half yearly Lab. Investigation Report	Time	2	2	100%
5.	Anti Rabies vaccine for staff	No.	14	13	93%
6.	Health checkup for stff	No.	14	13	93%
7.	Participation in budget, program,& workshop	Time	3	3	100%
8.	Observation and technical practices in CVL & other laboratory	Time	3	3	100%
	Total progress				99%

Financial Status (F/Y 2075/76)

Particular	Annual Budget(Rs.)	Annual Expenses	Expense %
Fixed cost Budget	18000000	17078251	96%
Variable Cost Budget	12400000	11471805	94%
Total Budget	**30400000**	**28550056**	**95%**

Revenue: Rs. 84000

Dharauti: Rs. 321763

Beruju: Rs. -

Laboratory Services

1. Parasitological Examination:

Altogether 276 (Faecal sample 126, blood protozoa 114 & skin scraping 36) samples were tested for different parasitic conditions of livestock populations. Samples for examination mainly consisted of the regular fecal samples submitted to the livestock service section, Dhangadhi Submetropolitan, Kailali. Apart from this samples were also collected from field during epidemic disease investigation and the investigation programme in our set annual programme. The most common helminthes identified during

faecal examination was Fasciola followed by other nematodes, viz. Trichostrongylus, Strongylus, Trichuris, Coccidiosis etc. It is found that most of the fecal samples examined at the VL were positive for one more parasites. Out of 126 samples tested, 85 (67%) samples were positive. In case of blood protozoa, out of 114 sample tested, 8 (7%) samples were positive and 1n case of external parasites, out of 36 skin scraping samples tested, 27 (75%) samples were positive.

2.Serology:

During the fiscal year 2075/76 Most of the serum samples collected were from Goats and Cattle for various diagnostic tests PPR (Pen side Test), Brucellosis (Rose Bengal Plate Agglutination Test-RBPAT), Rabies rapid antigen test, salmonella and Mycoplasma (Plate Agglutination Test-PAT) and rapid test of other for poultry disease was conducted in the laboratory. Some of the samples were forwarded to CVL Tripureshwar Kathmandu.

Serum samples collected from bovine, caprine & poultry population were mainly obtained from Baitadi, Kailali, Kanchanpur, Doti, Dadeldhura, Darchula, Bajhang, Bajura and Achham. Performing the regular screening test of Brucellosis using Rose Bengal Plate Agglutination Test & salmonella and Mycoplasma by PAT. Test detail is given below

Result of Serological examination performed at the VL, Dhangadhi

S.N.	Disease Name	Target	Sample Tested	Result	Remarks
1.	Salmonella PAT	300	307	233 +ve	
2.	Mycoplasma PAT	300	304	108 +ve	
3.	Brucella RBPAT	50	71	All -ve	
4.	PPR Penside Test	1 time	1(6)	6+ve	
5	Rabies rapid test	10	6	3 +ve	
6	AIV rapid test	150	298	18 H9+ve	
7	NDV rapid test	100	554	46 +ve	
8	IBDV rapid test			192 +ve	

3. Haematology:

A total of 114 samples were examined for Hematology at the VL, Dhangadhi included TLC, DLC, PCV, Hb examination. Blood samples were mainly collected from livestocks during outbreak of epidemic, cases referred by the VHLSEC and local level Livestock Services Section.

On our examination of hematological parameters of parasitic infestation animals invariably showed low Hb concentration.

4. Pathology:

This section of the laboratory mostly receives poultry& pig carcass for necropsy examination and disease diagnosis. However, dead bodies of other animal species are also received occasionally, especially during disease outbreak. Most of the pathological samples comprised of poultry, it is important to present the major diseases diagnosed, based on findings of postmortem lesions. The common diseases that were diagnosed through postmortem were coccidia, IBD, IB, ND, Ecoli, CRD, Pulorum, Aflatoxicosis, ascites & gout.

Table :Post mortem report (poultry) .

S.N.	Disease	Numbers	percentage
1	IBD	306	27%
2	IB	11	1%
3	Pulorum	22	2%
4	Asitis	114	10%

5	CRD	249	22%
6	ND	57	5%
7	Coccidiosis	22	2%
8	E-coli	284	25%
9	Aflatoxicosis	68	6%
	Total	**1133**	

5. Microbiology:

The samples received to microbiological examination at the Veterinary Laboratory, Dhangadhi constitutes of milk, nasal swab, vaginal swab, and swab from visceral organs like liver, lungs, intestine etc. of various animal species. The media used for microbiological culture were Nutrient agar, McConkey agar, Blood agar, and Saboroud Dextrose agar. Bacteria and fungi were identified on the basis of colony characteristics, Gram's staining property and the structure of the organism as seen under the microscope. Due to limitation of the facility in the laboratory biochemical tests for identification of bacteria could not be performed. The Result of microbiological test is presented in the table as below:

Table: Result of microbiological examination.

Animal	Type of sample	Sample Number	Result	Major bacteria identified	Remarks
Cow & Buffalo	Milk	114	28 +ve	Streptococcus, Staphylococcus, E.coli	
Goat	Liver, spleen, kidney	16	2 +ve	Pasteurella	
Poultry	Liver, Intestinal swab	22	3 +ve	Salmonella, Pasteurella	

The milk samples positive for California mastitis were tested for antibiotic sensitivity test following preliminary culture in order to choose right antibiotic for the treatment of mastitis. The result of antibiotic showed that Ciprofloxacin and Gentamicin was more effective in most of the cases.

6. Biochemical:

Altogether 126 samples were collected & analyzed in this fiscal year for calcium, phosphorus, Total protein, creatinine & glucose

Sample type	Number	Test type	Remarks
Serum	126	biochemical for Ca, P, Protein, urine etc	

Biochemical examination of serum was performed in serum sample of Buffaloes suffering from Khari disease & healthy Goats, mainly for estimation of serum calcium & phosphorus level. The Calcium content of the serum was recorded from a low in most of the cases.

7. Investigation program (Seteria Spp) Kumri in Goats

A part from above activities this laboratory has performed a Kumri in Goat investigation program in Kailali & Kanchanpur district. The main objective of study was to see the prevalence of Kumri in Goat, especially in Hilly area & Terai area of Kailali & Kanchanpur district. Active surveillance was done through questionnaire as well as samples like serum feaces were taken from infected Goats.

This investigation program was conducted in sites of Kailali district, namely, Chure Rural Municipality ward No. 4 Bhasugaun. In this study a total of 31 house hold were interviewed and sampled, there were 987 Goats in that area .Summary of investigation and finding are given below

Method of Investigation

Active Surveillance through questionnaire & Clinical examination.

Finding

1. Goats effected by Kumari (Setaria spp.) were 14
2. Affected month Ashadh to Mangshir
3. prevalence 1.4%

8. Sub clinical mastitis Investigation program

This program was conducted to see the prevalence of sub clinical mastitis in milking cows & Buffaloes of Kailali & Kanchanpur districts. So fresh milk samples were taken from farmers directly and tested by Sodium Lauryal Sulphate Test (SLST) reagent immediately.

Investigation Site

Kailali & Kanchanpur

Objective - To see the prevalence of sub clinical Mastitis in cow of Kailali &

Kanchanpur.

Method – Active surveillance & questionnaire

- Milk sample were directly taken from farmers.
- Test Methodology : Through SLST Reagent

Summary of Sub clinical mastitis Investigation program: Kailali

Site	Farmer number	Cow Milk sample	Buffalo Milk sample	Total
Kailali Kanchanpur	77	101	13	114
Total	77	101	13	114

Findings –

- Total number of sub clinical positive in cow & Buffalo : 28
- The low prevalence of sub clinical mastitis in local breeds.

Disease Outbreak Status

FMD Outbreak (F/Y 2075/76)

District	No. of Outbreaks	Animal type	No. of Affective animals	No. of Death	No. of animals at risk
Darchula	3	C,B,G,P	3376		14421
Baitadi	3	C,B,G,P	1864		8275
Dadeldhura	3	C,B,G,P	480		4680
Kanchanpur	4	C,B,G,P	5476	10	29923
Bajhang	5	C,B,G,P	5010		24780
Bajura	2	C,B,G,P	547		8045
Doti	2	C,B,G,P	973		11765
Achham	3	C,B,G,P	4054	82	16923
Kailali	11	C,B,G,P	4111		41765
Total outbreak	**36**				

PPR Outbreak (F/Y 2075/76)

District	No. of Outbreaks	Location	Animal type	No. of Affective animals	No. of Death	No. of animals at risk
Baitadi	1	Shivling	Sheep & Goat	453	38	4800
Bajhang	2	Bungal & Saipal	Sheep & Goat	1059	259	19000
Total outbreak	**3**					

Other Outbreak

District	No. of Outbreaks	Location	Animal type	No. of Affective animals	No. of Death	No. of animals at risk	Suspected disease
Baitadi	1	Dasharathchand	Goat	23	14	70	Plant poisoning
Baitadi	1	Surnaya 8	C, B, G		10		Fern poison & GI parasites
Dadeldhura	1	Aalital 2 & 3	C, B, G	13	4	175	Liver Fluke
Total outbreaks	**3**						

Vaccine Distribution

District	PPR Vaccine	FMD Vaccine	ARV Vaccine	Remarks	
Darchula	5500	1000	0		
Baitadi	75000	1000	0		
Dadeldhura	85000	40000	100		
Kanchanpur	98000	60000	1340		
Bajhang	77000	6600	150		
Bajura	58000	0	150		
Doti	100000	2000	100		
Achham	75000	2000	0		
Kailali	120000	101000	370		
Total	**707000**	**213600**	**2210**		

Major Diseases

- Animal diseases: FMD, PPR, Mastitis, Khari, BQ, HS, Lumber paralysis (Setaria), Rabies, Infertility etc.
- External Parasites: Ticks, lice, mange (Mite)
- Internal Parasites: Gastro-intestinal parasites in Goats and Fasciolosis, Paramphistomiasis in Cattle and Buffalo etc,
- Poultry diseases: IBD, Avian Influenza sub type H9, Ranikhet, IB, CRD, salmonellosis, colibacilosis, Coccidiosis, etc.

Challenges:

- BSL2 lab. running
- Disease Diagnosis
- Zoonotic and economic importance disease outbreak and epidemiological reporting.